I. Meeting Packet

State of Florida
Public Service Commission
INTERNAL AFFAIRS AGENDA
Friday, April 20, 2018
Following Commission Agenda
Room 105 - Gerald L. Gunter Building

1. Updated Report on Electric Vehicle Charging
   (Attachment 1)
2. Legislative Update
3. General Counsel's Report
4. Executive Director's Report
5. Other Matters

OUTSIDE PERSONS WISHING TO ADDRESS THE COMMISSION ON ANY OF THE AGENDAED ITEMS SHOULD CONTACT THE OFFICE OF THE EXECUTIVE DIRECTOR AT (850) 413-6463.

Attachment 1

II. Outside Persons Who Wish to Address the Commission at Internal Affairs

Note: The records reflect that no outside persons addressed the Commission at this Internal Affairs meeting.

III. Supplemental Materials for Internal Affairs

Note: The records reflect that there were no supplemental materials provided to the Commission during this Internal Affairs meeting.

State of Florida

Public Service Commission

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TALLAHASSEE, FLORIDA 32399-0850

-M-E-M-O-R-A-N-D-U-M-

DATE: April 11, 2018

TO: Braulio L. Baez, Executive Director

FROM: Shelby Whitfield, Public Utility Analyst I, Office of Industry Development & Market Analysis SW
Benjamin Crawford, Public Utilities Supervisor, Office of Industry Development & Market Analysis BC
Cayce H. Hinton, Director, Office of Industry Development and Market Analysis CH

RE: Update on Electric Vehicle Charging Impacts
CRITICAL INFORMATION: Please place on the April 20, 2018 Internal Affairs.
APPROVAL OF COMMISSION IS SOUGHT.

The Commission was required to file a report on electric vehicle charging in 2012, pursuant to Section 366.94(4), F.S. The attached report is an update of the prior report with an emphasis on the impact on the electric grid in Florida.

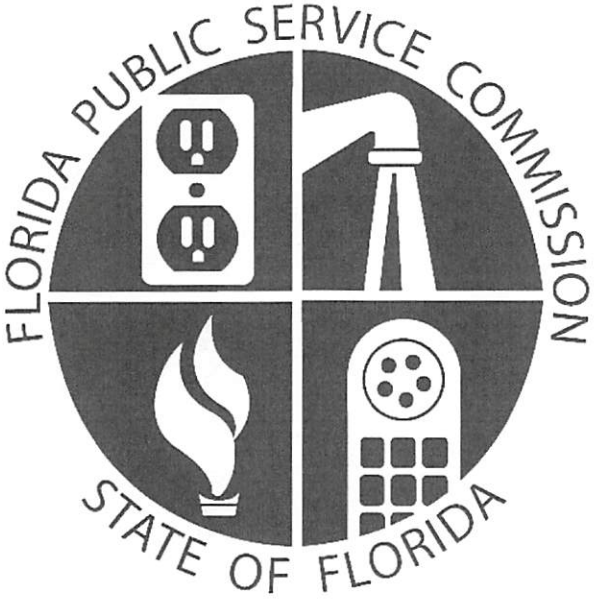
The attached report is an update to the 2012 Report on Electric Vehicle Charging. Included in the report is information on energy consumption and electric grid effects in relation to electric vehicle charging.

Attachment

cc: Mark Futrell

DRAFT

Electric Vehicle Charging Update



Florida Public Service Commission
Office of Industry Development and Market Analysis
April 11, 2018

Table of Contents

List of Figures

Section 1. Executive Summary

On July 1, 2012, Chapter 2012-117 Laws Of Florida became effective creating Subsection 366.94(4), Florida Statutes. This subsection required the Florida Public Service Commission (Commission) to study the effect of electric vehicle (EV) charging on both energy consumption and the electric grid in Florida, as well as the feasibility of using off-grid solar photovoltaics (PV) for EV charging. In December of 2012, the Commission published the Report On Electric Vehicle Charging (2012 Report).[1]

The Commission reported the following general findings and conclusions in the 2012 Report concerning electric vehicles, effects on energy consumption and the electric grid, and the feasibility of solar PV for off-grid charging:

- All-electric and plug-in hybrid electric vehicles (PHEVs) are considered a niche product that are, and will continue to be, a small percentage of total vehicles sold each year
- EV charging is expected to have a negligible effect on electricity consumption in Florida within the ten-year planning horizon
- EVs are not currently expected to cause a significant increase in electric demand or contribute significantly to a need for new generation
- Individual vehicle charging is not expected to affect distribution systems; however, clusters of vehicles charging simultaneously may potentially require older transformers to be upgraded or replaced
- "Quick-charge" stations may pose potential challenges for distribution systems
- The use of off-grid solar photovoltaics for EV charging is technically feasible, but may only be practical in unique circumstances due to economic considerations

Keeping with the Commission's objective to monitor electric vehicle charging and its potential impacts on utility infrastructure and planning, the Commission convened the Electric Vehicle Charging Roundtable on October 17, 2017. This event provided interested stakeholders the opportunity to present information and discuss issues concerning the impacts of electric vehicle charging on electric energy consumption and the state's electric grid.[2] Up-to-date information and estimated future impacts were presented by Florida's utilities, electric charger manufacturers, vehicle manufacturers, and trade representatives. This report provides an update to the 2012 Report based on information presented at the Electric Vehicle Charging Roundtable as well as other data and current forecasts from federal agencies and other involved industry groups. Additionally, this report addresses and supports the conclusions in the 2012 Report.

As presented in this update to the 2012 Report, the market for all-electric vehicles and plug-in hybrid vehicles is expanding with more car manufacturers offering more models for purchase. However, the EV market is still considered a niche market representing a small percentage of total vehicles sold each year. Therefore, EV charging is not expected to have a material impact

[1] http://www.floridapsc.com/Files/PDF/Publications/Reports/Electricgas/Electric_Vehicle_Charging_Report.pdf#search=electric%20vehicle.

[2] See Appendix B. for a summary of the 2017 Roundtable presentations and comments.

on the demand for electricity or contribute significantly to a need for new generation through Florida's current electric utility planning cycle (2018-2028). The 2012 Report noted a concern that clustering of chargers in an area served by smaller transformers may result in the need to upgrade these transformers. To date, there have been no reported power outages caused by the operation of an EV charging station in Florida. Finally, the use of off-grid solar photovoltaics for EV charging remains technically feasible, but due to economic considerations, this type of charging will likely be considered for deployment in a limited number of unique circumstances.

Section 2. Introduction

After publishing the 2012 Report, the Commission continued to monitor electric vehicle charging and its potential impacts on utility planning. The term EV refers to all-electric vehicles, including plug-in hybrid electric vehicles (PHEVs). Non-plug-in hybrid electric vehicles (HEVs), which make-up the largest portion of the electric vehicle market, were not included in the 2012 Report or this update because these vehicles use electricity generated by an on-board gasoline engine and therefore will not impact the statewide electrical grid.

As part of its monitoring activities, the Commission annually collects utility information addressing EVs and EV charging impacts on the electric grid as part of the electric utility ten-year site plan review. Additionally, on October 17, 2017, the Commission convened the Electric Vehicle Charging Roundtable (2017 Roundtable) to once again gather information from stakeholders and examine the impacts of electric vehicle charging on electric consumption and the state's electric grid. Topics discussed during the 2017 Roundtable included:

- EV sales and charging forecasts through 2025
- Market developments and consumer preferences
- Planning for the future market and infrastructure needs
- Impacts on grid reliability and utility planning
- Future regulatory considerations

Presentations were provided at the 2017 Roundtable by the Edison Electric Institute, Drive Electric Florida, General Motors, Tesla, ChargePoint, EVgo, Florida Power & Light Company, Duke Energy Florida, Tampa Electric Company, Gulf Power Company, Florida Public Utilities Company, Orlando Utilities Commission, the City of Tallahassee, and the Florida Electric Cooperatives Association.

At the conclusion of this roundtable event, the Commission solicited additional comments from stakeholders. Five parties provided post-roundtable comments, including: ChargePoint, Florida Tesla Enthusiasts Group, Siemens AEE, Greenlots, and a private EV owner. In general, these comments addressed policies the Commission should adopt to support utility programs or activities that encourage growth in EV ownership, direct utility investment, ownership of EV chargers, and rate programs that would reduce the operating costs of EV charging and may provide other benefits for utility ratepayers.

Data requests were issued to many of Florida's electric utilities in December 2017 to gather more specific information regarding EVs and EV charging in their service territories. This report includes currently available data and a number of forecasts for EVs and EV chargers, including information presented at the 2017 Roundtable. The primary purpose of this report is to update and determine whether the conclusions identified in the 2012 Report are still relevant with developments in the EV market during the last five years.

Section 3. Background Data for Electric Vehicles

In 2012 the Commission staff held a workshop allowing stakeholders to present information and discuss issues relevant to EVs and the effects EV charging may have on Florida's electric power grid. As presented during the 2012 workshop, approximately 10 major automobile manufactures were offering a limited number of EV models to consumers during the 2012 model year. The Electric Power Research Institute (EPRI), one of the participants of the workshop, provided a three level forecast (low, medium, high) of estimated EV sales in Florida for the years 2012 through 2021. For 2012, EPRI estimated a range of sales from a low of about 1,040 vehicles to a high of 5,580 vehicles. Florida Power and Light Company (FPL) also provided a statewide forecast which estimated that about 6,222 EVs were located in Florida during 2012.

Staff reviewed data from the Florida Department of Highway Safety and Motor Vehicles while preparing the 2012 Report. In October of 2012, the Department reported that 28,403 vehicles were registered in Florida using the fuel type "electric". However, as noted in the 2012 Report, fuel type information is based on voluntary reporting by the vehicle owner and the category "electric" does not distinguish between EVs, PHEVs, or HEVs.

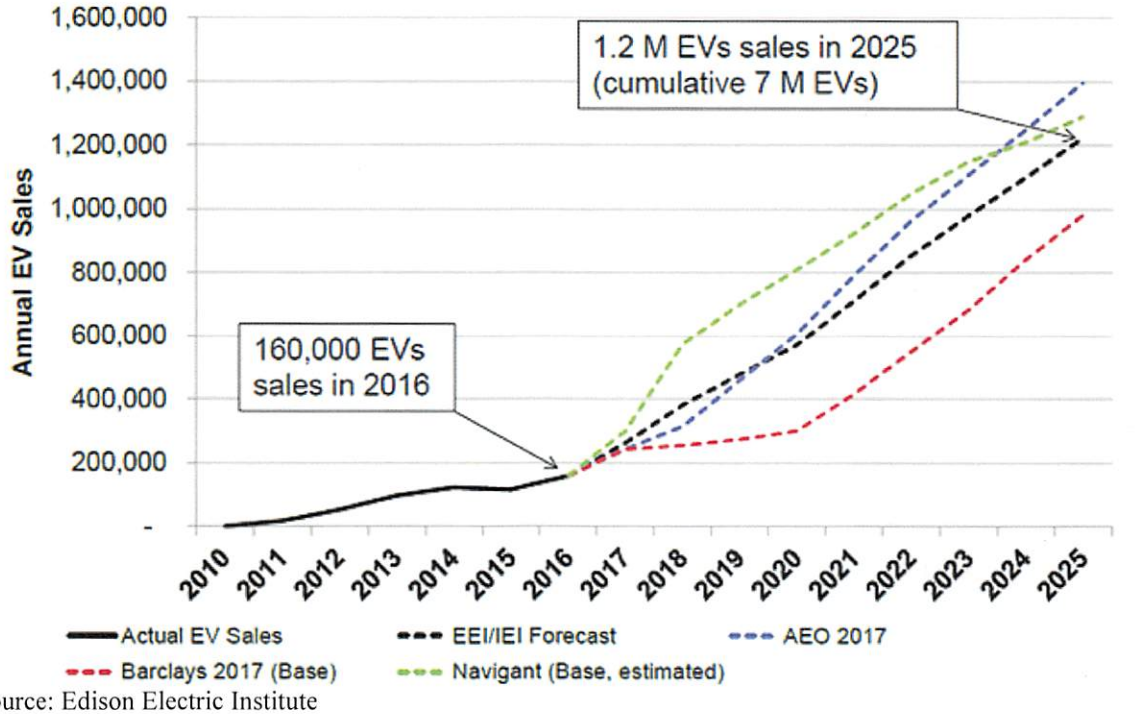
Differing projections for the development of the EV market were was also presented during the 2012 workshop. For example, FPL estimated that Florida would have about 73,000 EVs by 2017, while EPRI estimated a range between 36,140 to 142,950. The 2012 Report noted that EVs should be considered a niche product and presumed that EVs would likely be a small percentage of total vehicles sales each year.

This report addresses and considers information presented during the 2017 Roundtable and information from state and national sources. In early 2018, InsideEVs, a trade group for electric vehicles, reported that over 20 auto manufactures were offering 38 models of plug-in electric vehicles for sale in the United States and that over 690,000 electric vehicles have been sold in the United States since 2010.[3] InsideEVs also stated that 2017 sales in the United States of plug-in electric vehicles increased 32 percent over sales in 2016. The Florida Department of Highway Safety and Motor Vehicles showed in its October 2017 report that there were 23,452 electric vehicles registered in Florida.[4]

The Edison Electric Institute presented the following graph during the 2017 Roundtable showing forecasts by various groups of future EV sales in the U.S.

[3] InsideEVs.com, Plug-In Electric Vehicle Sales Report Card
[4] FDHSMV.gov, Vehicle and Vessel Report and Statistics

Figure 3-1
EV Forecast



Source: Edison Electric Institute

The Edison Electric Institute reported estimated national sales of EVs in 2016 of 160,000. This sales level is used as the starting point for all of the various forecast scenarios shown on the graph above. Edison Electric also presented what they called a "reality check" of their estimated 2025 EV sales forecast. They believe that based on just the stated sales goals of 5 of the 20+ EV manufactures, Edison's forecast of 1.2 million EV sales in 2025 is obtainable and reasonable.

The U.S. Annual Energy Outlook Report presents sales and forecast information from automobile manufactures by different categories of vehicles. For EVs these categories include: 100 mile electric vehicle, 200 mile electric vehicle, plug-in 10 gasoline hybrid, and plug-in 40 gasoline hybrid. In its 2017 report, national sales for these types of vehicles during 2016 were reported as 163,785 units or approximate 2 percent of all new vehicle sales for the year. The report also presents sales for just the southeastern U.S. Reported southeastern EV sales for 2016 were 35,200 units or approximate 3 percent of new vehicle sales within the southeast. This trend of EV sales, being between 3 or 4 percent of all new vehicles, is projected to continue at least through 2028. The Energy Information Agency predicted that EVs will continue to make-up about 1 percent of all vehicle sales in the southeast during this same time period.

Based on a review of all of the above estimates, there appears to be general agreement that there has, and will continue to be, increases in the total number of EV's in Florida. All of the forecasts put the total number of EVs as compared to all other vehicles at around 1 percent. The finding in the 2012 Report that EVs are a niche product still remains the case for 2017.

The 2012 Report also expressed uncertainty in obtaining accurate estimates of EV charging stations. This same concern remains and is similar to the uncertainty in estimating EVs in Florida. As shown in the 2012 Report, Florida's utilities estimated that a combined total of 1,459 Level 1 and 2 chargers were located within the state. No Level 3 chargers were reported to be in operation. At the 2017 Roundtable, Florida utilities made a similar estimate that predicted a combined total of 2,214 Level 1 and 2 chargers would be located in Florida by year end. These utilities also estimated that 52 Level 3 chargers would be in operation during 2017. The utilities did not identify how many of these Level 3 chargers would have public or private access. In January 2018, Tesla announced completion of its 28th "supercharger"(Level 3) station in Florida, all of which have public access[5]. PlugShare, an electric vehicle charging station location service, reported in February 2018, that a total of 343 public access charging stations are located in Florida. In contrast, the U.S. Department of Energy's Alternative Fueling Station Locator web site shows that 949 Florida stations were open to the public as of February 2018.

As noted in the 2012 Report, there continues to be no single group responsible for tracking the total number of electric vehicle chargers in Florida. Regardless, information that is available suggests that the number of public access charging stations is increasing consistent with the general trend in EV ownership.

In October 2016, the U.S. government granted final approval of a $14.7 billion settlement against Volkswagen for equipping more than 500,000 of its diesel vehicles to cheat U.S. vehicle emissions tests in violation of the Clean Air Act. Volkswagen will spend $10 billion on vehicle buybacks and $4.7 billion to mitigate the pollution from these cars and invest in green vehicle technology. The $4.7 billion settlement payments will be split into two distinct funds. Volkswagen will place $2.7 billion into an Environmental Mitigation Trust to fund projects that reduce nitrogen oxide emissions. The remaining $2 billion will go toward zero emissions vehicle investments to improve infrastructure access, and education to advance zero emission vehicles.

One such program is the funding of publicly accessible infrastructure to support zero emission vehicles. For Florida, the potential amount that could be allocated to the "Light Duty Zero Emission Vehicle Supply Equipment" program is approximately $22.8 million.[6]. This program can provide funding for the construction of new publicly available EV charging stations. Given this additional funding source, the number of publicly available EV charging stations should grow at a rate higher than expected without this program.

Consistent with the general findings in the 2012 Report, EVs are considered a niche product and will continue to make up a small percentage of total vehicles sold during the current Florida Electric Utilities' ten year site plan cycle (2018-2028). Determining the precise number and type of EV chargers in Florida continues to be difficult. Nevertheless, the information that is available would suggest that the number of public access charging stations is increasing consistent with the general trend in EV ownership.

[5] Tesla.com, Press Information, Charging
[6] Florida Department of Environmental Protection, Volkswagen Clean Air Act Civil Settlement

Section 4. Effects on Energy Consumption

The 2012 Report noted that growth in EVs was expected to lead to an increase in the total consumption of electricity and a decrease in the total consumption of petroleum-based fuels. Displacement of petroleum-based fuels will be based on the actual number of the different types of EVs and their overall market penetration. It was also noted that EVs may increase the consumption of electricity at times of high demand on the grid. This section of the report examines EV charging and changes in energy consumption patterns.

Growth in electrical energy consumption in Florida, due to EVs, has been modest to date and is expected to remain so throughout the current ten year utility planning cycle. Average electricity consumption per EV is estimated to be approximately 2,708 kilowatt hours (kWh) per year, or approximately 7.4 kWh per day. In 2017, a typical Florida residential customer consumed 13,031 kWh of electricity a year. If a typical Florida residential customer added an EV to their household, annual yearly consumption of electricity would increase to about 15,739 kWh.

As previously noted in the 2012 Report, the increase in total electricity consumption will not necessarily result in higher rates for ratepayers. However, EV owners will likely see an increase in their electric bills due to increased consumption of electricity from charging. If EV charging is primarily done off-peak, it could result in more efficient use of existing generation assets by the utilities. However, if large quantities of EVs are charged at peak demand in the same geographic region, it is theoretically possible that a need for new generation could occur.

The application of time-of-use rates can help utilities manage potential increases in utility peak demand due to EV charging. A time-of-use rate is a rate structure under which a customer pays a reduced rate for consuming electricity at off-peak times, while paying a higher rate at peak times. The ability of a utility to offer time-of-use rates has not changed since 2012 and as such remains a useful strategy for mitigating potential increases in peak demand due to EV charging.

Given the current size of the EV market in Florida, and the level of Florida utility reserves, growth in EV charging is not expected to cause a need for new generation. Likewise, it is not envisioned that any increase in base rates due to EV charging during times of peak demand in Florida will occur during the course of the utilities' current ten year planning cycle. If EV sales and market penetration vastly exceed current expectations, it is possible that the additional charging load could affect utility distribution systems and service reliability.

As presented in the 2012 Report, EV charging will affect energy consumption in Florida by increasing electricity consumption and lowering petroleum-based fuel consumption. The magnitude of these effects is highly dependent on the overall market penetration of EVs. While EVs may add an increasing amount of demand to the grid in Florida, the increase will be minimal. The current level of reserve margins of Florida's utilities will help prevent or delay any need for new generation due to EV charging. Additionally, time-of-use rates are a useful strategy to mitigate potential increases in peak demand that may be associated with EV charging.

Section 5. Impact on the Electric Grid

Since 2012, Florida's electric utilities have incorporated potential EV charging impacts into their respective ten year planning process.[7] They have concluded that there will not be any significant impact on the electric grid through 2030. However, the utilities also indicated that there may be instances where it would be necessary to retrofit facilities in order to address the addition of EV charging abilities, if currently served by a small transformer. EV charging is more likely to have an effect on the distribution network than on the generation or transmission systems.

The aspect of EV charging most likely to have an effect on the distribution system is the clustering of EV chargers. Multiple EV chargers operating simultaneously can collectively draw a fairly high electric load. While this effect is unlikely to result from a single Level 1 or Level 2 charger, multiple EV chargers operating simultaneously on a single transformer may exceed the design limitations of certain residential transformers. Therefore, some residential transformers may need to be upgraded or replaced in order to handle higher demand.

In 2012 there were no Level 3 chargers in Florida. Level 3 chargers, or "quick-charge" stations, can draw relatively high loads of 50 kW or more. At the time there was concern that public quick-charge stations may have an effect on the distribution system due to the higher load requirements. Since 2012, 52 Level 3 chargers have been installed in Florida. Unlike a Level 1 or Level 2 charger, a Level 3 charger typically requires the installation of additional distribution equipment, similar to what a utility would need to do when connecting a business with comparable load requirements. To date, there has been no report of a power outage caused by the operation of an EV charging station in Florida. The lack of outages to date suggests utility actions may be adequately addressing the effect of EV charging on the distribution system.

EV charging is more likely to require utility investment in upgrades to the distribution system than to trigger any need for additional generation. Any need for distribution upgrades would be localized and isolated. The aspect of EV charging most likely to require action by electric utilities will be clustering of electric chargers in a localized residential area. To date, there have been no reported power outages caused by the operation of an EV charging station in Florida.

[7] http://www.floridapsc.com/ElectricNaturalGas/ElectricVehicles2017

Section 6. Feasibility of Solar PV for Off-Grid Charging

The 2012 Report stated that off-grid solar photovoltaic EV charging could be technically feasible in the future but was economically impractical at the time. For an EV charging station to use solar photovoltaics as the main source of power for charging operations, it would require a significant footprint of land to support the solar panels. An energy storage device would also be needed to charge vehicles during nighttime hours or on cloudy days. This equipment and land requirements would be needed for almost all types of charging, but especially for Level 2 or higher charging. Given this, it would be cost prohibitive to use off-grid solar photovoltaic technology to fuel EV charging stations as compared to interconnecting with an existing electric grid.

While the cost of solar panels has significantly decreased since 2012, the cost of energy storage and the amount of land needed to support these solar panels has not materially changed since 2012. Therefore, it remains economically impractical to use off-grid solar photovoltaic for dedicated EV charging.

Section 7. Conclusion

The review of currently available information suggests that the market for EVs and EV charging stations has expanded since 2012. However, even with this growth, the overall demand for EVs and EV public charging stations remains relatively limited. Actual growth in the EV and EV public charging markets in Florida is well below what was expected from the forecasts that were presented during the 2012 Workshop. Nationally, the long-term growth in EV sales is forecasted to be 3 to 4 percent of all vehicle sales. This forecasted growth in the U.S. will continue to keep the total number of EVs at about 1 percent of the total market for all vehicles.

Based on current information regarding the EV and EV charging markets, it is not expected that the current trend of expansion in these markets will affect the nature of the conclusions that were offered in the 2012 Report. Developments in the EV and EV charging markets in Florida are also not expected to have a material effect on overall electricity consumption or contribute significantly to the growth in demand during the ten year electric utility planning cycle. Finally, while off-grid solar photovoltaic EV charging remains technically feasible, it is generally economically impractical, except for a very limited number of situations were interconnecting to an existing electric grid is impossible.

Appendix A. State Policies Related to Electric Vehicles

Since 2012, many states have taken actions related to electric vehicles. As of September 2017, forty-five states and the District of Columbia (DC) offer various types of incentives to EV owners.[8] Alaska, North Dakota, South Dakota, and Kansas do not have any laws or policies in place that would specifically impact the buying of an electric vehicle or the building of electric vehicle supply equipment (EVSE).

- Licensing or Road Use: Four states have decreased licensing, registration or road use fees for hybrid or electric vehicles. However, 18 states have additional licensing, registration, or road use fees for hybrid or electric vehicles.
- Financial Incentives: Twenty-two states and DC provide a wide array of financial incentives to lower the cost of purchasing a hybrid or electric vehicle. For example, Kentucky provides rebates for purchasing EVs while Texas provides vouchers for the purchase of EVs.
- Electric Utility Incentives: Thirteen states have utility companies that provide incentives for EV buyers in the form of reduced utility rates or rebates for charging hybrid or electric vehicles.
- EV Supply Equipment: Twenty-five states and DC provide incentives, grants, financing, rebates, or loans to reduce the cost of constructing EVSE, like electric vehicle charging stations.
- Fleet Requirements: Twenty-eight states and DC have hybrid or electric vehicle fleet requirements, acquisition goals, or a stated preference for the state's government to purchase hybrid or electric vehicles. These policies can impact government fleets or private fleets and can require the fleets to have a specified percentage or number of hybrid or electric vehicles in each fleet.
- HOV Access or Free: Thirteen states offer free access to toll roads and parking spaces. Some of these states also waive, for hybrid or electric vehicles, the requirement that multiple people must be riding in a vehicle in order to use High-Occupancy Vehicle lanes.
- Emissions Testing: Fourteen states exempt hybrid or electric vehicles from emissions testing.

It should be noted that some of the incentives identified above also encourage workplace and residential EVSE installation. For instance, the Massachusetts Electric Vehicle Incentive Program (MassEVIP) provides grants for 50 percent of the cost of Level 1 or Level 2 workplace EVSE, up to $25,000, for employers with 15 or more employees in a non-residential place of business.

[8] http://www.ncsl.org/research/energy/state-electric-vehicle-incentives-state-chart.aspx

Appendix B. Summary of 2017 Roundtable Presentations and Comments

2017 Roundtable Non-Utility Presentations

Edison Electric Institute

Kellen Schefter spoke on behalf of the Edison Electric Institute (EEI). Mr. Schefter stated that the focus of his presentation would be big picture, or the transitioning of the transportation market to electrification. Mr. Schefter stated that the transition is still in its very early stage but suggested that electrification of the transport sector will provide many direct and indirect benefits to customers, the electric grid and society in general.

Mr. Schefter then presented EEI's view concerning current and future sales of EVs. Mr. Schefter stated that over 690,000 EVs have been sold in the United States since December of 2010 and that sales in 2017 increased 32% over sales in 2016. Mr. Schefter further defined the growth in the EV market by stating that over 20 automobile manufactures are now offering 38 plug-in Electric Vehicle (PEV) models for customers to choose from. Mr. Schefter also presented forecasts made by EEI, Barclays, AEO, and Navigant of projected EV sales through 2025. He stated that EEI's forecast of 1.2 million EV sales in 2025 is reasonable and obtainable. Mr. Schefter also stated that for these forecasted EV sales numbers to materialize, the infrastructure for EV charging would need to see substantial growth over the next few years. According to EEI, there are fewer than a million EV chargers, of all types, currently available in the U.S. Based on studies done by NREL and EPRI, the U.S. would need to see the EV charging infrastructure grow by at least three fold to support the forecasted 2025 sales figures. Mr. Schefter stated that electric utilities must play an important role to support market acceleration of both EVs and EV charging infrastructure.

Mr. Schefter offered EEI's takeaways to the Commission:

- Electric transportation is coming – no longer a question of if, but how fast
- Many different actions can help accelerate this transition
    - Technology cost reduction and model availability
    - Market awareness and customer education
    - Infrastructure access and availability
- Electric utilities are well positioned to deliver grid benefits, positive outcomes for customers, and accelerate the market.

Drive Electric Florida

Peter King, Chair, spoke on behalf of Drive Electric Florida. Drive Electric Florida has a diverse membership with a mission to advance and promote the growth of electric vehicle (EV) ownership and the accompanying infrastructure. Mr. King stated Florida is a top ten state in total EVs in operation and in EV growth in the United States (U.S.). His data ranks Florida second in PEV sales in the U.S. and forecasts Florida EV growth to reach 279,870 EVs by year 2025.

Drive Electric Florida believes there is a positive economic benefit, or "multiplier effect," to the growth of EVs. This means that growth in EVs will positively impact several economic arenas. The company also believes this same positive impact can be seen through environmental benefits.

General Motors

Britta K. Gross, Director Advanced Vehicle Commercialization Policy, spoke on behalf of General Motors (GM). Ms. Gross stressed the importance of EVs being capable of 40 miles of daily electric driving. This is pertinent because the company's data shows 78% of EV customers commute 40 miles or less daily. The company believes if it can consistently provide specific vehicles that will reach this large demographic, then EV adoption will be more likely. Ms. Gross believes EV adoption is in the early adopters phase of penetration into the market and expects the market to grow in the future.

GM has concerns about EV awareness, stating that most people still do not know much about EVs. Of those who are familiar with EVs, a large portion won't consider them due to lack of EV infrastructure. GM believes utilities need to be active in growing the PEV industry, or else it will remain a "niche" market. Ways it suggests growing the PEV market include: driving consumer demand for PEVs, building awareness of PEVs, installing charging infrastructure at a faster pace, making PEVs affordable and providing incentives for switching.

Tesla

Patrick Bean, Associate Manager, Energy Policy & Business Development, spoke on behalf of Tesla. Mr. Bean covered the vehicle, storage, and solar products that Tesla offers. The Tesla vehicles described in detail were the Model S, Model X, and Model 3. The company has produced vehicles at a higher volume and lower price in an effort to appeal to more buyers.

Tesla stated that it plans to have 10,000 superchargers deployed by the end of 2017, with several located in Florida. It is releasing an app to make finding and scheduling charging during trips easier. The app will be available to help navigate a desired trip with superchargers integrated conveniently into the route. The superchargers should only take 30 minutes to complete a full charge and the app will notify the driver when the charging is complete.

ChargePoint

David Schatz, Director, Public Policy, spoke on behalf of ChargePoint. ChargePoint claims to be the world's largest network of EV charging stations in the U.S., Australia, and Europe, with over 40,000 charging spots and growing. In Florida, ChargePoint has 13,000 member drivers, 1,356 public ports, and has had 200,000 charging sessions in 2017. The company believes EV adoption is growing rapidly and that EVs provide significant benefits to drivers, the environment, and the economy.

ChargePoint has two recommended actions for the Commission. First, they suggest there be an open dialogue, led by the Commission, to clarify regulatory conditions on EV charging infrastructure. The second recommendation is for the Commission to conduct regular workshops for all associated stakeholders to engage and inform the Commission.

EVgo

Terry O'Day, Vice President, spoke on behalf of EVgo. EVgo has 244 fast charging locations in Florida, with an average of 10 sessions per site per day. Mr. O'Day shared some comparative statistics from California (CA). In CA, the average Direct Current (DC) fast charger electricity cost is higher than average gasoline cost to consumers. The company provided load profiles for various charging site locations. The company estimates that for DC Fast Charging sites, only 40% of operational costs are attributed to electricity.

2017 Roundtable Florida Electric Utility Presentations

Florida Power & Light Company (FPL)

Brian Hanrahan, Director, In-Home Technologies and Electric Vehicles for FPL, opined that the electric vehicle and infrastructure landscape has evolved since 2012. He noted that more models are available with improved range and at lower prices. Florida now has approximately 2,000 public charging stations. He also noted a shift towards DC fast charging and that some banks as large as 1-3 MW are being installed within FPL's service area.

FPL views PEV related activity as part of normal business. FPL's electric grid reliability study modeled power distribution scenarios through 2030 showing no significant impact. The life cycle of small residential transformers presented the highest risk. However, FPL was not aware of any outages caused by charging. FPL's strategy remains unchanged and focuses on reliability, meeting customer expectations, and supporting market expansion.

FPL states that there is no present need to request a special charging rate because its research shows most people charge outside of FPL's peak hours and customers can opt for FPL's whole house time-of-use rate. FPL expressed concern that a special charging rate could require a separate meter resulting in additional customer costs.

Duke Energy Florida, LLC (DEF)

Lang Reynolds, Electric Transportation Manager for DEF, asserted that battery costs have declined and lower costs have supported further market development beyond personal vehicles to include buses and other commercial vehicles. This factor supports continued EV market growth even though gasoline prices are relatively low.

Registered EVs in DEF's service area are approximately 3,700 compared to approximately 20,000 in Florida. Mr. Reynolds asserts that demographics have driven market penetration and EV sales are less than half of one percent of all vehicle sales.

By 2030, DEF forecasts approximately 150,000 EVs within its service area. This equates to approximately 60 MW during the summer. DEF's infrastructure planning is addressing load growth. Continued research and analysis will further determine charging behavior and load impacts.

Mr. Reynolds reinforces that customers requesting EV information tend to contact utilities first. Customer contacts have increased over 100 percent. The barriers to EV adoption continue to be awareness, charging infrastructure, and cost. DEF's initiatives include education and outreach, infrastructure investment, and incentives. DEF's EV charging infrastructure pilot project is consistent with these initiatives.

Tampa Electric Company (TECO)

Kenneth Hernandez, Program Manager for TECO, acknowledged that EV market growth had been slower than originally projected. However, growth has steadily occurred to over 2,000 PEVs in its service area with over 120 public charging stations. Growth is expected to increase as more models are offered along with increasing public awareness.

TECO has a PEV fleet that includes 17 plug-in boom trucks and 5 pick-up trucks, with 31 charging sites for its fleet and employee vehicles. Outreach programs include energy education in five high schools and one university.

TECO's PEV load growth modeling, even at high charging concentrations, demonstrates minimal negative grid reliability impacts. Nevertheless, TECO will continue to monitor developments and use ten year planning cycles to identify and accommodate incremental load growth. Mr. Hernandez notes that future regulatory considerations include potential development of vehicle-to-grid technologies.

Gulf Power Company (Gulf)

Foster Ware, General Manager of Marketing & Sales, highlighted the EV infrastructure within Gulf's service area, its EV fleet, involvement in regional electric transportation activities, grid reliability, and regulatory considerations. Gulf estimated that approximately 68 charging stations at 35 sites exist within its service area. Gulf's EV fleet includes 15 EVs, 2 forklifts and 29 chargers at 11 locations.

Gulf engages in local education and public awareness events, including West Florida Regional Planning Council and military events. Gulf is also developing its five-year pilot program to own and operate EV chargers. Pilot program participant funding will cover the equipment and energy costs.

Mr. Ware notes the gradual pace of EV adoption and asserts Gulf observes electric grid reliability impacts. Gulf asserts that processes in place monitor growth in EV charging and incorporate growth into the normal utility planning process similar to planning for new growth in the residential or commercial sectors. Gulf believes regulatory considerations should be flexible and retain the ability to test different concepts and programs.

Florida Public Utilities Company (FPUC)

Mark Cutshaw, Director, Business Development & Generation, stated that FPUC has minimal EV charging load and has no impact on the grid. Based on system loads and forecasts of future EV sales, EV charging is not expected to have a significant impact on FPUC's system.

However, data related to EV charging within its service area is very limited. FPUC is in communication with local governments regarding development of EV charging installations. FPUC currently does not have any EV charging installation programs or rates specific for EV charging. FPUC asserted a pilot program could provide data related to EV charging. However, no pilot program was presented.

Orlando Utility Commission (OUC)

Linda Ferrone, Vice President, Strategy, Sustainability & Emerging Technologies for OUC, generally supported the comments of the other utilities. OUC installed over 150 public chargers and over 200 EV charging stations are located within OUC's service area. Batteries and other technologies are changing the EV market.

Ms. Ferrone asserted that OUC, as a municipal utility, may be able to explore programs that may be more difficult for an investor-owned utility. Beginning in 2010, during its efforts to promote the siting of EV chargers, OUC observed that owners of potential charging locations were not always receptive. While OUC offers rebates, it is not convinced that rebates are an effective incentive. OUC plans to offer leasing of OUC owned and maintained commercial EV charging equipment.

City of Tallahassee

David Byrne, Assistant General Manager, Electric System Integrated Planning for Tallahassee, generally supported the comments of the other utilities regarding the grid reliability impact and planning. Long leave parking lots, like movie theaters, may be convenient locations for EV chargers. Mr. Byrne also noted that EV charging locations are now readily available through an internet search. He believes this reflects increased public interest.

Florida Electric Cooperatives Association (FECA)

Mike Bjorklund, General Manager for FECA, commented that at this time, there is not a wide proliferation of EVs into the member rural electric cooperatives' service areas. As more interest develops, the impact of EVs will be reviewed to ensure it is integrated properly.

Post-Roundtable Comments

ChargePoint

In its comments, ChargePoint stated that the sustained growth of electric vehicles in Florida, and nationally, points to the increasingly critical need for more charging infrastructure. To support this growing need, ChargePoint believes that utility engagement in EV charging is essential, and that utility investments in EV charging can encourage and enhance the competitive market for charging infrastructure currently active in Florida. ChargePoint recommends that in light of the trend towards electrification and increasing interest among utilities to engage EV charging, the Commission should continue to explore regulatory conditions around charging infrastructure. Commission led workshops and discussion forums with all interested stakeholders at the table, according to ChargePoint, will lead to proactive policies and programs to scale the market for EVs and associated infrastructure. Topics that should be explored in these Commission led dialogues, according to ChargePoint, can be included the following:

- Reviewing electric vehicle market trends and the competitive market offerings for EV charge infrastructure;
- Establishing guidelines for a utility role in EV charging;
- Ensuring equitable access to the benefits of transportation electrification;
- Evaluating how smart charging stations can be utilized to optimize grid benefits from EV charging; and,
- Considering alternative rate structures for fast and high-speed charging sites.

ChargePoint also suggested that the Commission should:

- Enable utility investment in electric vehicle charging;
- Minimize costs and maximize ratepayer benefits from increased EV adoption, improved grid efficiency, operational flexibility, and reliability; and,
- Evaluate alternative rate structures for high energy use charging stations or EV fleet operators.

Greenlots

Greenlots is a leading provider of grid-focused electric vehicle charging software and services. In its post-roundtable comments, Greenlots urged the Commission to embrace its critical and central role in adopting policies that enable and empower utilities to become accelerators of charging infrastructure deployment, facilitating widespread EV adoption across the state in a manner that benefits all ratepayers. Greenlots believes that the current fundamental economics simply do not support sufficient private investment to grow infrastructure deployment at the level it needs to be. Given the early stage of the market of ownership and operation of charging infrastructure, Greenlots believes that it is an appropriate and necessary role for the utilities to take action in accelerating the market. The company believes this utility involvement will help create competition and choice, and attract private investment.

Greenlots also stated that utility involvement in the development of rates and programs that send accurate price signals to EV loads reflecting grid constraints and realties is essential. Time-of-use rates, they stated, represent a blunt but in some cases appropriate instrument in delivering these price signals, especially at low levels of EV market penetration. Greenlots states that as different EV-specific rates are developed, an eye at mitigating associated metering complications must also be considered, including the use of metering capabilities embedded within electric vehicle supply equipment rather than more costly separate traditional meters.

Greenlots believes that the Commission should take on the role of market accelerator, or otherwise facilitate utilities to play that role. Greenlots encourages the Commission to consider providing a modest structure to guide utility filings while providing for the type of flexibility that will ensure utilities are best able to serve their ratepayers. They believe this should include the option of utility cost recovery of EV charging infrastructure through rate base, including chargers themselves, when they meet appropriate and potentially new regulatory standards.

Finally, Greenlots encourages the Commission to consider the virtues of deeper utility involvement in its analysis of the utility's relationship to other market participants and the market as a whole. They stated that adopting a modest policy or framework that affords utilities sufficient flexibility to develop EV charging infrastructure proposals with more regulatory clarity would serve as a practical and useful first step.

Siemens Digital Grid

Siemens stated in their post-roundtable comments that the Commission has a critical role to play in facilitating the efficient deployment of EV charging infrastructure and ensuring that all segments of the population are adequately served as PEVs move into the mainstream. PEV sales still represent less than one percent of all vehicle sales in the United States. There are several important institutional and market barriers that stand in the way of these vehicles reaching the large-scale deployment levels that will drive broad public benefits. Siemens recommends that the Commission approach PEV regulations with an eye towards addressing a few key barriers to PEV deployment. In addressing these issues, the Commission should keep in mind that there are significant opportunities available, not only for light duty vehicles, but for all classes of vehicles, including low speed, medium-duty, and heavy-duty vehicles.

Siemens believes that given the wide-ranging benefits of expanded PEV adoption for utility ratepayers and the broader public, there is ample reason for the Commission to consider direct utility participation and the provision of incentives for accelerated charging infrastructure deployment. Siemens recommends the Commission establish PEV-only rates and encourage cost-effective metering of PEV charging, including the use of smart meters with sub-metering capabilities. Since utilities need to carefully plan for any major changes in the grid, both in terms of generation and distribution, Siemens states that the Commission and any electric vehicle supply equipment providers should work closely with the utility on deployment to maximize the benefits that PEVs provide to the grid, and to ensure successful integration of the additional loads from PEV charging. This might include, but is not limited to, identifying preferred sites for electric vehicle supply equipment to be located.

According to Siemens, the goals of utility participation should be to eliminate underlying market barriers in order to facilitate the development of an expanded competitive market while simultaneously ensuring service provision in areas that are outside the reach of the competitive market. Given the widespread benefit to the public, Siemens' primary interest is in reducing barriers to growth of the PEV market by lowering the total cost of ownership. Allowing for both third-party and utility infrastructure ownership/operation harnesses the power of the competitive market in a way that ultimately benefits all customer classes, uses, and geographies.

Florida Tesla Enthusiasts Group

Larry Chanin, president of the group, wrote to the Commission offering the group's service in answering surveys concerning electric infrastructure issues, and potential concerns of future owners of long-distance EVs. The Florida Tesla Enthusiasts Group is an independent organization that meets, exchanges information, educates, and advocates for various electric vehicle related causes.

Mr. Chanin relayed a story concerning one of their club members who was without power for 6 days due to Hurricane Irma. Mr. Chanin stated that the member had purchased an inflatable mattress that fit perfectly in the back of her Model S with the rear seat folded flat. According to Mr. Chanin she spent 6 nights sleeping in the air conditioned comfort of the car without running out of charge or having to worry about carbon monoxide poisoning. Mr. Chanin also discussed problems/challenges of home charging at multi-unit dwellings.

Mr. Steve Ryland (a private EV owner)

Mr. Ryland suggested that only "quick charge" stations should be built going forward since the standard 240v charging takes too long. He believes that these types of chargers should be installed near major roads and highways, and at all rest stops to help minimize EV ownership range anxiety. Mr. Ryland thinks that until adoption becomes more common, quick charges should be offered for free. Mr. Ryland also believes that the State or FPL should offer an incentive to purchase or adopt EV usage. He suggests that the incentive could take the form of a possible credit on the electric bill or underwrite the installation of a home charger. He thinks that the State should require new and existing multi-unit housing to install stations on the property and that all new homes should be wired with outlets for future installation of a charger.

IV. Transcript

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

PROCEEDINGS:	INTERNAL AFFAIRS
COMMISSIONERS PARTICIPATING:	CHAIRMAN ART GRAHAM COMMISSIONER JULIE I. BROWN COMMISSIONER DONALD J. POLMANN COMMISSIONER GARY F. CLARK COMMISSIONER ANDREW G. FAY
DATE:	Friday, April 20, 2018
TIME:	Commenced: 11:45 a.m. Concluded: 12:09 p.m.
PLACE:	Gerald L. Gunter Building Room 105 2540 Shumard Oak Boulevard Tallahassee, Florida
REPORTED BY:	DEBRA R. KRICK Court Reporter and Notary Public in and for the State of Florida at Large

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P R O C E E D I N G S

CHAIRMAN GRAHAM: Okay. Let the record show it is Friday, April 20th, and this is the Internal Affairs meeting, and it is 11:45.

So we will take -- bring this meeting to -- we will convene this meeting. And Item Number 1 is EV charging.

MS. WHITFIELD: Good morning, Shelby Whitfield.

Before you is the 2017 draft report on electric vehicle charging. After the EV roundtable that was held by the Commission in October of 2017, it was suggested that staff update the 2012 report on electric vehicle charging.

This 2017 draft report includes information presented at the 2017 roundtable, and provides updates on the data and conclusions discussed in the 2012 report.

Staff is requesting approval of his report and is available for questions.

CHAIRMAN GRAHAM: Thank you, staff.

Commissioners. Commissioner Brown.

COMMISSIONER BROWN: As the gentleman in the last agenda that we had was excited about the triglycerides or TT -- those things, that's how

excited I am.

COMMISSIONER POLMANN: I actually need talk to you about that.

COMMISSIONER BROWN: That's how excited I am about the EV market.

CHAIRMAN GRAHAM: He's not excited about it anymore.

COMMISSIONER BROWN: No, he is not.

Well, I won't talk as long to lose the interest here, but I think this report, I want to thank you is all for doing this. And I think it was very timely to have the roundtable discussion and then to provide this report.

First, what are we going to do with this information?

MS. WHITFIELD: Well, the plan is, my understanding, to post it the PSC website.

COMMISSIONER BROWN: We are going to deliver to the Ag, Department of Energy?

MR. BAEZ: We will have one circulation into downtown and post it on the website.

CHAIRMAN GRAHAM: Put your mic on.

MR. BAEZ: I'm sorry.

We will it post to the website for more public circulation.

COMMISSIONER BROWN: Well, I really want to thank you guys for working on it. Thank the Commission, too, for supporting the endeavors and going through that.

You know, there is some opportunities here. In looking at the post workshop comments, some folks offered policy considerations. Are there any policy initiatives that this commission can do that are worthy of our consideration based on what we heard during the roundtable, and really what's going on around the country? I know one -- someone mentioned, in the post-comments, mentioned an alternative rate -- alternative rate structure for high energy use charging stations, or EV operators. Is that something that this commission could initiate?

MS. WHITFIELD: I am not sure about that at this time, Commissioner.

MR. BAEZ: Let me jump in here --

COMMISSIONER BROWN: Sure.

MR. BAEZ: -- Commissioner.

While -- while our opportunities in particular, our meaning the Commission in general, our opportunities are pretty narrow band, because we -- we deal with our regulated utilities, as you

all know, we have had some proposals over the last couple of years that were dealing with attempts to integrate, you know, or at least acknowledge the integration of EV as -- by various -- excuse me, by various of our IOUs. And so we would look again to our IOUs to, you know, come up with ways to continue doing that, and we would be considering them on a case-by-case basis.

COMMISSIONER BROWN: Is there anything proactive that this commission can do from a policy standpoint to -- with regard to the infrastructure and connectivity of the grid under our general regulatory oversight?

MR. BAEZ: Mark has --

MR. FUTRELL: Commissioner Brown, I think in the 10-year site plan review staff conducts every year, we inquire as to the status of electric vehicle charging; the growth in stations; the growth in vehicles. So we are trying to continue to monitor and inquire as to where there may be needs for, not only new innovative rate design, but impacts on reliability, and expansion of the grid, if needed, particular lessons learned as this industry grows. That's an opportunity to -- it's an entrée, if you will, to the industry to have a

dialogue and monitor its affect.

COMMISSIONER BROWN: What do you think about that idea, though, of having an alternative rate structure for our high energy used charging stations?

MR. FUTRELL: I think that's something that perhaps staff could incorporate into its 10-year site plan review to seek how these things -- the charging is impacting not only electrically, but also perhaps look at ways to, as new customers are coming on, what services are they requiring that may require some new rate design thinking.

COMMISSIONER BROWN: I mean, EVs are here and they are only going to expand.

MR. FUTRELL: Right. And certainly in a recent settlement agreement, or so, that's been incorporated as far as programs to take a look at that and expand the utilities' involvement in this area.

MR. BAEZ: There are pilots out there.

COMMISSIONER BROWN: Are we going to get that information, the pilot information during the 10-year site plan review or beforehand?

MR. FUTRELL: I think of that's something we can certainly incorporate into questions to gain a

better understanding of the status of those efforts.

MR. BAEZ: I am trying to recall the conversation as part of the settlement -- as part of the settlement discussion when y'all took it up, and that there was some information that was going to flow back to the Commission.

COMMISSIONER BROWN: Well, I don't want us to be passive on this topic. And I do think that we have the authority to initiate some policy takings, not just put it in the next 10-year site plan to look at, but explore different initiatives that were even mentioned during the workshop and post-work shop.

With regard to the VW settlement funds, where is the state? I know that the different -- that some of those funds are to be used specifically for supporting zero emissions vehicles, equipment, programs and such. There was 22 million or so that is dedicated to our state.

MS. WHITFIELD: Not specifically to our state only.

COMMISSIONER BROWN: I am sorry.

MS. WHITFIELD: For the VW settlement --

COMMISSIONER BROWN: How much is that?

MS. WHITFIELD: So this had -- it was 14.7 billion was the total for the settlement. 10 billion of that was for vehicle buybacks. And then 2.7 billion goes to the Environmental Mitigation Trust. And then two million of that -- the remaining two million goes into the zero emission vehicle fund.

COMMISSIONER BROWN: I inflated that number, huh?

MS. WHITFIELD: That's okay.

The mitigation trust, the 2.7 billion, that's where the funds will trickle down to programs that the state will -- it says, the states will determine how the Environmental Mitigation Trust funds will be spent. So that's that amount of money.

COMMISSIONER BROWN: Do we know where we are in that money with regard -- who is overseeing administering? It, is it the Department of Ag or Department --

COMMISSIONER CLARK: DEP.

COMMISSIONER FAY: Environmental.

COMMISSIONER BROWN: DEP?

COMMISSIONER FAY: DEP.

COMMISSIONER BROWN: So I just kind of want to

throw this out to the Commissioners to -- if there was -- take your temperature on exploring some proactive policy measures that fit within our paradigm. It may be exploring alternative rate structures as just an idea. But if there is any feedback or interest, other than just putting this information in the next 10-year site plan and sitting on it, because other states are doing things.

CHAIRMAN GRAHAM: The rate structure is a great idea.

Commissioner Polmann.

COMMISSIONER POLMANN: I think the rate structure is a specific -- I don't want to say an incentive, but it's a necessary -- well, it's a way to encourage.

CHAIRMAN GRAHAM: Prime the pump.

COMMISSIONER POLMANN: Yes, but I don't know that it's something we push out, other than to discuss and kind of make it available --

MR. BAEZ: Becomes a vehicle.

COMMISSIONER POLMANN: Right.

MR. BAEZ: Yeah.

COMMISSIONER BROWN: Right.

COMMISSIONER POLMANN: Now, we don't work in

an advocacy environment.

COMMISSIONER BROWN: No, we don't.

COMMISSIONER POLMANN: But short of that, being an advocate for something, we had an interesting discussion -- some of us individually had an opportunity to discuss in the telecommunications space deployment of 5G and other things. And the key that I heard from that is the geographic coverage in order for that network to be effective.

And I am seeing an analogy there with the charging station, and how do we work with the IOUs to encourage that -- that coverage? Because that's the key to the EV, reaching what we would like to see as, you know, critical mass, if you will, is if they don't have the charging stations, nobody is going to want to drive, because not every car is going to have the range. It's not affordable.

So, you know, back to Commissioner Brown's point, what can we do on that side of it to encourage, you know, the adequate coverage of the charging stations? Not that we are going to provide, you know, monetary incentive, but where -- where is that? What role could we play to encourage the distribution, either working with the

IOUs, or working somewhere else with industry? I mean, I just don't know how to do that, but I think that is the key end result that we are looking for.

COMMISSIONER BROWN: So they are properly connected to the grid, I would just add.

COMMISSIONER POLMANN: Well, it's a grid-based issue. Is it, you know, at the distribution level? If we are looking at the fast charge, you know, it's a higher voltage. Where do they go? Where do they need to be?

So what can we do to, again, prime that pump, but then in order for the implementation, what's the necessary aspect of that, from the bottom up? What are the fundamental needs to make that happen? What can we do to kind of complete that analysis and then feed that into the right place?

And I don't know where that right place is. Is that legislative policy to, you know, provide that incentive? I just don't know.

MR. BAEZ: Well, there is -- there is more than a couple of questions wrapped up in what you said.

COMMISSIONER POLMANN: I understand. And she captured it all right there.

MR. BAEZ: Yeah. I mean, I will step away

from the technical parts of it, because you don't want me answering technical questions. But I think -- I think you are doing a large part of it right now, actually. Just really giving it an airing out, keeping attention on the matter going, and keeping the momentum going.

At your direction, Commissioners, we can continue the discussion in a more formal way, so I leave that with you to consider going forward.

I also think that you have said a few things here that will offer encouragement, if anyone is listening, will offer encouragement to also think about how to bring this before the Commission, and do their own thinking on ways to get it before us.

As to your authority, a more specific question, how do you all get it before? I think we -- I would like to go back and give that a little bit more thought, because you want to do that right and within your authority. And that's something I think we have to give a little bit more specific thought as to what the answer to that. So if you would indulge your staff to be able to come and see you with more specific thoughts on that, we would appreciate it. But we will give it every consideration, and kind of talk to you individually

if you like, and if you have a specific interest.

CHAIRMAN GRAHAM: Commissioner Clark, and then Commissioner Fay.

COMMISSIONER CLARK: I think we can -- to go back to Commissioner Brown's point, I think that we can send the signal that we are open to looking at alternative rate structures that might be able to incorporate EV charging points. I think we are open to see some really -- it is going to require some unique rate design work because of -- I think because of the demand that you are going to be looking at for the high output chargers during daytime operations, which is primarily when they are going to probably need high output chargers. I think you are going to see some contrast to that to nighttime charging situations, where you also have the opportunity to cross back over and use the battery storage options that EVs provide to do some additional grid support. I think that was kind of your comment with the grid tie-in as well.

I think that, from just nothing but a signaling perspective, that this commission can say, we would like to see some utilities coming up with some creative designs to be able for us to incorporate this into the rate mix. And I think

that's probably the best thing that we can do as a commission, is send that signal.

MR. BAEZ: And wallah, Commissioner Fay.

COMMISSIONER CLARK: Speaking of signals.

COMMISSIONER FAY: Thank you, Chair.

So what I have to say probably hasn't been -- it's been said already. The only thing I would add is I do second Commissioner Brown. I was very excited to see this information brought to us. I appreciate all the time you put in the report.

I personally think that it's something that's coming down the road fast -- I think that's, like, the fourth car pun that's I've -- that we've made here yeah on accident, yeah. So it's coming, right? And so I think it's something we need to pay attention to, and to Commissioner Brown's point, be looking at.

And I would love to venture ensure that we stay updated on it so as folks do -- are doing things in different states, or whatever it may be, then Florida has always been an innovator, is paying attention to that, and we are plugged back into that.

And I am sure Commissioner Brown, and you guys will keep her and all of us updated, but I would

appreciate that. I think that would be something worth while for me personally.

Thank you.

CHAIRMAN GRAHAM: Well, this is Commissioner Brown's baby. She -- she started us down this path when she was chairwoman, and I applaud her for her efforts and for her due diligence staying on top of all this.

And is there anything else to add?

COMMISSIONER POLMANN: So you are looking for approval to this?

MR. BAEZ: There is no -- nothing for you all to do.

CHAIRMAN GRAHAM: It's information.

MR. BAEZ: Approval of the report is fine, and then we can go ahead and update it.

I will, as a last mention, if you all have anyone that you would like us to circulate it to specifically, just let my office know and we will -- we can make it happen.

COMMISSIONER BROWN: I would suggest having the Chairman have authority over the distribution of it, and have a letter coming under his signature.

MR. BAEZ: We will work with the Chairman's

office. Thank you.

CHAIRMAN GRAHAM: And you are going to get back to us on our legal standing on what we can do if we want to be more proactive in this?

MR. BAEZ: Absolutely. We will arrange with each of your offices to have a conversation so that you all can be better informed as to where your -- where the -- how we see moving forward.

CHAIRMAN GRAHAM: Okay.

MR. BAEZ: Thank you.

MR. HETRICK: And I think that the questions are how and to what extent do we have to move this forward under our current authority, and what legislative authority do we need, or what more is what might be required, or what more -- what are those other things that we might want to do that we don't have authority for so that you have sort of a full range of understanding of what it is we can do and how far proactively we can go.

CHAIRMAN GRAHAM: Do you also -- did you run into any problems with rate cases out there? Some of the settlements are out there if you start changing around with the rate structure.

MR. HETRICK: Well, I don't think so. I think it's an alternative optional mechanism, and maybe

part of it has to do with having a discussion with the utilities, bring them all in just to have sort of a form with them to what kind of structures do they see that we might be able to implement, assuming we have any authority that would be helpful.

CHAIRMAN GRAHAM: Okay.

MR. HETRICK: And then sort of spurring that -- those ideas.

CHAIRMAN GRAHAM: Commissioner Brown.

COMMISSIONER BROWN: Just a followup Commissioner Fay's point.

I think having staff take a deeper look at what other states are doing. I know you gave us kind of a summary, but they are offering a variety of different programs. Not that we are taking an advocacy role in any regard, but could you kind of delve a little deeper and provide that?

MS. WHITFIELD: Sure.

COMMISSIONER BROWN: Thank you, Shelby and Ben.

MS. WHITFIELD: No problem.

CHAIRMAN GRAHAM: Thank you, guys, for your report.

Item No. 2, Legislative Update.

MR. BAEZ: Mr. Chairman, can we have -- can we stipulate your approval to the report then?

CHAIRMAN GRAHAM: Yes.

MR. BAEZ: Thank you, sir.

MS. PENNINGTON: Good morning, Commissioners. We finalized and distributed our legislative wrapup to everyone a couple days ago, so we are here to answer questions that you might have. I heard Commissioner Graham was hungry, so I want to stay on the right side of that.

Adam also prepared a brief summary of the CRC proposals that are added to the ballot. The electronic copy of that document has links to the proposals as well. So we are here just to answer questions.

CHAIRMAN GRAHAM: I have a quick question. On the last page, page 6003, school board term limits, what is that?

MR. POTTS: I will.

MS. PENNINGTON: I don't know that one. That's Adams.

MR. POTTS: So that one is in -- it's term limits throughout the state for school board members. I think Duval has term limits on their school board members because they are a charter

county, so this will make it across the board to all counties.

CHAIRMAN GRAHAM: Is it -- the term limits, is it eight years?

MR. POTTS: I believe so, yeah. Yes.

CHAIRMAN GRAHAM: Okay.

COMMISSIONER BROWN: But are they all single districts, or are they county -- countywide districts? So is it term limits collaboratively?

MS. PENNINGTON: It would apply to tall school board seats.

MR. POTTS: Yeah, it would apply to all.

MS. PENNINGTON: At large and district.

CHAIRMAN GRAHAM: Any other question for legislative update?

I think this is great. I appreciate it you putting it all in one spot for us.

MS. PENNINGTON: One other comment, which I don't want to take away from Mr. Baez's thunder, but our budget was a continuation budget. We did not lose any positions or money, so that was a victory for us.

CHAIRMAN GRAHAM: The first time in eight years.

MR. BAEZ: Yes, thunder notwithstanding.

COMMISSIONER BROWN: You did a great job.

MS. PENNINGTON: Thank you.

MR. BAEZ: Yeah, I just wanted to point of personal privilege and say this session was, not just historic in the sense that we did have an actual quorum of commissioners get confirmed, which I don't believe, in my memory, has ever happened before. So that -- that was historic enough.

But you know, we did have a good session budget-wise. We came back without a scratch. But I did want to take a really quick moment to thank, you know, your entire staff. The session, and our role in it, your professional staff's role in it does not -- does not happen without the hard work of pretty much your entire building.

These two folks that you see here work tirelessly over at the Capitol, and they stay here late all the time, to the point where they have to get kicked out of the building sometimes physically.

So thanks to Catherine Pennington and Adam Potts for that. But it takes the effort and the backup of a lot of other people, mainly like folks like Casey Hinton, and all of his folks, a couple of which you saw here, all his folks at IDM, and on

down the line. I would deprive you of great hot dogs and soft drinks if I named them all, but thanks to all the staff up and down the hallways for all of their help in keeping Casey and Catherine and Adam on point throughout the session. So I just wanted to mention them and call them out somehow.

CHAIRMAN GRAHAM: Okay. Thank you guys. I appreciate it.

General Counsel report.

MR. HETRICK: Mr. Chairman, I would just like to welcome our newest senior attorney, Kurt Schrader. He comes to us with kind of a rich and diverse background, and including experience level and educational level. So we are excited to have him on staff. He is also a pretty good chef.

CHAIRMAN GRAHAM: So give us little details on his diverse background.

MR. HETRICK: Well, education-wise, he comes to us with a Bachelor of Science in -- what was your bachelor?

MR. SCHRADER: Management.

MR. HETRICK: Management, but his Master of Science degree is in Library Science. He's got, obviously, a Juris Doctorate degree, and then an --

COMMISSIONER BROWN: Where?

MR. SCHRADER: FSU.

MR. HETRICK: FSU. Everything is FSU.

CHAIRMAN GRAHAM: I see a little bias come out of the General Counsel's Office.

MR. HETRICK: He has got an LLM in environmental law. So he spent his last three years working in the Florida Senate in bill drafting, but doing policy analysis focusing on energy and environmental issues. His educational.

His work background, he has been a partner in a coffee company and --

MR. SCHRADER: Hospitality.

MR. HETRICK: Hospitality, and he has a number of --

MR. SCHRADER: Watering holes here in town.

MR. HETRICK: He's had his own private business. He's -- so he's got a rich history, I think diverse history. And his research skills, I am told, are phenomenal and off the charts by anyone he's every worked with, so we are just pretty excited to have him onboard. And his goal has always been to see what it takes to come to the Public Service Commission, at least for the last three years.

CHAIRMAN GRAHAM: Sounds good. Welcome aboard.

MR. SCHRADER: Thank you.

CHAIRMAN GRAHAM: Does that conclude your report?

MR. HETRICK: That's one down. We have three more hires to go. So we are working on it.

That's it. Thank you, Mr. Chairman.

CHAIRMAN GRAHAM: Mr. Baez.

MR. BAEZ: Thank you, Mr. Chairman.

Real quick, looking at the calendar. Next week, we have the electric utility hurricane workshop, May 2nd and 3rd. That's Wednesday and Thursday, and then --

CHAIRMAN GRAHAM: That's two weeks.

MR. BAEZ: I'm sorry. Two weeks. Apologies. I am moving so fast lately, which is not usual for me.

Our next Agenda and IA is May 8th. And that's all.

CHAIRMAN GRAHAM: Okay. Other matters?

All right. That being said, I hope everybody travels safe, and have a great weekend, and we are adjourned.

(Whereupon, the proceedings were concluded at

12:09 p.m.)

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STATE OF FLORIDA)
COUNTY OF LEON)

I, DEBRA KRICK, Court Reporter, do hereby certify that the foregoing proceeding was heard at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED this 1st day of May, 2018.

DEBRA R. KRICK
NOTARY PUBLIC
COMMISSION #GG015952
EXPIRES JULY 27, 2020