Dianne M. Triplett
DEPUTY GENERAL COUNSEL

December 20, 2021

VIA ELECTRONIC FILING

Adam J. Teitzman, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: *Duke Energy Florida, LLC's Application for limited proceeding to approve 2017 second revised and restated settlement agreement, including certain rate adjustments;* Docket No. 20170183-EI

Dear Mr. Teitzman:

Enclosed for filing on behalf of Duke Energy Florida, LLC ("DEF") is DEF's Electric Vehicle Charging Station Pilot Program – 4th Annual Report (December 2021), in accordance with Paragraph 17.f.ii of the 2017 Second Revised and Restated Settlement Agreement, which was approved in Order No. PSC-2017-0451-AS-EU, dated November 20, 2017. aforementioned exhibits remain on file with the Clerk.

Thank you for your assistance in this matter. Please feel free to call me at (727) 820-4692 should you have any questions concerning this filing.

Sincerely,

s/ Dianne M. Triplett

Dianne M. Triplett

DMT/mw
Enclosure

299 1st Avenue North, St. Petersburg, FL 33701 ▪ Phone: 727.820.4692 ▪ Fax: 727.820.5041
▪ Email: dianne.triplett@duke-energy.com

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished via electronic mail to the following this 20th day of December, 2021.

s/ Dianne M. Triplett
Attorney

Margo DuVal Suzanne S. Brownless Office of the General Counsel Florida Public Service Commission 2540 Shumard Oak Boulevard Tallahassee, FL 32399-0850 mduval@psc.state.fl.us sbrownle@psc.state.fl.us Jon C. Moyle, Jr. Moyle Law Firm, P.A. 118 North Gadsden Street Tallahassee, FL 32301 jmoyle@moylelaw.com George Cavros 120 E. Oakland Park Boulevard, Ste. 105 Fort Lauderdale, FL 33334 george@cavros-law.com	Charles J. Rehwinkel Office of Public Counsel c/o The Florida Legislature 111 West Madison Street, Rm. 812 Tallahassee, FL 32399 rehwinkel.charles@leg.state.fl.us Robert Scheffel Wright / John T. LaVia III Gardner Law Firm 1300 Thomaswood Drive Tallahassee, FL 32308 schef@gbwlegal.com jlavia@gbwlegal.com James W. Brew / Laura W. Baker Stone Law Firm 1025 Thomas Jefferson Street, N.W., Ste. 800 Washington, DC 20007 jbrew@smxblaw.com lwb@smxblaw.com

Duke Energy Florida, LLC

Electric Vehicle Charging Station Pilot Program

4th Annual Report

December 2021

Contents

EXECUTIVE SUMMARY

Program Background

On November 20, 2017 the Florida Public Service Commission ("FPSC") approved the 2017 Second Revised and Restated Settlement Agreement ("2017 RRSSA") with Duke Energy Florida ("DEF") that included a provision to allow DEF to initiate a Pilot Program to install, own and operate electric vehicle service equipment ("EVSE") infrastructure within its service territory (EVSE Pilot). DEF will strategically install a foundational level of EV infrastructure to gather information about DEF customer charging behavior and grid impacts of serving the load for increasing EV adoption within the five (5) year EVSE Pilot through December 2022. The EVSE Pilot Program prescribes installation of equipment across segments and equipment type as shown in table 1 below and includes the April 2019 FL PSC approval for reallocation of ports.

Table 1 – FL PSC Segments

Segment	Multi-unit dwellings (MUD)	Workplaces (WPC)	Public Level 2	DC Fast Charge
EVSE Technology	Level 2	Level 2	Level 2	DC Fast Charging
Initial Minimum Allocated Ports	**325 ports**	**100 ports**	**75 ports**	**30 Units**[1]
Revised Minimum Ports	**210 ports**	**140 ports**	**130 ports**	**50 units**
Explanation/Locations	Apartments Condominiums	Small, medium and large sized businesses	Grocery, Restaurant Public Parking	Primary and secondary corridors
• 10% of total ports will be installed into Income Qualified (IQ) areas defined by FL Statute Section 288.9913(3) • DEF shall coordinate with transit agencies to expand awareness of zero emission buses				

Installation Summary Program Year 2021

Park & Plug (P&P), the EVSE Pilot has exceeded installation of the minimum port goals for each required segment and completed the pilot under the FL PSC allocated capital budget of $8 million. Beyond the minimum required number of ports, additional ports were installed in the Workplace and Public L2 segments as both segments returned data that supported higher driver utilization[2]. The 2021 year-end results are shown in Table 2 below:

[1] The DC Fast Charge units will have two connectors, CHAdeMO & CCS Combo, to accommodate all fast charge capable vehicles.
[2] Utilization based on percentage of active charging in 24-hour period

Table 2 – Incremental Installation Progress Through 2021 (as of 11/30/2021)

Port Installation Status Through 2021					
Segment	Min port install Requirement	# port Installs at year end 2020	# port Installs 2021	Total port Installs	Remaining ports for segment minimums
MUD	210	190	30	220	0
Workplace	140	152	13	170	0
Public L2	130	162	20	184	0
DC Fast Chargers	50	37	14	51	0
Totals	**530**	**541**	**77**	**625**	**0**

Low-Income installations – 83 of 53 minimum required ports installed as of year-end 2021.

DEF funded installation of six DC Fast depot chargers for Pinellas Suncoast Transit Authority – not included in table above. DEF receives utilization data from PSTA on the six units.

Table 3 – System wide utilization in number of charging sessions last 12 months

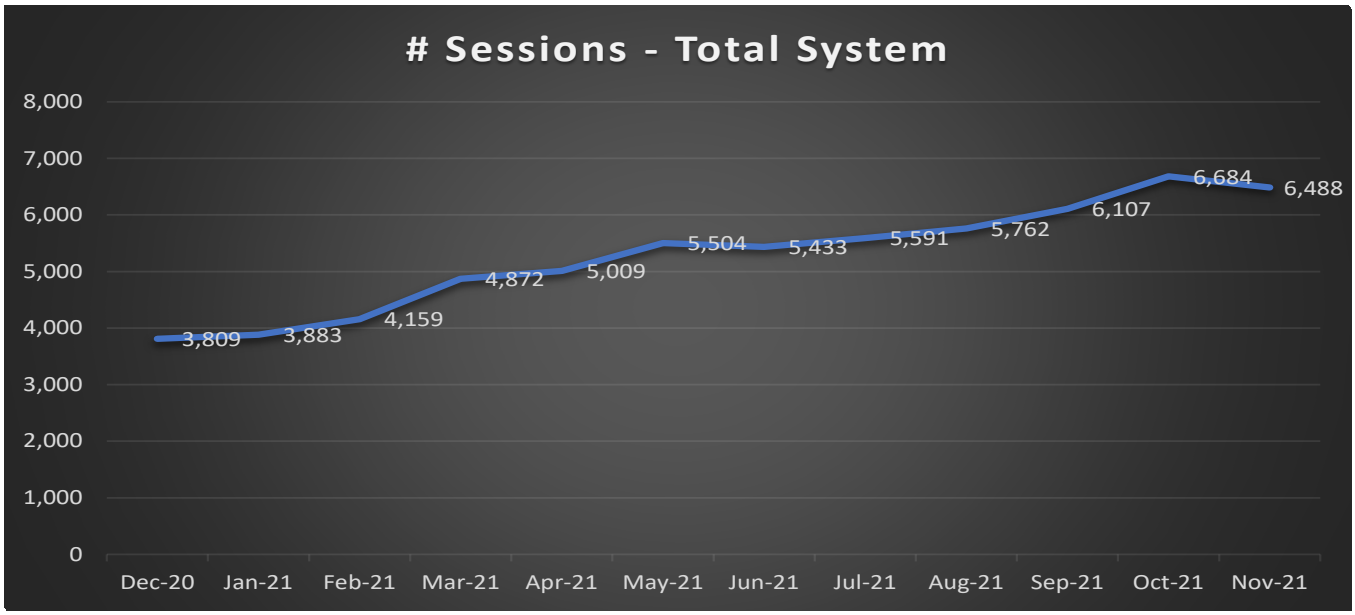
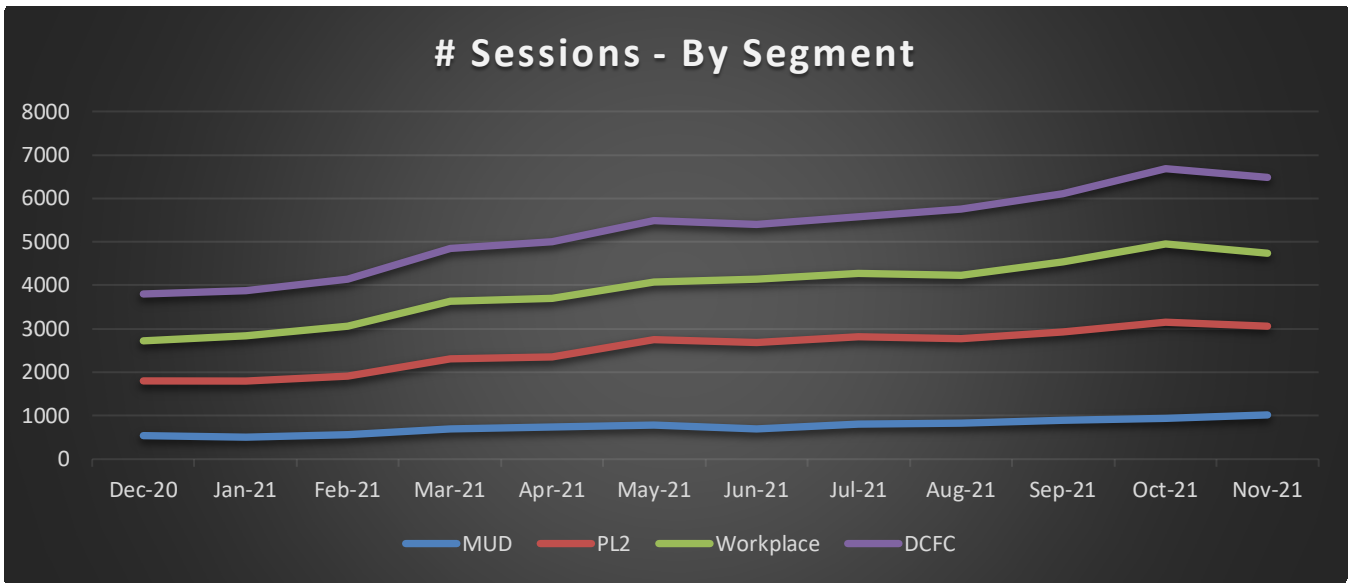


Table 4 – System wide utilization in number of charging sessions by segment last 12 months



Summary of installation Statistics/Costs

Table 5 - Port Installations/Invoiced Costs by Installation Contractor through November 2021

Level 2	# Ports	Capital	Capital/Port	O&M	O&M/Port	Total Cap+OM	Total/Port	*IQ Ports
MUD	220	$1,186,112	$5,391	$387,200	$1,760	$1,573,312	$7,151	10
WPC	170	$989,385	$5,819	$299,200	$1,760	$1,288,585	$7,579	26
Public Level 2	184	$1,110,770	$6,036	$323,840	$1,760	$1,434,610	$7,796	43
Total Level 2	**574**	**$3,286,267**	**$5,725**	**$1,010,240**	**$1,760**	**$4,296,507**	**$7,485**	**79**
DC Fast Charge	# Ports	Capital	Capital/Port	O&M	O&M/Port	Total Cap+OM	Total/Port	IQ Ports
DC Fast Charge Units	51	$3,042,823	$59,663	$73,480	$1,440	$3,116,303	$61,103	4
Transit Bus	6	$181,930						
Total	**625**	**$6,511,020**	**N/A**	**$947,220**	**N/A**	**$7,458,240**	**N/A**	**83**

*Income Qualified (IQ) Goal is 10% (53) of total 530 ports. Actual IQ is 13.3% (83) of 625 ports.

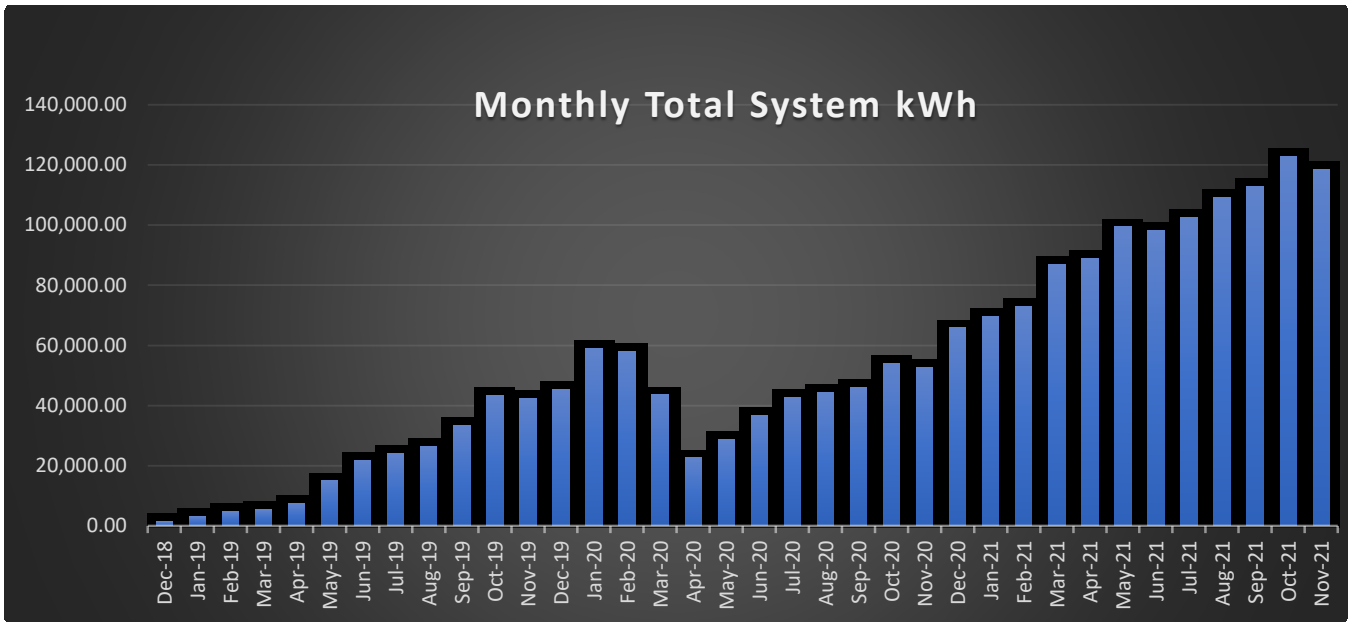
Table 6 – Charging Session Data October 2018 Through November 2021

		# Charging Sessions				kWh Dispensed			
Segment	**# Ports**	**All**	**Pct of All**	**Income Qualified (IQ)**	**Pct of IQ**	**All**	**Pct of All**	**Income Qualified**	**Pct of IQ**
MUD	190	15,053	13%	2,585	8%	291,131	15%	58,224	17%
WPC	152	37,312	32%	7,084	22%	585,164	31%	64,368	19%
Public Level 2	162	37,674	33%	19,068	60%	536,223	28%	171,589	51%
DC Fast	37	24,725	22%	3,270	10%	494,798	26%	44,837	13%
Totals	**625**	**114,764**		**32,008**		**1,907,316**		**339,017**	

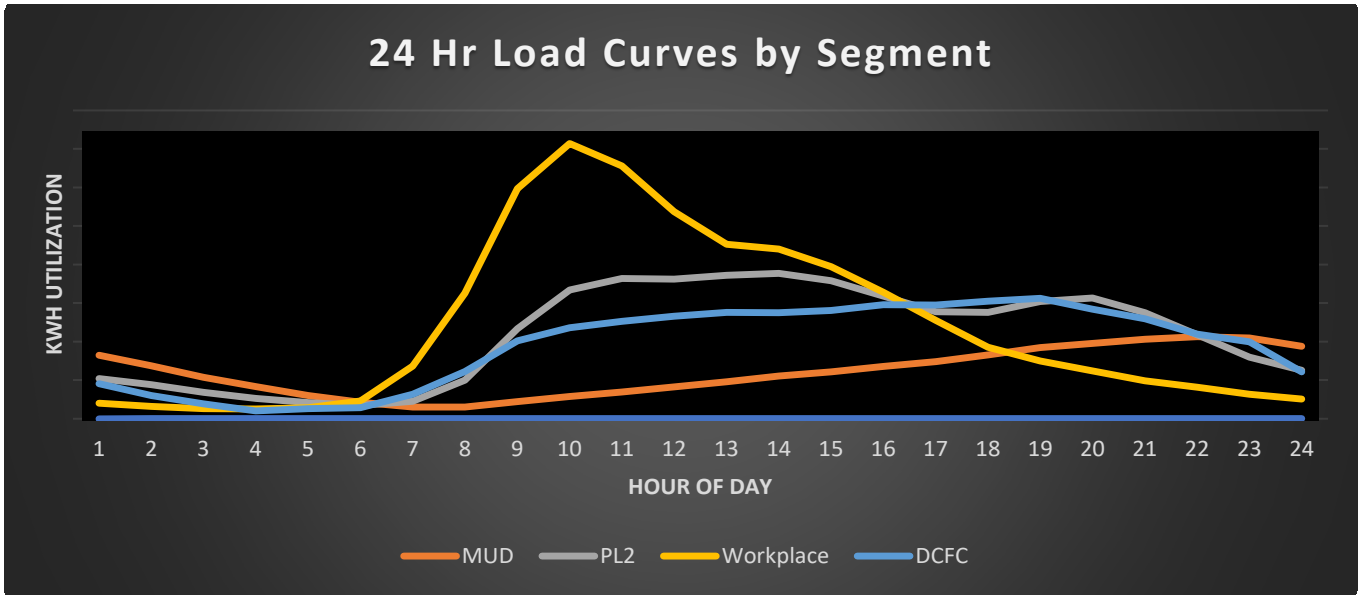
DC Fast sessions increased from 16% to 22% of total sessions in 2021

Overall System Utilization

The graph below shows monthly kWh growth of system-wide energy utilization as installations occurred since program start.



The graph below shows total hourly load by segment. This baseline from the first year of P&P shows that Workplace and Public L2 charging both peak in the morning while DC Fast Charge and MUD charging *peak later in the* afternoon or evening.



EVSE PILOT PROGRAM

Objective

The objective of the EV Charging Station Pilot Program is to install a foundational level of EV infrastructure within the DEF service territory to gather information about DEF customer charging behavior and grid impacts of increasing EV adoption. The pilot provides the opportunity to learn how to serve this emerging electric transportation market and the increased demand of utility customers who will install EVSE at their facilities.

Program Design

Equipment Deployed and Approach for Installation

P&P will install and operate "Smart Chargers" across the DEF service territory in minimum quantities shown in Table 1 (p. 2, above) and within the $8 million capital budget specified by the 2017 RRSSA. These Smart Chargers are units networked with cellular connections capable of remote operation that comply with Open Charge Point Protocol 1.6 ("OCPP 1.6"). This communications protocol ensures interoperability between the charging station hardware and network management systems to mitigate the risk of stranded assets. The Smart Chargers must demonstrate they can operate on open system and must not be connected to "proprietary" network services agreement. All EVSE procured by P&P will also be capable of communication via Open ADR. The Smart Chargers capture individual charge session data[3] that is aggregated by the Greenlots network.[4] DEF has 24/7 access to the Greenlots web portal to view unit status and download session data as needed.

DEF Contractor Approach - DEF conducted a competitive and open bid process to secure a turn-key installation contractor for duration of the EVSE Pilot period. DEF selected NovaCharge,[5] a minority owned, Florida based company to provide equipment, installation services, communications networking, and customer service support.

NovaCharge provides a menu of multiple OEM equipment manufacturers available for placement into P&P sites. All of the selected OEM's must meet OCPP protocols to connect to DEF network provider(s) and allow DEF to connect their equipment to any OCPP compliant network. Installation per site is also done through competitive bid process – Novacharge acquires up to three electrician quotes for each project. Electrician bids are then reviewed by DEF for an approval to proceed with installation. The Novacharge bids for electrical work per site have resulted in the opportunity for multiple electricians to participate in the P&P pilot.

[3] No personally identifiable information (PII) is captured by DEF.
[4] For more information visit https://greenlots.com/.
[5] For more information on NovaCharge, visit www.novacharge net.

Data Collection

All EVSE deployed is presently connected to the Greenlots communications network via cellular nodes within each EVSE. The communications network allows data collection and remote management of units (i.e., price configuration, charging load management, and ability to "push" unit software upgrades). The Greenlots database captures data across the network at both individual unit level and segment level across the entire P&P system.

Park & Plug will provide monthly usage reports to site hosts to monitor utilization and inform their decisions to offer charging to drivers as an amenity or at cost to the EV driver.[6]

Data collection is a key component to give visibility into usage and to characterize loads and load shapes to inform utility on methods to better serve EV load. Through the network software DEF has returned key data to help DEF understand:

- Load curves for each segment
- Utilization rates of various installations – this builds a profile for placement of EVSE
- Potential applications of demand response by segment
- System reliability
- Unique drivers – no personal information, rather driver IDs that indicate EV adoption in service territory
- Specifications for DEF infrastructure to support EVSE sites

EV drivers utilize the network via the Greenlots phone app, this phone app allows users to:

- Find available units to charge
- Enable charging sessions at the charging station
- Pay for sessions[7] (if applicable)
- Have visibility into charging activity for their vehicle
    - View charging sessions in real time
    - View billed amount, if applicable, for each session
    - View history of charging activity on Park & Plug network

Other phone apps available that will show the P&P stations include Plugshare.com, the Alternative Fuel finder on the website for the Department of Energy. DEF has limited ability to update and program 3rd party EVSE apps.

[6] The Greenlots network does not share PII.

[7] DEF established the FPSC approved prevailing GS-1 Flat rate as driver charge for those site hosts that elect to charge drivers for charging sessions.

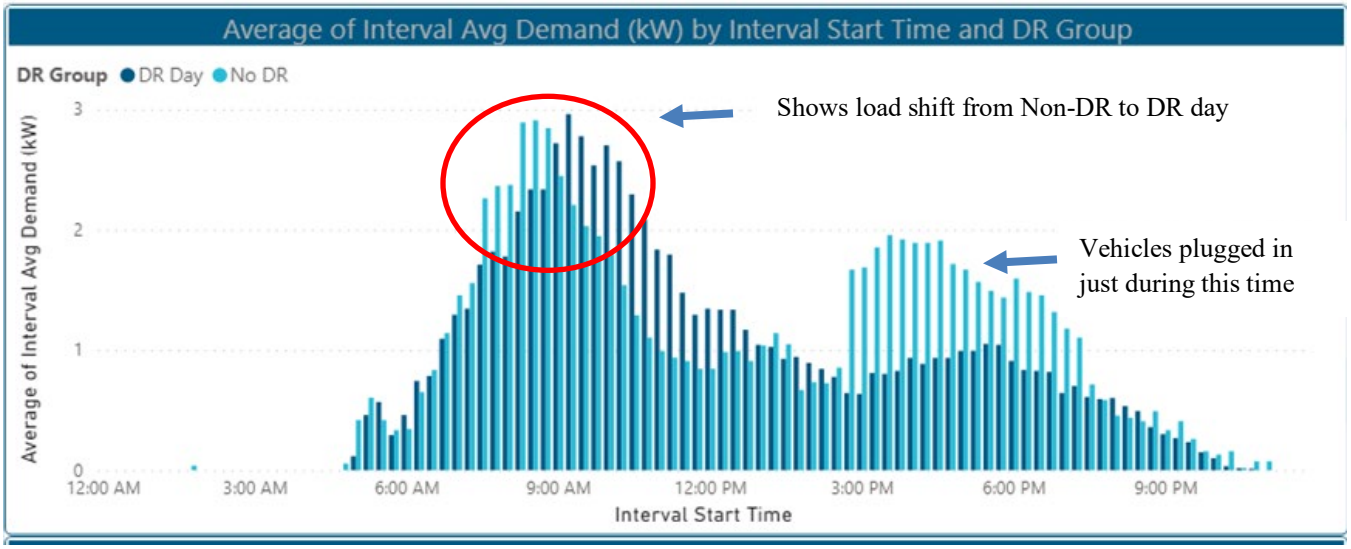
Pilot Learnings for Utility EVSE Deployment

Demand Response

Park & plug conducted a Demand Response testing scenario to address the capability to control the EV charging infrastructure during potential adverse grid impacts.

The use case selected was Workplace charging to determine if DEF could throttle the usage by 50% during the morning hours of 7am to 9am when peak for workplace segment occurs. Workplace users plug in vehicles when they arrive, and the vehicles stay plugged in most of the day after bulk of charging is completed in morning hours. The chart below shows the results of the DR test performed over 4 weeks in February 2021. The results of this analysis showed the system's ability to send load commands that did not affect drivers and shifted the load out of the morning peak period of 7am to 9am.

The data was compiled over four weeks with DR commands sent week 1 and week 4 to provide comparison to non-DR controlled weeks. The number of vehicles within this test scenario was 14 vehicles.



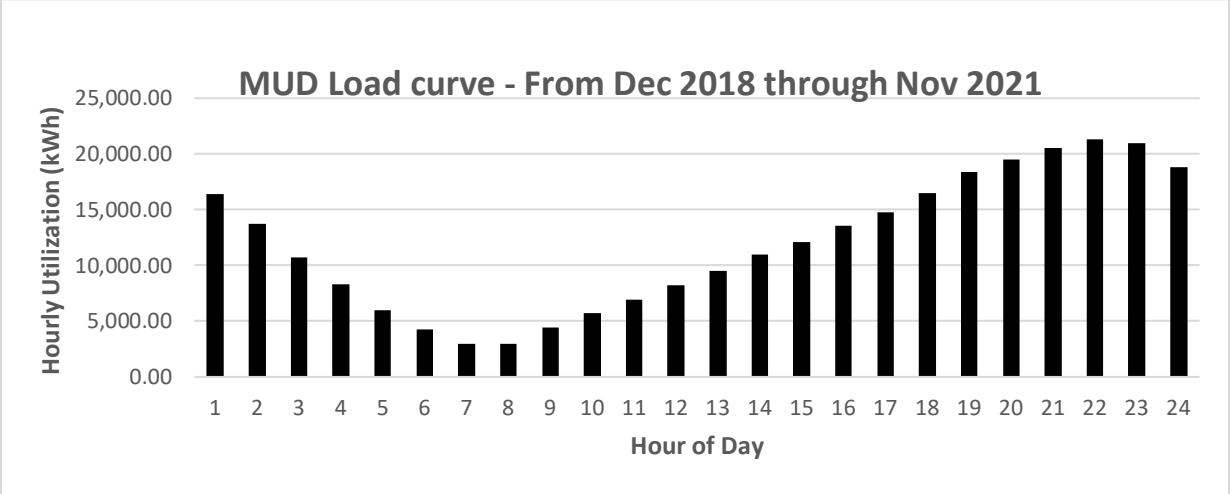
Other Learnings

Key pilot learnings have also been gained through the utility servicing of P&P as a new connected load.

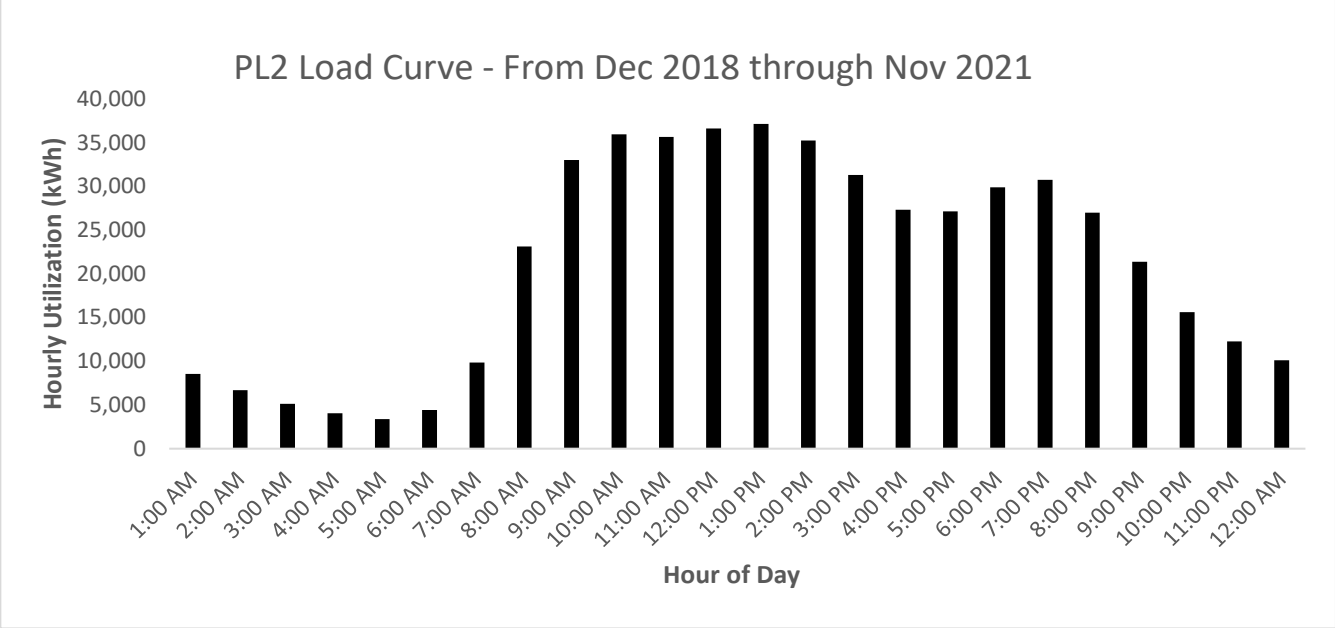
- DEF Field Engineers - Insights for DEF field engineers have resulted in familiarity with EVSE requirements and inform of corresponding site design of DEF support EVSE infrastructure.
- DEF Customer Service – EVSE is identified by customer service early in process for load calculations and appropriate application of rates.
- System Reliability – Processes have been developed to address unit outages across widely dispersed service territory

Program Segment Utilization

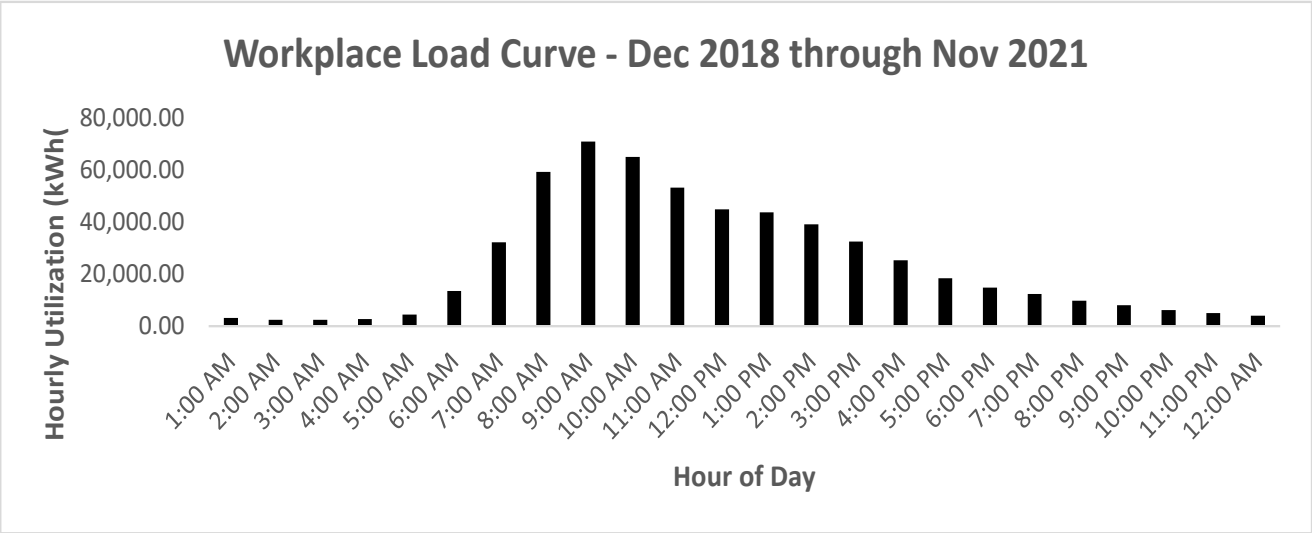
Multi-Unit Dwelling ("MUD") - MUD 220 Ports across 68 individual sites installed -



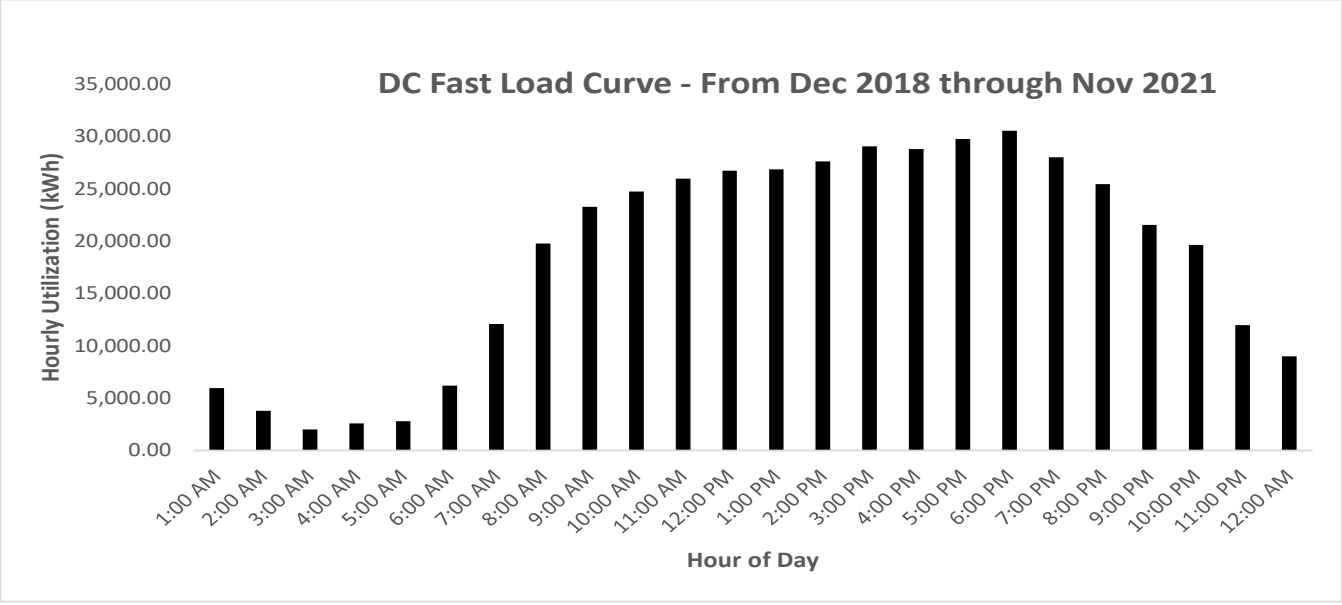
Public Level 2 ("PL2") - PL2 184 Ports 76 individual site installed



Workplace - 170 Ports across 44 individual sites across 53 individual sites



DCFC installed 52 Ports across 26 individual sites



Major and Key Secondary Corridor P&P DC Fast Charge Installations:
P&P has also successfully connected many key evacuation routes and tourism corridors where there was previously no availability of EV fast charging (see map Appendix C).

US 19/98 Corridor – P&P has installed DC Fast Charge units in Apalachicola, Crawfordsville, Perry, Crystal River, and Dunedin and to connect this official scenic Florida corridor with DC fast chargers. In addition, P&P DC Fast Charger installs provide coverage of a key Florida secondary corridor evacuation route and begins to address EV charging needs for evacuation routes beyond major interstates.

US 27 Corridor – DC Fast Charge units placed in Sebring, Avon Park, Davenport at I4, and Cagan's Crossing just south of Clermont. US 27 is another key Florida secondary corridor and evacuation route.

I-4 Corridor – Deltona, Celebration, Champions Gate, and intersection of US 27 Davenport.

Florida Turnpike & US 301 – Installation of two DC Fast Charge units at Wildwood and the City of Zephyrhills.
Florida Turnpike Enterprises - Four power (150KW) units each in the Turkey Lake and Canoe Creek service plazas.

Urban DCFC Installs – P&P has installed DC Fast Charge units within urban areas of some of our municipalities with great success, including the City of Largo Performing Arts Center and USF St. Petersburg, both of which have seen very high utilization. These urban DCFC serve multiple types of EV drivers including those without access to home charging as well as travelers and tourists visiting urban areas.

TRANSIT AGENCY COORDINATION - ZERO EMISSION BUSES

DEF has engaged the Pinellas Suncoast Transit Authority ("PSTA") to align with PSTA's path forward to grow electric transit buses within their fleet. DEF and PSTA will work together to advance E-buses through direct investment and through strategic planning discussions that align PSTA's load requirements for additional E-buses with DEF system planning.

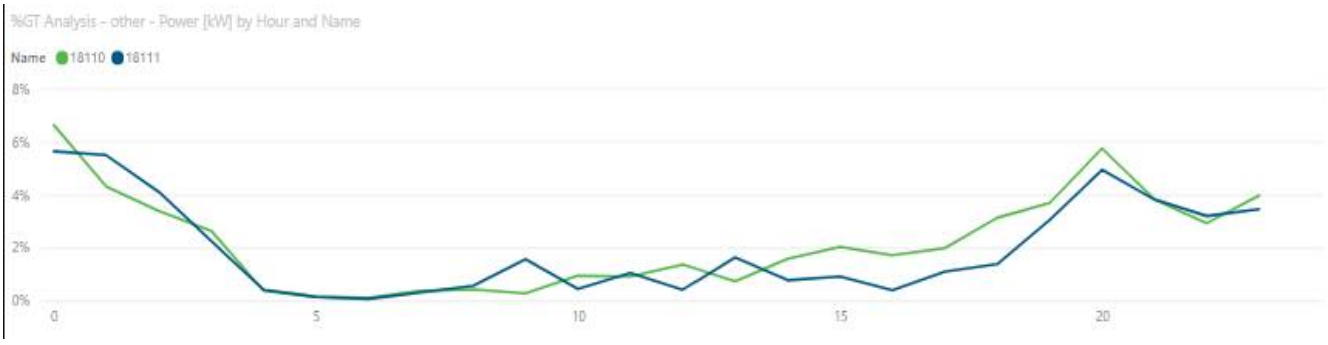
Through a grant in 2018, PSTA received two fully electric transit buses manufactured by BYD[8] and an additional four buses in 2021. To support charging these four E buses PSTA purchased two 80KW DC Fast Charging units that are installed at the main PSTA bus depot at 3201 Scherer Dr. in St Petersburg, FL. P&P also funded the expansion of an additional four depot chargers to support the new buses received in 2021. The chargers for these buses use a proprietary connector standard.[9] In exchange for funding the purchase and installation of these E-bus chargers, DEF and PSTA negotiated an agreement that requires PSTA to provide DEF with charging data from the four BYD depot units.

Below is charging data for the two PSTA electric transit buses operational in 2020. The initial data indicates substantial cost and emissions savings associated with the buses. DEF is working with PSTA to produce a more robust analysis of the savings for future reports.

Table 6 – E Bus Statistics Dec 2018 through Nov 2021

Total Miles Driven	kWh from charging	Equivalent Gals of Diesel (5 mpg average)
109,360	145,713	21,872
Cost of Electric	**$ 18,943 ($0.13/kWh)**	
Equivalent Diesel Cost	**$ 77,646 ($3.55/gal)**	
Savings	**$ 58,703**	

PSTA Electric Bus Charging Load Curve



1am 12pm 12am

[8] BYD is the electric bus manufacturer.
[9] For all other installations of DC Fast, Park & Plug will use DC Fast chargers that have the industry standard connectors, CHAdeMO and CCS Combo.

DEF has assisted both school districts and public transit authorities with planning for the addition of electric buses. DEF continues to work closely with PSTA to incorporate their plans to add e busses and the necessary charging infrastructure to support their e bus acquisition plan. DEF has worked with both Pinellas County schools and Orange county school district on infrastructure plans for e school buses acquired through the state of Florida Volkswagen funds.

EDUCATION/OUTREACH

Table 7 – Outreach Spend 2021

Communication Method	2018 Actuals	2019 Actuals	2020 Actuals	2021 Actuals	Forecast Totals	Actual Totals
Streaming Audio	0	$21,580	0	$ 0	$65,580	$21,580
Out of Home (Digital Billboards)	0	$14,664	$42,630	$20,212	$68,664	$77,506
Paid Social Media	0	$62,006	$23,069	$32,901	$121,720	$117,976
Paid search and YouTube	0	$29,236	0	$0	$76,236	$29,236
Community Events	$2,500	$5,300	$30,934	$10,000	$67,800	$48,734
Video				$20,210		$20,210
Other				$4,359		
Totals	**$2,500**	**$132,786**	**$96,633**	**$87,682**	**$400,000**	**$319,601**

- Actuals through October 31, 2020.
- Outreach budget is up to $400,000 per the 2017 RRSSA.

Outreach Events in 2021

- **Released March 2021, Awareness video** - Produced Informational video on connecting US 98 corridor with EV charging stations

Link to video https://youtu.be/Jkwf7bDhl-c

Utility Considerations for EV Infrastructure Programs

Deployment Strategy

DEF achieved an equitable deployment of infrastructure from the perspective of placement of charging stations across most all of the communities in the DEF Florida service territory. Equitable deployment was also achieved from the perspective of charging ports deployed into income qualified census tracts as required in 2017 Settlement Agreement.

Utility deployment of DC Fast Chargers is challenging on major corridors. The utility competes for major corridor DC Fast Charger site hosts with private market participants who have focused on the major corridors and have the leeway to revenue share with site hosts, primarily sites that have national footprints. This revenue share can take the form of parking space leases or proceeds from money collected at point of sale to the EV driver. Despite these challenges, DEF continually looks for opportunities to install DC Fast Chargers along all highway corridors, which includes US Interstates, US Highways, and State Highways within DEF's territory. DEF DC Fast chargers were deployed in key secondary corridors and in areas underserved by the private market – These deployments areas can lead to private investment by seeding more rural and underserved areas for infrastructure to support electric transportation.

Future deployment may also be impacted by federal funds received by Florida for EVSE infrastructure deployment and will be closely monitored by the Duke Energy. It remains to be seen the extent to which federal dollars will compliment utility deployments and to extent utility can participate in available federal funding for its customers to deploy EVSE infrastructure.

Ongoing Maintenance

Maintenance of EVSE presents additional challenges as units can become inoperable to drivers due to broken equipment, loss of network connectivity, vandalism and issues with the vehicles themselves. EVSE that has been deployed through past grant programs without funds set aside for maintenance have seen widespread problems with availability. DEF has initiated processes for alerts on EVSE that may be down and inoperable to serve drivers. Ongoing maintenance by the utility will ensure equipment is operable and periodically inspected for damage or unsafe conditions.

2021 DEF SETTLEMENT AGREEMENT – P&P and FUTURE EVSE PROGRAMS

2021 Duke Energy Settlement – EV Programs

The Florida Public Service Commission approved Duke Energy Florida's 2021 Settlement Agreement per Order No. PSC-2021-0202-AS-EI, which includes four elements of EVSE:

- Discontinuation of the Electric Vehicle Pilot approved in the 2017 Settlement Agreement but continuation of ownership and operation of those units installed from Park & Plug pilot program.

This will provide continuity to maintain the DEF installed EVSE base and provide a positive experience for EV drivers.

- Permits DEF to install an additional 100 DC Fast Charge ports that will include some higher EVSE power upgrades to previously installed EVSE Pilot DC Fast Charge. These additional DCFC units will be targeted on major and secondary corridors. DEF will continue to develop sites in underdeveloped areas on these corridors, areas that have seen little or no EVSE investment. DEF anticipates the DCFC expansion will be competitively bid into the marketplace with multiple vendors chosen to provide equipment and installation. The Settlement requires all associated costs related to the DC Fast Charge EV program to be captured in the cost of service. The additional DCFC ports will be commissioned at the FPSC approved FCF-1 rate.

- Establishment of a rebate program for commercial & industrial customers to install EVSE. The rebate program is open to all DEF commercial & industrial customers and provides rebates for installation of qualifying equipment.

- Establishment of a Residential Off-Peak credit program that will provide incentives in the form of $10 monthly bill credits for residential EV drivers who are not on a time-of-use rate to charge their vehicles off peak.

Other DEF EV Developments - 2021

DEF Participation - Florida Department of Transportation (FDOT) 2021 EV Infrastructure Master Plan

The Florida legislature passed Senate Bill SB 7018 and signed into Florida Statute 339.287, "Electric Vehicle charging stations; infrastructure plan development" that requires FDOT to coordinate, develop and recommend a Master Plan for EV charging infrastructure on the state highway system. The FPSC was directed to provide major consultation to the Master Plan completed and published in July 2021.

DEF actively participated in the Master Plan development as a subject matter expert from the utility perspective and to provide inputs developed as a result of the DEF Park & Plug pilot program. The following is an excerpt from this Master Plan with respect to utility involvement in EVSE pilots:

"A focus on flexibility should be maintained in order to adopt different models of utility and third-party ownership/ operation based on site specific circumstances. In addition, prematurely and narrowly defining the role of public utilities should be discouraged given the nascence of the market and the urgent need to address gaps in charging infrastructure" *FDOT Masterplan 2021*

Appendix A – Park & Plug DC Fast Locations

(There may be multiple DCFC Ports at a given location)