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FPSC - COMMISSION CLERK



December 2, 2015

Ms. Carlotta Stauffer
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee FL 32399-0868

Re: Docket No. 150210-EI – Gulf Power Company’s Petition for Approval of
Depreciation Class and Rates for Electric Vehicle Charging Infrastructure

Dear Ms. Stauffer:

Attached is Gulf Power Company’s response to Staff’s First Data Request in the
above-referenced docket.

Sincerely,

Charles Shane Boyett for

Robert L. McGee, Jr.
Regulatory and Pricing Manager

md

Attachments

cc w/att.: Beggs and Lane
Jeffrey A. Stone, Esquire
Division of Economics
Jenny Wu
Office of General Counsel
Danijela Janjic

1. Please refer to paragraph 3 of Gulf Power Company (Gulf or Company's) petition.
 - a. When does Gulf anticipate that it will begin to deploy electric vehicle (EV) charging infrastructure?
 - b. Please complete the table below summarizing the number of EV charging stations that Gulf envisions it will install within the next ten years.

	No. of EV Charging Stations
2015	
2016	
2017	
2018	
2019	
2020	
2021	
2022	
2023	
2024	

- c. In what type of customer premises (e.g. residences, parking lots of commercial customers, public parking areas, etc.) does Gulf anticipate deploying its EV charging infrastructure?
- d. What type of EV charging infrastructure does Gulf intend to install?¹
- e. Please provide an estimated capitalized cost for a single EV charging station. Please describe how Gulf developed its estimated cost.
- f. Does Gulf anticipate a need for additional distribution infrastructure based on the estimated number of stations identified in Gulf's response to Question No. 1.b.?

RESPONSE:

- a. Gulf plans to begin deploying Electric Vehicle (EV) Charging Infrastructure in 2016. The timing of that deployment is dependent upon many factors,

¹ The National Electrical Code categorizes electric vehicle chargers broadly into three types with the electric load in the range of: 1.1-1.8 kW (Level 1), 3.3 kW (Level 2), 6.6-19.2 kW (Level 2+), and 50-150 kW (Level 3). Details may be referred to pages 10-11 of the report:
http://www.psc.state.fl.us/utilities/electricgas/electricvehicles/09_06_2012/Electric_Vehicle_Charging_Report.pdf

including but not limited to, the depreciation request contained in the instant petition.

- b. Gulf anticipates installing approximately 300 electric vehicle supply equipment (EVSE) units over the next 5 years. Gulf has not forecast deployment of EVSEs beyond 2020 at this time.
- c. Gulf will deploy EV charging infrastructure in locations generally accessible by the public. Locations include, but are not limited to, municipal parking lots, commercial business parking lots, and public parking areas. Gulf Power does not currently plan to install any EV charging equipment beyond the point of service at a residential customer premise.
- d. From 2016 to 2020, Gulf Power proposes to deploy AC Level 2 EV charging stations (ACL2) and DC Level 2 EV charging stations (DCL2). EVSEs will be able to serve all Plug-in Electric Vehicle (PEV) models using the SAE J1772 industry standard connector for alternating current charging and the CHAdeMO or SAE Combo Connector for direct current charging.

Please note, electric vehicle charging types and levels are further categorized by the Society of Automotive Engineers in SAE Standard J1772 available here at: http://standards.sae.org/j1772_201210/

SAE categorizes alternating current charging and direct current charging into three levels. From the current version of J1772 (Version 5 or J1772: 2012), AC charging levels are defined in section 5.1:

5.1 Electrical Ratings

TABLE 5.2 – AC CHARGING ELECTRICAL RATINGS (NORTH AMERICA)

Charge Method	Nominal Supply Voltage (V)	Max Current (Amps-continuous)	Branch Circuit Breaker rating (Amps)
AC Level 1	120 V AC, 1-phase	12 A	15 A (min)
	120 V AC, 1-phase	16 A	20 A
AC Level 2	208 to 240 V AC, 1-phase	≤ 80 A	Per NEC 625

and section 6.1 for DC charging:

6.1 Electrical Ratings

TABLE 6.2 – DC CHARGING ELECTRICAL RATINGS (NORTH AMERICA)

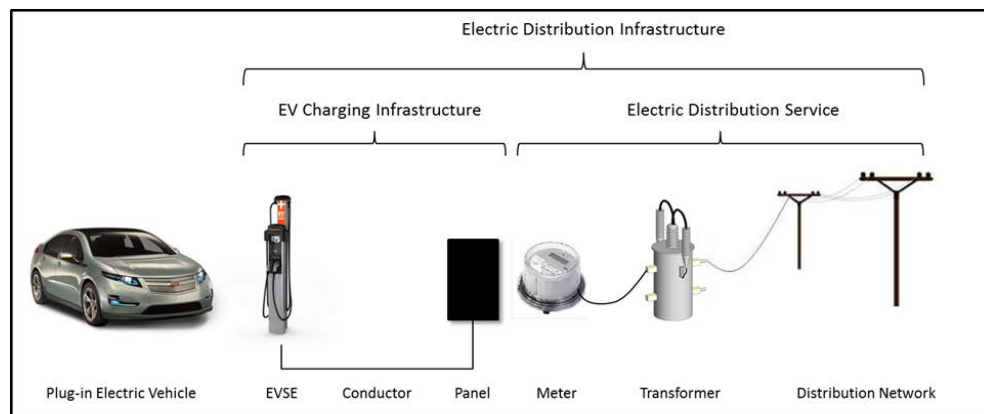
Charge Method	EVSE DC Output Voltage (V DC)	Max Current (Amps-continuous)
DC Level 1	200-500	80
DC Level 2	200-500	200

- e. Gulf anticipates its cost estimates will include capital costs for equipment and installation of both ACL2 and DCL2 EV charging stations. Gulf estimates that the installed cost of ACL2 EV charging stations is approximately \$6,000-\$12,000 per unit. Gulf estimates that the installed cost of DCL2 EV charging stations is approximately \$70,000-\$110,000 per unit.
- f. In order to install the EVSEs identified in response to question 1(b), Gulf Power will supply new electric distribution service (everything up to and including electricity meter) to provide electric power to the EVSE service point. Gulf does not anticipate that the installation of electric charging infrastructure will require upgrades to its distribution system, however, each site will be evaluated and any necessary upgrades will be considered on a location-specific basis.

2. For EV charging infrastructure that Gulf anticipates deploying:
 - a. Please provide diagrams or photos of the EV charging infrastructure proposed under its petition for depreciation account classification and rate assignment.
 - b. Please identify the major infrastructure components.
 - c. Does the Company anticipate that each of the different components identified in Question No. 2.a. will have a same design life? Please explain.
 - d. Does the Company anticipate to install the infrastructure itself, or through contracts?

RESPONSE:

- a. Electric Distribution Infrastructure Diagram



The Electric Distribution Infrastructure Diagram outlines the basic components of Electric Distribution Infrastructure needed to supply power to an ACL2 or DCL2 EV charging station.

- b. The principle components of the EV charging infrastructure on the customers' premises are identified in Gulf's response to question 2(a) and include the EVSE, the panel that houses the breakers and disconnect switch, and the conductor which includes the wiring and conduit to energize the EVSE. The National Electric Code defines Electric Vehicle Supply Equipment as the conductors, including the ungrounded, grounded, and equipment grounding conductors, and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle. Not

mentioned in the diagram in response to question 2(a), the EVSE will be mounted on a pedestal that includes a foundation.

- c. Yes, Gulf anticipates that components of the EV charging infrastructure will have a similar design life based upon a combination of manufacturer recommendations and industry studies.
- d. Gulf is currently seeking vendor partners for EV charging infrastructure installation. Vendors will be competitively selected and contracted to provide installation services.

3. Please see the following excerpt from the FERC's Electric Uniform System of Accounts, found at <http://www.ferc.gov/enforcement/acct-matts/usofa.asp>.

371 Installations on customers' premises

This account shall include the cost installed of equipment on the customer's side of a meter when the utility incurs such cost and when the utility retains title to and assumes full responsibility for maintenance and replacement of such property. This account shall not include leased equipment, for which see account 372, Leased Property on Customers' Premises.

Items

1. Cable vaults.
2. Commercial lamp equipment.
3. Foundations and settings specially provided for equipment included herein.
4. Frequency changer sets
5. Motor generator sets.
6. Motors.
7. Switchboard panels, high or low tension.
8. Wire and cable connections to incoming cables.

Note: Do not include in this account any costs incurred in connection with merchandising, jobbing, or contract work activities.

- a. Please indicate whether the Company believes all the components of the EV charging infrastructure (plant) proposed under its petition for inclusion in Account 371, per its response to Question No. 2 above, meet all the requirements of Account 371 as specified above. If not, please explain.
- b. Please link the Item descriptions above to each type of EV charging infrastructure (plant) Gulf Power Company anticipates deploying and recording in Account 371.
- c. If applicable, please identify all EV charging infrastructure (plant) that Gulf anticipates deploying and recording in Account 371 that does not fit into any of Items 1-8 above.
- d. For any plant listed in response to Question No. 3.c., please specify how Gulf's request for Commission approval of a depreciation rate for such plant is consistent with Rule 25-6.0436(3)(a), F.A.C. If further subcategorization is contemplated, please specify.

RESPONSE:

- a. Yes.

- b. The principle components of the EV charging infrastructure on customers' premises are identified in Gulf's response to question 2(a). The switchboard panel corresponds to item 7 above and will house the breakers and disconnect switch. The conductor, including wiring and conduit to energize the EVSE matches items 1 and 8 above. The EVSE will sit upon a foundation matching item 3 above and potentially item 2 for commercial lamp equipment. The EVSE, while not mentioned specifically, fits the FERC description for Account 371.
- c. Not Applicable.
- d. Not Applicable.

4. In paragraph 4 of its petition, Gulf requests the Commission to approve a fifteen (15) year life for a new class of depreciable asset referred to as "electric vehicle charging infrastructure" to be booked in Account 371.
- a. Please explain the basis for Gulf's assumption of 15-year service life for EV charging infrastructure.
 - b. Please cite and identify any estimates, studies, or sources that support 15-year service life for EV charging infrastructure.
 - c. By what authority is a new class of depreciable asset titled "electric vehicle charging infrastructure" established?

RESPONSE:

- a. EV charging infrastructure is a relatively new equipment type. Depreciable life recommendations from manufacturers vary. Gulf assumes a 15-year life based upon a reasonable range derived from manufacturer recommendations and industry studies. Because this equipment is relatively new, Gulf is not aware of an industry consensus on the useful life of these asset types.
- b.
 1. The Dollars - and Sense - of EV Smart Charging a whitepaper by Silver Springs Network on page 6 states: "The analysis assumes a utility with two million meters and a 20-year EVSE system lifetime."
 2. Financial Viability of Non-Residential Electric Vehicle Charging Stations by Dr. Jason Synder of the UCLA Anderson School of Management on page 2 states: "The actual lifespan of the machines is uncertain at this point, but the model assumes 10 years. For tax purposes, the machine is depreciated straight line over a useful life of 7 years."
 3. Plugging In: A Stakeholder Investment Guide for Public Electric-Vehicle Charging Infrastructure by James W. May and Matt Mattila at the Rocky Mountain Institute on page 21 states: "All installed infrastructure is assumed to remain functional over the course of the 10 year period forecasted in the model."
- c. Rule 25-6.0436, Florida Administrative Code (F.A.C.), requires investor-owned utilities to obtain Commission approval prior to changing an existing or initiating any new depreciation rate.

5. In paragraph 4 of its petition, Gulf requests the Commission to approve a net salvage of zero percent (0%) for EV charging infrastructure booked in Account 371.
 - a. Please explain the basis for Gulf's assumption of zero net salvage value of EV charging infrastructure proposed under its petition for inclusion in Account 371.
 - b. Please cite and identify any estimates, studies, or sources that support a net salvage of zero for EV charging infrastructure.

RESPONSE:

- a. EV charging infrastructure is a relatively new equipment type. Depreciable life recommendations from manufacturers vary. Gulf assumes a net salvage value of zero percent (0%) based upon a reasonable range derived from industry studies. Because this equipment is relatively new, Gulf is not aware of an industry consensus on the salvage value of these asset types.
- b. Please see Gulf's response to question 4(b).

6. Is Gulf aware of any price regulated electric utility, in the United States, which currently books depreciation of EV charging infrastructure? If the response is affirmative, for the identified depreciation account(s):
 - a. Please identify the account number and its associated description.
 - b. Please identify the average service life.
 - c. Please identify the average net salvage.

RESPONSE:

No, Gulf is not aware of any regulated electric utility that currently books depreciation of EV charging infrastructure. However, subsequent to Gulf filing its petition, two additional utilities from Kentucky jointly filed a petition requesting the following:

- a. FERC Electric Uniform System of Accounts: 371 Installations on customers' premises.
- b. 10-year average service life.
- c. 0% average net salvage.

7. Why Gulf believes EV charging infrastructure should be considered a rate base item and/or investment? Please provide the rationale.
- a. Does Gulf envision instances where contributions in aid of construction (CIAC) will be assessed for EV charging infrastructure? If so, please discuss.
 - b. Does Gulf envision instances where CIAC will not be assessed for EV charging infrastructure? If so, please discuss.
 - c. What types of customers or rate classes does Gulf envision will be the primary recipients of its EV charging services?
 - d. Under what sections of Gulf's tariff does the Company anticipate filing for approval of changes in rate and service to accommodate the EV charging installations?
 - e. Through which recovery mechanism does Gulf plan to seek recovery of the costs of the installations of the EV charging infrastructure?
 - f. Which revenue and expense accounts does Gulf believe will be impacted in a future filing, if known?

RESPONSE:

Pursuant to Section 366.94, Florida Statutes, electric vehicle charging is a retail sale of electricity for utilities regulated by the Florida Public Service Commission. Infrastructure necessary to provide for electric vehicle charging is therefore properly considered a base rate recoverable investment.

- a.- b. Gulf has not yet finalized its EV program. Gulf envisions that initially, all EV infrastructure will be owned by Gulf and no CIAC will be required.
- c.- d. Gulf Power's electric vehicle charging network will be publicly available to any plug-in electric vehicle driver (i.e., the recipient of the charging services). Gulf envisions that its customer will initially be a third-party network operator and will be billed under existing rate schedules General Service - Non-Demand (GS), General Service - Demand (GSD), or other such Commission-approved rate schedule.
- e. Gulf intends to seek recovery of the EV charging infrastructure costs through base rates.
- f. Revenue and expense accounts known at this time are as follows:
Revenue: FERC 442
Expenses: FERC 908 and FERC 598

8. As part of its 2010 Demand Side Management Plan filed in Docket No. 100154, Gulf implemented an Energy Select Electric Vehicle Pilot Program. In its 2010 Demand Side Management Plan, Gulf additionally stated that it would “complete an end-of-pilot evaluation of program results, including a survey of customer satisfaction.”
- a. As indicated in Exhibit JLT-2 filed in conservation clause,² Gulf's Energy Select Electric Vehicle Pilot Program ended in 2014. Please provide Gulf's end-of-pilot program evaluation of program results, if it is available, for the Energy Select Electric Vehicle Pilot Program.
 - b. Per the brief Program Description contained in Exhibit JLT-2, the Energy Select Electric Vehicle Pilot Program is mainly designed for the residential customers. Will the EV charging infrastructure proposed under Gulf's petition in the instant case expand to other customer classes?

RESPONSE:

- a. Please see Attachment A for Gulf Power's Conservation Demonstration and Development Report for the Energy Select Electric Vehicle Pilot Program.
- b. Gulf will deploy infrastructure in locations generally accessible by the public. Locations include but are not limited to municipal parking lots, commercial business parking lots, public parking areas, etc. Gulf Power does not currently intend to install any equipment beyond the point of service at a residential customer premise.

² Exhibit JTL-2, page 45, ECCR 2014 Est/Act & 2015 Projection. Docket No. 140002-EG

9. Please describe in detail whether a competitive market for EV charging infrastructure exists in the United States and what efforts, if any, Gulf has undertaken to assess such a market.

RESPONSE:

The EV charging infrastructure market is new. Gulf Power has identified the lack of charging infrastructure as a barrier to customer adoption of electric vehicles. In forums discussing electric vehicles, Gulf's customers frequently identify the lack of charging infrastructure as an impediment to EV adoption. Gulf sees the installation of EV charging as a customer need and is considering ways to address the need. Furthermore, Gulf is not aware of any EV charging infrastructure providers in Northwest Florida that have installed, or are preparing to install, robust and comprehensive EV charging infrastructure in Gulf Power's service area to address this customer need.

Robert L. McGee, Jr.
Regulatory & Pricing Manager

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Staff's First Data Request
Docket No. 150210-EI
GULF POWER COMPANY
December 2, 2015
Attachment A, Page 1 of 2



September 3, 2015

Gregory Shafer, Director
Division of Economics
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Dear Mr. Shafer:

Please find enclosed a copy of Gulf Power Company's Conservation Demonstration and Development (CDD) Final Report for the Energy *Select* Electric Vehicle Pilot Program.

If you have any questions or need additional information, please do not hesitate to give John Floyd a call at (850)444-6644.

Sincerely,



Robert L. McGee, Jr.
Regulatory and Pricing Manager

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Enclosures

cc: Jennifer L. Todd
John Floyd
Beggs and Lane
Jeffrey A. Stone, Esquire

Gulf Power Company

Energy *Select* Electric Vehicle Pilot

Final Report

June 2015

Overview

Under the Florida Public Service Commission Conservation Demonstration and Development (CDD) Program, Gulf provided residential customers with an incentive to encourage electric vehicle adoption and use of off-peak charging through Gulf Power's existing Energy *Select* Program. The research objective of this pilot program was to measure customer acceptance of EVs (Electric Vehicle) and PHEVs (Plug-in Hybrid Electric Vehicle), as well as customer response to charging these electric vehicles using the Energy *Select* Program. This three-year pilot program provided incentives directly to the customer of up to \$1,000 per electric vehicle and required participating customers to enroll in the Energy *Select* Program for at least one year. Gulf Power's Energy *Select* Program is uniquely positioned to immediately begin implementing a "Smart Grid" type application whereby electric vehicles are automatically charged off-peak via a Load Control Relay that has been pre-programmed by the customer to charge the vehicle overnight during the low price periods of the RSVP rate.

Key Findings

- Number of completed qualifying installations: 17
- Total amount of incentive payments made: \$16,000
- Number of disqualified installations: 5
- Number of distributors or third party vendors actively promoting the pilot program: 13
- Manufacturer and model of the most commonly installed qualifying equipment: Chevrolet Volt, Extended Range Electric Vehicle

Analysis

Gulf Power achieved 17 qualifying installations during the pilot program. Through this pilot, Gulf Power was able to gain valuable information concerning customer preferences around purchasing versus leasing EVs and PHEVs. Because the technology is improving with each vehicle model, consumers are gravitating towards leasing vehicles. The low customer participation rates in the Gulf Power pilot can primarily be attributed to the lack of incentives for leased vehicles. In order to increase customer adoption and facilitate meaningful research, future program offerings should likely include incentives for customers who lease, as well as purchase, an EV or PHEV. Due to the low customer participation, sample sizes were too small for meaningful load research to determine energy and demand impacts which would have facilitated cost-effectiveness results as originally planned. Also, customer satisfaction surveying was not completed for the same reason.