STAFF REPORT

Meeting Date: June 21, 2016

To: Honorable Mayor & City Council

From: Chad Lynn, Assistant Director of Public Works Services
Genevieve Row, Parking Services Manager
Logan Phillippo, Management Analyst

Subject: Electric Vehicle Charging Policy

Attachments:
1. March 3, 2016 Staff Policy Proposal to the Traffic and Parking Commission
2. Table of Electric Vehicle Charging Policies for other Cities

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INTRODUCTION

Staff seeks City Council direction on policies related to City Electric Vehicle ("EV") charging stations. The proposed Electric Vehicle Charging Policy (Attachment 1) was presented to the Traffic and Parking Commission ("TPC") at the Regular Meeting on March 3, 2016. A motion to accept staff's recommendations for charging rates along with the inclusion of two additional recommendations was made and approved 5-0.

Staff recommendations are summarized below and described in detail in Attachment 1.

- Adoption of formal rate language
- Implementation of rates uniformly at City EV charging stations
- Implementation of new enforcement strategies and associated informational signage

Additional TPC recommendations include those listed below.

- Prohibition of use by plug-in hybrid EVs ("PHEV"s).
- Transition to Level 2 or Level 3 charging stations

DISCUSSION

The following introduces each of the recommendations proposed and approved at the March 3, 2016 TPC Regular Meeting.

Adoption of formal rate language

Staff has proposed the adoption of formal rate language that includes a range with low and high limits for three types of fees: an Access Fee, Station Fee, and Energy Fee.

- An Access Fee is a fee associated with gaining access to the charging station irrespective of if the vehicle is charging and/or how long it remains connected. It is essentially a flat rate for initiating a session by connecting to the charging station.
- A Station Fee is fee associated with the length of time a connection is established with the station, irrespective of whether the vehicle is charging or not. As long as the vehicle is connected to the charging station, this fee would apply.
- An Energy Fee is a fee associated with the amount of energy consumed by the connected vehicle. This is based on a per kilowatt-hour ("kWh") flat rate and only applies when the vehicle is actively charging. This fee is not applied when the vehicle is not receiving power even if the vehicle remains connected to the EV station.

These fees would be set by the Director of Public Works Services and would be required to fall within the ranges listed below. Any such changes set to the rates set forth by the Director would need to be properly displayed to EV charging station users.

Fee Type	Fee Range
Access Fee	
Low Limit	$0.00
High Limit	$20.00
Station Fee	
Low Limit	$0.00 per hour
High Limit	$20.00 per hour
Energy Fee	
Low Limit	$0.00 per kWh
High Limit	$1.00 per kWh

Implementation of rates uniformly at City EV charging stations

Staff has proposed the initial rate structure as shown in the table below. This rate structure would be implemented uniformly in all City parking facilities.

Type of Fee	Increment 1	Increment 2
Station Fee	First Two Hours FREE	Per Hour Thereafter $6.00
Energy Fee	$0.25 per kWh	$0.25 per kWh

The Energy Fee of $0.25 per kWh would recover the cost to provide electricity and the $6 per hour Station Fee would encourage turnover. "Turnover" describes a situation where a customer removes the vehicle from the parking space, which subsequently makes the parking space available for the next customer's use. Just as a customer

would not leave his or her vehicle parked at a gas station pump longer than the time it took to fill his/her vehicle with gas, the $6 per hour Station Fee would discourage a customer from occupying an designated EV charging space for excessive periods of time beyond what is needed to adequately "fuel up"/charge the EV. Staff would assess usage patterns after implementation of these fees and the Director may adjust fees within the established Fee Range in order to maximize the usage of current EV charging stations for the benefit of all customers.

Implementation of new enforcement strategies

Staff has proposed the modifications to enforcement strategies as shown in the table below. Under the proposed rate structure, a customer parking in a designated EV space must still initiate a "session" at the EV charging station. This can be done using a proprietary Charge Point card, contactless (tap-and-go) credit cards, or by calling an 800 number listed on the station.

Current Enforcement Strategies	Proposed Modified Strategies
Non-EVs may NOT park in designated EV spaces. EVs must be moved from the charging station within one hour after reaching a full charge. Unmoved vehicles may be subject to citation.	Non-EVs may NOT park in designated EV spaces UNLESS a session has been initiated. EVs may remain in a space even after reaching a full charge, so long as a session is active and Station Fees apply. Plug-in hybrid EVs may NOT park in designated EV spaces, a Traffic and Parking Commission recommendation discussed in the next section of this report.
Patrons cannot lock, or in any way convert, the charging cable for their exclusive use.	Patrons cannot lock, or in any way convert, the charging cable for their exclusive use. Spaces will be limited to the total number of connections available at the station. There will not be more spaces than connections. In locations with Level 1 and Level 2 charging, signage will identify spaces specifically for Level 1 and Level 2 connections. This eliminates the confusion of a vehicle that has been unplugged by a third party in an adjoining space. For example, if a vehicle is parked in a Level 1 space and is using the Level 2 charging unit, it may be subject to citation for violation of the space designation
A vehicle parked in a charging stall without the charging cable connected to the vehicle is subject to citation.	A session must be initiated, but the EV may not necessarily be connected.

Prohibition of use by Plug-in Hybrid EVs ("PHEV"s)

The TPC has supplemented staff proposals and recommended prohibiting plug-in hybrid EVs ("PHEV"s). PHEVs are combination of a gasoline or diesel engine with an electric motor and a large rechargeable battery. Unlike conventional hybrids, PHEVS can be plugged-in and recharged from an outlet, allowing them to drive extended distances using just electricity. When the battery is emptied, the conventional engine turns on and the vehicle operates as a conventional, non-plug-in hybrid. A battery EV ("BEV") only has an electric motor and battery, deriving all its power from plugging in. Unlike PHEVs, BEVs don't have an internal combustion engine and can't operate as hybrids. Sales data show that approximately half of all EVs sold between 2010 and 2015 were BEVs and that the other half were PHEVs. So far in 2016, data show that more BEVs (55% of total EV sales) have been sold than PHEVs (45% of total EV sales).

Prohibiting PHEVs from using City EV charging stations would provide vehicles parking at City facilities that are 100% reliant on electric power with more access to charging stations. PHEVs can utilize traditional gasoline infrastructure whereas BEVs cannot. BEV motorists face the phenomenon known as 'range anxiety,' which results from the uncertainty of having enough electric charge to arrive at the motorist's next destination.

Transition to Level 2 or Level 3 charging stations

The TPC has additionally supplemented staff recommendations to transition from Level 1 to Level 2 or Level 3 charging stations. Level 1 charging refers to a 110V/120V connection, similar to a household electrical outlet. This is a slower method of charging and the City does not provide the cord or connection to this outlet. Level 2 charging refers to a 240V connection, similar to what powers a home electric dryer or oven. Level 2 charging connections have a standardized cord provided by the City. Level 3 charging, also referred to as direct-current ("DC") fast charging, charges through a 480V and does not yet have an industry standard plug. Most Level 3 chargers provide an 80% charge in 30 minutes. The most prevalent Level 3 charging stations are Tesla's Supercharger, designed specifically for the Tesla vehicles. EVs with Level 2 charging capabilities are the most common type in use today, but newer EV models may be designed to be Level 3 capable.

Staff plans to follow Southern California Edison's Charge Ready Program which could subsidize the cost of additional EV charging infrastructure and stations through rebates. Staff will provide appropriate updates as this program develops. This program may provide a good opportunity provide additional Level 2 charging stations in the City.

FISCAL IMPACT

The proposed policy will present fiscal impacts associated with implementing fees for charging at City parking facilities. These impacts are discussed in detail in Attachment 1 and summarized here. Staff estimates the costs of operating EV charging stations at approximately $104,500 per year. Revenues under these proposed modified policies would generate approximately $135,000 per year. Based on these estimates, the City would generate $30,500 annually, which may accrue toward the upgrade and replacement of EV charging stations and other EV-related infrastructure. Associated City costs are currently budgeted and available with additional funding needs for ongoing maintenance and operations have been considered in the 2016/2017 budget.

RECOMMENDATION

The need for more efficient use of EV charging infrastructure at City parking facilities will grow as more EVs enter the market. The proposed policy described in Attachment 1 as well as the two TPC recommendations discussed above would encourage higher turnover and better utilization of the current EV charging infrastructure. Attachment 2 shows a matrix of some Southern California cities' public EV charging infrastructure and related policies, collected through an informal survey. Staff received responses from several cities, including Santa Monica and Glendale. The information provided shows that policies are varied. For example, Santa Monica does not currently have fees for EV charging but may implement a fee structure after developing a strategic plan and Glendale has fees related to energy usage only.

Staff recommends assessing usage patterns with the proposed policy, or other policy as directed by the City Council, which will help the City better determine future EV charging infrastructure needs.

George Chavez

Approved

ATTACHMENT 1

CITY OF BEVERLY HILLS

TRAFFIC & PARKING COMMISSION

March 3, 2016

TO:	Traffic & Parking Commission
FROM:	Chad Lynn, Assistant Director of Public Works Services Russell Platamone, Parking Services Manager Genevieve Row, Interim Parking Services Manager
SUBJECT:	Electric Vehicle Policy Proposal
ATTACHMENTS:	Attachment 1 – List of Electric Vehicle Charging Stations and Capacity Attachment 2 – Proposed Informational and Regulatory Signage Attachment 3 – Table and Analysis of Available Fees Attachment 4 – Rate/Fee Comparison Attachment 5 – Proposed Rate Ranges for City Fees and Charges

INTRODUCTION

The City currently operates 35 publicly available electric vehicle (EV) charging stations, providing 20 Level 1 connections and 38 Level 2 connections for a total of 58 connections in 14 City parking facilities and at Roxbury Park. In September 2011 the City received multiple grants covering approximately 28 charging stations and the associated maintenance and operating fees through January 2014 from ChargePoint America/Coulomb. Between December 2012 and October 2015, the City has added an additional 7 charging stations to its inventory through additional grant opportunities and as part of new building construction. The City has been responsible for the associated installation costs of the units and for the ongoing cost of energy (power) for the operation of these units. As of January 2014, the City has been responsible for all of the associated cost of operating its inventory of stations, which includes hosting services (user customer service) and maintenance and repair of the infrastructure.

The EV charging stations currently in service conform to the following configurations:

- Level 2 Only – 1 Connection
- Level 2 Only – 2 Connections
- Level 2 and Level 1 – Once connection for each

At the time of installation, the City's goal was to promote the use of EVs and to make charging infrastructure available to existing and future EV users. This included the location of the EV spaces along with the ability to obtain unlimited connectivity free of charge. When the original grants for the EV stations were accepted, the associated fees for hosting and maintenance were included, prompting the City to promote and provide free access to an underutilized asset. The City 'reserved' two parking spaces for each charging station as part of the original design, which allowed for both a Level 1 and a Level 2 connection at each charging station. Due to the configuration of the Level 1 charging station and lack of informational signage, many users are not aware the Level 1 connection is present. In some cases, at the time of installation, power limitations did not allow the City to install units with both Level 1 and Level 2 charging capability, such as at 221 N Crescent Drive and 216 S Beverly Drive, where there are more spaces dedicated to charging than connections available.

Based on usage and in recognition of the goal to promote the use of EV charging stations, the City adopted very few enforcement protocols; user etiquette and informal courtesies recognized by early EV adopters largely governed the use and accessibility to the EV charging infrastructure. Over time, as the etiquette and courtesies changed with the proliferation of the technology, new challenges arose. EV parking spaces were generally installed adjacent to vehicle and pedestrian entrances, which are often perceived to be prime or desirable parking locations, and more users began parking in these 'prime' spaces irrespective of connectivity to or a need for charging. In cases with more spaces than charging connections, or where confusion exists regarding Level 1 and Level 2 connections, users have disconnected a connected/charging vehicle to plug in their own vehicle. This scenario, in which a user may have connected at the time of arrival and was disconnected by a third party, creates an enforcement dilemma at the time of citation issuance. The officer on-site does not know if the vehicle being cited was disconnected by a third party. The City has slowly and disjunctively created and attempted to implement incremental changes to the enforcement program, many of which have or will become difficult to measure or impractical to enforce.

Current enforcement policies include:

- Non-Electric vehicles may not park in designated EV spaces.
- Vehicles must be moved from the charging station within one hour after reaching a full charge. Unmoved vehicles may be subject to citation.
- Patrons cannot lock, or in any way convert the charging cable for their exclusive use.
- A vehicle parked in a charging stall without the charging cable connected to the vehicle is subject to citation

Time limits based on the vehicle's charging time, such as the removal of the vehicle within 1 hour after charging has completed, are difficult to measure and impractical to enforce as it requires multiple trips by parking enforcement officers (PEO) to establish a violation. Additionally, early signage that was adopted for 'reserved' spaces were not explicit about the requirement for the vehicle to be connected to a charging station as prescribed by the California Vehicle Code (CVC). Currently staff does not cite electric vehicles that are parked in EV designated spaces when they are not connected to the EV station. Although this violation is potentially a citable offense, confusion with signage and difficulty for the officer at the time of violation to determine if the vehicle was disconnected by a third party have resulted in the suspension of enforcement for this specific violation.

On January 5, 2016, the Traffic and Parking Commission reviewed preliminary staff recommendations for rate and policy changes and requested additional information which included the following:

- Cost recovery considerations for the program
- EV stations to be powered by solar infrastructure
- Consideration of alternative rates and collection methods, including the use of 'meters' in EV spaces

DISCUSSION

As a result of increased usage and the lack of practical, enforceable policies, staff is proposing adoption of new and more comprehensive policies related to EV charging stations. The policies and rates associated with connection to the City's EV stations are intended to address two ongoing concerns related to the operation of the program:

- Influence the usage patterns and behavior to control occupancy and availability of connections
- Fully recover and/or offset the cost of program administration
    - Including capital, operational, energy and replacement costs

With respect to those concerns, staff is currently basing recommendations on balancing the following desired outcomes:

- Favor occupancy of Pure Electric vehicles (non-hybrid models)
- Promote turnover in one or two hours increments (short-term connections)
- Fully recover costs associated with operation and energy usage
    - Subscription and transaction fees, maintenance and repair, and utility bills
- Fully or partially offset the cost of future capital replacement
    - Consideration to the impact of rates on user behavior
- Ability to easily communicate the rates and/or restrictions to users
    - This includes on-site signage, webpages, and smartphone based apps
- Efficiency of enforcement

Staff has identified two distinct methodologies for the implementation of the desired outcomes:

- Fee/Rate based strategies
- Enforcement based strategies

In practical application, elements of both will be required to implement any EV policy, however specific policy goals my favor one element over another in the pursuit of specific goals as will be outlined in the recommendations and alternatives.

Fee/Rate Based Strategies

These types of strategies revolved around the EV stations ability to collect fees from users based on connectivity. In order to connect to a ChargePoint EV station, a user must initiate a 'session' with the station. This can be done using a proprietary ChargePoint card, contactless (tap-and-go) credit cards, or by calling an 800 number listed on the station. Once initiated, the station will provide access to the Level 2 charger by releasing the unit from the holster or the Level 1 charger by releasing the locked cover panel.

The charging stations have the capability to charge three classes of fees that are applicable to the City as outlined below and more detailed in Attachment 3.

- Access Fee
    - This is a fee associated with gaining access to the charging station irrespective of if the vehicle is charging and/or how long it remains connected. It is essentially a flat rate for initiating a session by connecting to the charging station.
- Station Fee
    - This is a fee associated with the length of time a connection is established with the station, irrespective of whether the vehicle is charging or not. As long as the vehicle is connected to the charging station, this fee would apply.

- Energy Fee
    - This is a fee associated with the amount of energy consumed by the connected vehicle. This is based on a per Kilowatt Hour (kWh) flat rate and is charged only when the vehicle is actively charging. This fee is not applied when the vehicle is not receiving power even if the vehicle remains connected to the EV station.

The associated fees may be applied individually or may be combined. In general, they may be flat rates, incremental rates or rates based on parameters, such as time of the day. The system is currently unable to differentiate rates based on Level 1 or Level 2 connectivity. The rates are capable of being created and/or applied in a manner that is more complex than can be communicated via signage, websites and/or smartphone apps; therefore the limitation of rate application is based more on the ability to communicate the rates to the public.

These strategies are generally used to encourage or discourage specific behaviors and/or outcomes (turnover, availably, non-hybrid, etc.) based on a fee which is intended to influence user choices. For instance, if a flat rate access fee of $1 was charged, this might discourage hybrid vehicle users from connecting for short-periods of time as they have fuel alternatives. Similarly, a Station Fee of $6 that starts after 2 hours has elapsed may encourage a user to move their vehicle from the EV space within that time period, even if they intend to stay parked in the parking facility longer than 2 hours, such as a monthly user.

Enforcement Based Strategies

Enforcement based strategies are when the violation of the policy, non-payment of a device (meter), or parking in contradiction to the restriction (Non-EV vehicle in an EV space) requires observation by an enforcement agent and the issuance of a citation or removal of the vehicle (towing). In the practice of enforcement, some violations, such as payment of a meter, may be cited upon initial observation of the violation. For example, an officer observes a meter that is not paid and issues a citation for non-payment. Other violations, such as time-limits, may require an initial observation and then a secondary observation to verify the violation has occurred. For example, if there is a 2 hour time limit, an officer may be required to mark the vehicle upon the initial observation and return 2 hours later to verify that a violation of the time limit has occurred before issuing the citation. These types of strategies may be as simple as a posted sign with a restriction (No Parking Sign) or may be dependent on equipment/technology, such as parking meters or the space counting/monitoring system present in some parking facilities.

Use of these strategies may be done in lieu of Fee/Rate Based Strategies or conjunction with them. For example, if the goal was to promote short-term connection to a charger, in lieu of a fee, a 2 Hour Parking restriction could be implemented. If a vehicle was marked, observed and exceeded the 2 hour time limit, it may be subject to a citation and/or removal. Similarly, this strategy could be used in conjunction with Fee/Rate Based Strategies, such as restricting the spaces to Pure Electric vehicles and not allowing combustion or hybrid vehicles to utilize these spaces. An enforcement based restriction limits the types of vehicles which may lawfully gain access to these spaces and a fee will promote the occupancy and turnover of permissible vehicles.

POLICY RECOMMENDATIONS

Staff is recommending a combination of Fee/Rate Based Strategies and Enforcement Based Strategies as follows:

Fee/Rate Strategies:[1]

- Use of the ChargePoint System to Collect Rates and Fees
- Energy Fee – $0.25 per kWh
- Station Fee – 2 hours free and $6 per hour thereafter

Enforcement Strategies:

- Spaces will be restricted to EV vehicle that are connected to an EV station
  - Non-EVs may not park in EV charging spaces
  - EVs may NOT park in a space UNLESS they have initiated a session
- Spaces will be limited to the total number of connections available at the station. There will not be more spaces than connections.
- In locations with Level 1 and Level 2 charging, signage will identify spaces specifically for Level 1 and Level 2 connections
  - This eliminates the confusion of a vehicle that has been unplugged by a third party in an adjoining space
  - For example, if a vehicle is parked in a Level 1 space and is using the Level 2 charging unit, it may be subject to citation for violation of the space designation

The combination of these policies provides for active enforcement related to gaining access and connectivity to EV infrastructure and fees to passively encourage occupancy and turnover for those vehicles that have legally gained access to the spaces.

The proposed Energy Fee address two concerns; it ensures the City is able to recover the cost of the actual energy being consumed by the charging vehicle and it allows for an equitable distribution of costs to the user based on the amount of energy they are receiving through a Level 1 or Level 2 connection. The City's proposed rate of $0.25 per kWh seeks to recover the actual City's rate of between $0.18 and $0.21 per kWh plus the cost of transaction fees and administration and provides for the simple communication of the rate. Staff estimates the cost to the user of approximately $1.80 per hour for a Level 2 connection and $0.50 per hour for a Level 1 connection while the vehicle is drawing energy to charge. Once a vehicle reaches a full charge or stops charging, it will no longer be charged the Energy Fee.

The proposed Station Fee is charged in addition to the Energy Fee and addresses occupancy and turnover concerns. This fee would be charged based on the time of connection to the charging station irrespective of whether the vehicle is actively charging. Staff is proposing allowing a free connection period for each station for the first two hours and then a $6 per hour fee[2] thereafter for continued connection. The proposed 2 hour period is aligned with the average length of stay in City parking facilities by non-EV users, which balances the EV user experience with traditional vehicle users. Users that may require longer charging times to meet their immediate need or may wish to remain connected for reasons of convenience may do so

[1] Fees associated with EV charging stations are in ADDITION to fees associated with the parking of the vehicle in the parking garage. For example, in a 2 Hour Free parking facility, a user would be charged the standard parking rate upon exiting the parking facility if they exceeded 2 hours of parking, irrespective of any charges collected at the EV station for energy or station fees.

[2] The fee is pro-rated, so drivers are charged based on the hourly fee for only the portion of the hour they remain connected.

at an increasingly greater expense based on this fee. This provides flexibility consistent with user preferences related to off-street parking facilities; the ability to stay parked longer than anticipated, such as when an appointment runs late or exceeds the estimated duration, without the risk of a parking citation being issued based on a single moment in time, such as exceeding a fixed time restriction.

Fees in general promote that each user balance their service level choices with economic impacts. The combination of the Energy Fees and Station Fees balance the City's ability to recover the cost of the energy provided while promoting greater turnover based on the cost of continued connectivity.

Implementation

Staff is proposing the rate policy be implemented uniformly in all facilities as follows:

Table 1

Recommended Proposed Escalating Rates		
Type of Fee	**Increment 1**	**Increment 2**
Station Fee	First Two Hours FREE	Per Hour Thereafter $6.00
Energy Fee	$0.25 Per kWh	$0.25 Per kWh

Information and education are the foundations of the implementation of any new program. Staff is recommending signage (Attachment 2) which is intended to communicate the following:

- Reserved for EV Only Signage
- Regulatory/Etiquette expectations for access to and use of the equipment
  - Requirement to be connected to the charging station
  - Requirement to be engaged in a 'session'
    - This does not require the vehicle to actively charge, but does require that a 'session' is active
  - Dedicated spaces/restrictions for Level 1 and Level 2 charging connections
- Diagram, description and 'How To' for use of the Level 1 Chargers
- Helpline Contact Information
- Rate Signage

It is anticipated that once new rates and policies have been implemented, a period of observation and measurement will be required to determine if the desired outcomes are being met. There is also concern that given the varying nature of customer profiles across the City's parking facilities, that uniform rates and restrictions may not produce consistent outcomes. In order to provide the flexibility to change rates and restrictions based on actual usage, staff is proposing the formal rate language be adopted similar to monthly and special event parking rates; a range to be implemented in a manner consistent with the local and regional market and in a manner which achieves the desired outcomes. Attachment 5 outlines the proposed rate language as a range, which staff would request for adoption, to be implemented as outlined herein. Since the charging of a rate for energy use and continued connectivity are expected to change user behavior, staff is recommending observation and measurement of occupancy and

availability. If the fees and restrictions as proposed do not create the desired outcomes, an average length of connection proximate to the average non-EV user stay, staff will iteratively adjust fees and restrictions incrementally as needed:

- Adjusting Station Fees (Up or Down) in $1 increments
- Addition Access Fee (or substitute for Energy Fee)
- Turning off the charging capability after a prescribed period of time (1 – 2 hours)
- Establishing time limit restrictions (1 – 2 hours)

Exclusions

The fee policies as proposed herein are exclusive to the ChargePoint units and will not be effective at the General Electric Roxbury Park charging stations. Restrictions and other enforcement based proposals may be implemented as desired in this area

At the January 2016 Traffic and Parking Commission meeting, a suggestion was made related to the consideration of using solar technology to power EV charging stations. At this time staff recommends that the connectivity to solar infrastructure be pursued separately from the financial and operational policies being considered. The proposed policies are not likely to change as a result of solar implementation, as they are currently a blend of cost recovery/mitigation and behavior change. Since most of the charging stations are located in areas not accessible to direct sunlight, infrastructure would need to be created, even in areas where solar panels are currently located, to connect the existing systems to EV stations. The cost of energy for EV charging with respect to solar production is not anticipated to reduce associated costs to the user, as the cost of energy consumption through Edison would be replaced with the capital and operating costs of creating this infrastructure.

Solar Option

Staff will continue to pursue solar opportunities as part of our overall sustainability and facility upgrade programs. Staff is currently working on developing and installation of a pilot program with a company called MOEV, a spin-off of technology developed through the SmartGrid program at UCLA. Included in this pilot program is consideration of additional charging stations on the roof-top level of the Civic Center parking facility and a side-by-side installation at the 221 N. Crescent Drive parking garage (Whole Foods). The availability of solar infrastructure at the Civic Center parking facility makes it possible to potentially connect the charging stations to this technology for the pilot program.

The purpose of piloting this technology is to evaluate the ability to expand EV charging capacity without expanding the electrical grid through the 'smart' distribution of available power resources. For instance, instead of providing the same level of charging to all vehicles, the system may distribute the available energy based on machine measurable criteria, such as time of day or length of connection, or user supplied data, such as current battery charge or intended length of stay. This pilot program is intended to have several iterations of methodology to alternative methods for distributing power, including those that do not rely on fees or charges to influence behavior. The pilot programs will be available to the public, however the Civic Center location provides access to the employee population. In consideration for access to this pilot program, this population provides a continual and ongoing feedback loop, which creates an opportunity to make frequent changes to policies and operations, including those with operational impacts to reliable connectivity without impacting the general public; however, the general public will not be precluded from the program and may participate if desired.

Alternatives

Minor alternatives to the restrictions and policies as proposed may include the following:

- Add a Flat Rate Access Fee for connecting to the charging station in addition to the Energy and Station Fee
    - $1 to $3 would be reasonable
    - Consideration should be given that the more fees accessed at one-time the more complicated the fee structure will be to communicate to the public
    - Addition of any fee may alter behavior. Since balanced usage is a goal of this program, is recommended that fees only be added after observation of initial response. It is not currently the goal of the program to discourage general usage.
- Substitute a Flat Rate Access Fee for connecting to the charging station in addition to the Station Fee but instead of the Energy Fee
    - $1 to $3 would be reasonable
    - This provides for easier communication to the public and it is easier for the user to calculate the actual cost of connection
    - Since there are Level 1 and Level 2 connections, a flat fee is regressive to Level 1 users that are receiving significantly less kWh than Level 2 connections for the same cost
        - This could discourage users from utilizing Level 1 connections
- The free period related to the station fee could be associated with the free parking period of the garage in which the charging station is located
    - 440 N Camden, 221 N Crescent, 333 N Crescent/9361 Dayton Way would be 1 Hour Free
    - Potentially eliminates confusion related to free connection at the charging station with free parking in the garage
        - A user parked for 2 hour may have no fee at the charging station, but would be required to pay a fee for the 2nd hour of parking at a 1 hour free parking garage
- Access the charger may be restricted to Pure Electric vehicles only – No Hybrid Parking Allowed
    - Fees as proposed or as may be altered may discourage hybrid users from connecting by choice

More substantive alternatives to outlined proposals could include the use of 'meters.' The 'meter' concept could be a simple restriction, such as a fixed time limit (1 or 2 Hours) enforceable by citation upon violation, or it could be similar to an on-street parking meter in which a payment of the meter is required for access to the EV charging space.

The use of a meter transitions to a more enforcement based strategy. Enforcement of the policies related to meters, time-limit or payment, would be tied to the issuance of a citation for violation of the policy.

Meter technology within the City currently includes the IPS on-street single space parking meters and the Indect off-street space monitoring systems. The primary differences in these systems is the on-street meter is capable of accepting payment but records very little parking information (other than payment) related to the occupancy of the space. The off-street space

monitoring system collects significantly more parking data related to the use of the space, but is not capable of accepting payment.

Benefits of a 'Metered' System

The major benefit of a 'metered' system is it separates the EV charging function from the restriction and creates a very simple message to communicate to the customer such as 2 Hour Parking Limit. There would also be an anticipated high level of compliance with a designated time restriction, as the vehicle would be subject to a citation for the violation; no extended period would be available. Generally 'meters' and time restrictions, and the associated consequences (citations) are understood with minimal education. The equipment, whether IPS or Indect, is tested, reliable and part of the City's current infrastructure.

Concerns of a 'metered' system
While the 'meter' concept is generally understood, the location of the 'metered' or time-limit space inside a gated parking facility may create confusion and require some level of additional education to ensure users understand they may be subject to a parking citation (or other enforcement action) for non-payment or exceeding the time-limit at the designated space.

Since the EV station requires activation to begin the charging process, the use of a pay meter will create additional steps for the user. These steps will not be created if space monitoring is used for the purpose of time-limit enforcement.

The customer experience related to being subject to a parking citation for the length of stay and/or payment of a meter within an off-street parking garage is confusing and contradictory. A user parking their vehicle in an on-street parking space must determine how much time they wish to purchase at the beginning of their parking experience, within the maximum allowed time period and must then return to their vehicle prior to that expiration to avoid receiving a citation. A user of an off-street parking facility, may park their vehicle, stay as long as they need to stay, planned or unplanned, and then pay the associated rate for the amount of time they used the facility. The introduction of a time-limited parking space for an EV within an off-street parking facility creates a conflict between the associated uses of the parking asset and the charging asset. In contrast, the user of a traditional vehicle may park in a parking garage for as long as they need to store their vehicle, whereas an EV user would be subject to a citation based on single moment in time; the expiration of the meter or time-limit.

The IPS technology may have technical difficulties due to communication needs for payment and credit card processing based on the physical location of the EV space within the parking garage, such as subterranean facilities. Additionally, this will add collections processes if coin is accepted at the meter. At this time there are no anticipated technical issues related to the Indect space monitoring system.

Lastly, the communication of a meter or time restriction that is not managed by the ChargePoint system may be difficult to communicate via third-party websites and smartphone apps which aggregate available EV charging locations and the associated rates and policies.

If this is a desired methodology, additional information can be obtained.

FISCAL IMPACT

Customer Experience
Based on the proposed implementation of rates, the average driver would be able to connect and charge for 2 hours at Level 2 for approximately $3.60, which would provide approximately 50 miles of additional range. If the vehicle completes charging within 2 hours, but were to remain connected for a 3rd hour, the fee would be approximately $9.60[3].

- Energy Fee of approximately $1.80 per hour x 2 hours = $3.60
- Station Fee of $6.00 per hour for the 3rd Hour
- Total Fee = $9.60

If the vehicle were to continue to charge during the 3rd hour, the fee would be approximately $11.40.

- Energy Fee of approximately $1.80 per hour x 3 hours = $5.40
- Station Fee of $6.00 per hour for the 3rd Hour
- Total Fee = $11.40

City Costs
The estimated cost of operating the EV charging stations are as follows:

Estimated One-Time Expenses

New Signage & Installation	$1,100

Estimated Ongoing Expenses

Hosting Fees	$ 2,500
Preventive Maintenance	$19,500
Materials/repairs	$16,500
Energy Costs (250,000 kWh)	$52,500
Est Cost of Transaction Fees (10%)	$13,500
Total Estimated Ongoing Costs	$104,500

Estimated Revenues

Using current usage statistics, a $0.25 per kWh fee for actual energy usage and a conservative average of $5 for users that exceed 2 hours, revenues are estimated to be $135,000 annually.

Based on estimated expenses, this provides $30,500 on an annual basis which may be accrued toward the upgrading and replacement costs associated with this infrastructure.

Associated City costs are currently budgeted and available with additional funding needs for ongoing maintenance and operations being considered in the 2016/2017 budget process.

[3] Fees associated with EV charging stations are in ADDITION to fees associated with the parking of the vehicle in the parking garage. For example, in a 2 Hour Free parking facility, a user would be charged the standard parking rate upon exiting the parking facility if they exceeded 2 hours of parking, irrespective of any charges collected at the EV station for energy or station fees.

RECOMMENDATION

Staff is requesting the Traffic and Parking Commission support the following recommendations for presentation to the City Council:

- Adopt the formal rate language as outlined in Attachment 5 establishing ranges for ongoing observation and adjustment as needed by facility or machine to achieve the goals and outlines as established herein
- Implement the rates at the onset of this program uniformly throughout the City as outlined in Table 1
- Implement the restrictions and associated informational signage as outlined herein.

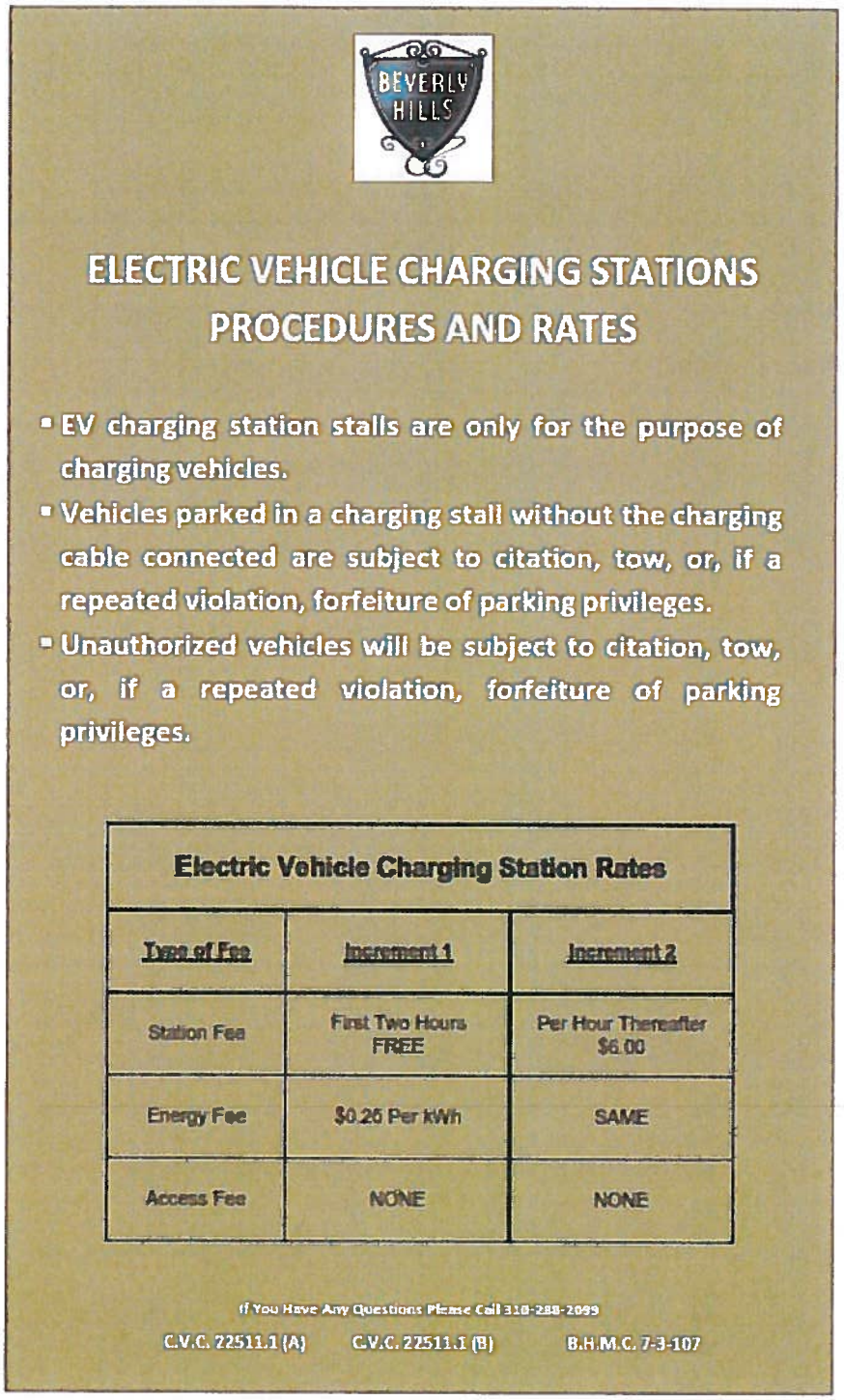
ATTACHMENT 1

Electric Vehicle Charging Stations Inventory

	Address	EV Charging Stations	EV Ports		Installed / Go Live		Type
			Level 1	Level 2			
1	345 N. Beverly Drive	4	4	4	Feb-12		ChargePoint
2	216 S. Beverly Drive	2	0	2	Feb-12		ChargePoint
3	9510 Brighton Way	2	2	2	Feb-12		ChargePoint
4	440 N. Camden Drive	2	2	2	Feb-12		ChargePoint
5	450 N. Rexford Drive	2	2	2	Feb-12		ChargePoint
6	438 N. Beverly Dr. - 439 N. Canon Dr.	2	2	2	Feb-12		ChargePoint
7	241 N. Canon Dr. - 242 N. Beverly Dr.	2	2	2	Feb-12		ChargePoint
8	9333 W. Third Street	2	2	2	Feb-12		ChargePoint
9	461 N. Bedford Drive	2	2	2	Feb-12		ChargePoint
10	333 N. Crescent Drive	2	0	2	Feb-12		ChargePoint
11	221 N. Crescent Drive	2	0	2	Feb-12		ChargePoint
12	9361 Dayton Way	2	0	2	Feb-12		ChargePoint
13	450 N. Crescent Drive	4	0	6	Dec-12		ChargePoint
14	321 S. La Cienega Blvd.	2	2	2	Feb-12		ChargePoint
15	City Council Parking Lot	1	0	2	Oct-15	*restricted use*	ChargePoint
16	Roxbury Park Community Center	2	0	2	Jul-14	*parking meters*	General Electric
		35	**20**	**38**			

ATTACHMENT 2

Attachment #2



BEVERLY HILLS

ELECTRIC VEHICLE CHARGING STATIONS PROCEDURES AND RATES

- EV charging station stalls are only for the purpose of charging vehicles.
- Vehicles parked in a charging stall without the charging cable connected are subject to citation, tow, or, if a repeated violation, forfeiture of parking privileges.
- Unauthorized vehicles will be subject to citation, tow, or, if a repeated violation, forfeiture of parking privileges.

Electric Vehicle Charging Station Rates		
Type of Fee	Increment 1	Increment 2
Station Fee	First Two Hours FREE	Per Hour Thereafter $6.00
Energy Fee	$0.25 Per kWh	SAME
Access Fee	NONE	NONE

If You Have Any Questions Please Call 310-288-2099

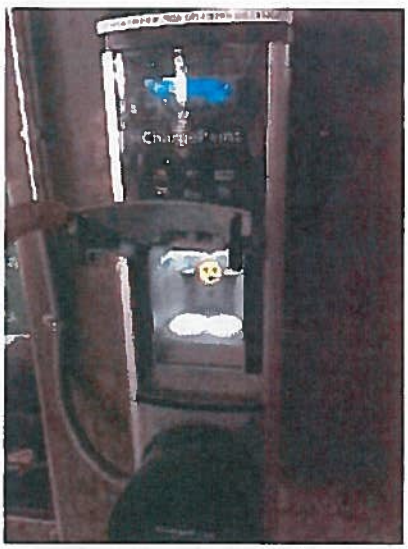
C.V.C. 22511.1 (A) C.V.C. 22511.1 (B) B.H.M.C. 7-3-107


RESERVED
PARKING
CHARGING
VEHICLES
ONLY

LEVEL 1

CHARGING AVAILABLE

SWIPE CHARGEPOINT CARD / PROXIMITY CHIP CREDIT CARD TO UNLOCK LEVEL 1 COMPARTMENT




ChargePoint
ChargePoint


ChargePoint

ATTACHMENT 3

Attachment 1 to June 21, 2016 EV Policy Staff Report

Attachment 3

Fee Type	Description	Benefits	Concerns
Access Fee	Fee for accessing the charging station irrespective of if the vehicle is charging and/or for how long it is connected. A flat rate for initiating a connection.	Creates a base cost associated with gaining access to the charging infrastructure. Assist with 'qualifying' a user by ensuring some fee is paid for access to the system. May promote greater usage by non-hybrid vehicles and/or vehicles that have a greater need for an immediate charge. May reduce 'topping-off' by associating a cost with the connection.	Since this is a flat rate for connectivity, it creates an unequitable distribution of cost between Level 1 and Level 2 users based on benefit of the connection. If occupancy is low this fee may discourage users that would have otherwise have benefited from the connection without displacing other users. May discourage hybrid EV users.
Station Fee	Fee based on time/duration of connectivity to the charging station, irrespective of whether the vehicle is charging or not. As long as the vehicle is connected to the charging station, this fee would be applicable.	A fee associated with the duration of connection can influence how long a vehicle stays parked/connected to the station and promotes turnover based on how the fee is structured.	Although this can inequitably impact costs between Level 1 and Level 2 users, this is mitigated by the concept that the purpose is to promote turnover. May discourage hybrid EV users.
Energy Fee	Fee associated with the amount of energy consumed by the connected vehicle. Based on a flat rate per Kilowatt Hour (kWh) and is charged only when the vehicle is actually charging. This fee is not active when the vehicle is not charging even if the vehicle remains connected to the EV station.	Collects fees associated with direct expenses the City incurs for use of the charging station. By creating Per kWh charge, users are charged equitably between Level 1 and Level 2 connections based on actual use and draw.	The City has a variable rate based on several factors and the charge to the user is usually uniform for ease of communication and understanding. Once the vehicle has completed charging, there is no longer a charge for this fee. If the goal is to promote movement, this fee may not have an impact if the vehicle completes charging and no other incentive exists to promote movement.

ATTACHMENT 4

Attachment 1 to June 21, 2016 EV Policy Staff Report

Attachment 4

Building Name	Address	Rate A	Rate B	Maximum		
Parking Garage	9200 Sunset Blvd.	None	None			
STP EV Station	8730 Sunset Blvd.	$2.00/hour First 03 hrs	$5.00/hour Thereafter			
Ramada Plaza West Hollywood	8585 Santa Monica Blvd.	None	None			
City of WH - Library 5	625 N. San Vicente Blvd.	None	None			
Blue Green Parking	8687 Melrose Ave WH	$2.00/hour First 04 hrs	$3.00/hour Thereafter			
Maple Plaza	345 N. Maple Dr BH	$2.00/hour First 03 hrs	$5.00/hour Thereafter			
City of WH Kings Road Parking	8383 Santa Monica Blvd.	None	None			
MGM Place	245 N. Beverly Dr. BH	$2.00/hour	None			
Hotel Sofitel	8555 Beverly Blvd. LA	None	None			
UCLA Parking	Parking Structure 5 Roof	$2.00/hour min $2.00	None	$48.00 for 24 hrs.		
UCLA Parking	Parking Structure 4 221 Wetwood Plaza LA	None	None			
UCLA Parking	Parking Structure 9 Level 3	$2.00/hour min $2.00	None	$48.00 for 24 hrs.		
UCLA Parking	Parking Structure 1 level 2	$2.00/hour min $2.00	None	$48.00 for 24 hrs.		
Wilshire Holmby	10433 Wilshire Blvd. LA	None	None			
Grenspace /Mirabella	10430 Wilshire Blvd. LA	None	None			
1800 Building	1800 Century Park East Century City	None	None			
Casa Encantada	300 S. Bedford Dr.	None	None			
Watt's Plaza	1875 Century Park East Century City	$1.00/hour First 03 hrs	$5.00/hour Thereafter	$75.00		
1888 CPE	1888 Century Park east Century City	None	None			
8500 Burton Way	8500 Burton Way BH	None	None			
Century Park	2029/49 Century Park East 2000 Avenue of The Stars	$0.95/hour	None			
Constellation	10250 Constellation Century City	$0.85/hour min $1.00	None			
Fox Plaza	10299 Galaxy Way LA Century City	$1.00/hour First 04 hrs	$3.00/hour Thereafter	$24.00 for 24 hrs.		
Fox Studios Lot	10201 Pico Blvd. Century City	Free First 05 hrs.	$3.00/hour Thereafter		Access Fee $0.50	Energy $0,.25/kWh

ATTACHMENT 5

Attachment 5

The proposed official rate language would be as follows:

- As established by the Director of Public Works Services
  - Energy Fee
    - Low $0.00 Per kWh
    - High $1.00 Per kWh
  - Station Fee
    - Low $0.00 Per Hour
    - High $20.00 Per Hour
  - Access Fee
    - Low $0.00
    - High $20.00

ATTACHMENT 2

Staff Survey of EV Charging Station Infrastructure and Rates

	City of Beverly Hills	City of Glendale	City of Moreno Valley	City of Torrance	City of Oceanside	City of Santa Monica	City of San Dimas
Offers publically available charging stations?	Yes	Yes	Yes	Yes	No	Yes	Yes
Number of publically available charging ports. (Current)	58	1	5	20	N/A	69	6
Number of publically available charging ports. (Planned)	3	10	5	0	0	18	4
Has rate structure for EV charging station use?	Proposed	Yes	Yes (pending approval)	Yes	N/A	No (may update pending strategic plan)	No
Access Fee	None	None	None	None	N/A	N/A	N/A
Station Fee	$6.00 per hour (proposed)	None	None	$5.00 per hour (Level 2)	N/A	N/A	N/A
Energy Fee	$0.25 per kWh (proposed)	$0.2033 - $0.3359 per kWh	$0.21 - 0.25 per kWh	$0.33 - $0.55 per kWh	N/A	N/A	N/A