ML 18086 LOS ANGELES CURBSIDE CHARGING PROGRAM

BUREAU OF STREET LIGHTING

May 28th, 2019

Prepared for the Mobile Source Air Pollution Review Committee (MSRC) under the AB 2766 Discretionary Fund Work Program.

Acknowledgements

The Bureau of Street Lighting (BSL), City of Los Angeles designed plans, procured the equipment, and installed all of the 60 curbside Electric Vehicle Charging Stations (EVCS) covered by this report. In the future, city forces will also be maintaining and upgrading this equipment as needed to optimize public charging facilities.
This report was submitted in the fulfillment of ML 18086 and Los Angeles Curbside Charging Program by Bureau of Street Lighting City of Los Angeles under the partial sponsorship of the Mobile Source Air Pollution Reduction Review Committee (MSRC) Work was completed as of September 2018.

Disclaimer

The statement and conclusions in this report are those of the contractor and not necessarily those of the Mobile Source Air Pollution reduction Review Committee (MSRC) or the South Coast Air Quality Management District (SCAQMD). The mention of commercial products, their source or their uses in connection with material reported is not to be construed as either an actual or implied endorsement of such projects.

Project Description & Work Performed

Sixty level II smart electric vehicle charging stations were installed throughout the City of Los Angeles. This was made possible by the BSL's previous LED Conversion project. The conversion from high intensity discharge lighting to LED reduced the electrical lighting load to such an extent that level II EVCS can be added to certain existing electrical infrastructure without overloading the circuitry. The stations are attached to existing street light poles and connected electrically to the street lighting circuit. Street light poles are located two feet from the curb providing convenient access for electric vehicle car drivers to charge their cars while parked at the curb.
The first phase of this project consisted of an evaluation of available equipment to ascertain the most suitable chargers for the public right-of-way. This environment requires simplicity in operation and vandalism resistance. Cost comparisons were made as part of the selection process. Once the most appropriate devices were identified detailed plans were drafted taking into consideration pole location, parking suitability, disability access, pole structural and design characteristics. Circuit loading and voltage drop was calculated to insure electrical integrity. These plans were then forwarded to our utility for their approval. Because this equipment is installed in the public right-of-way considerable design effort has gone into vandalism mitigation. The installation of these chargers included securing the new charger to the pole and making the electrical connections. Proper commissioning and activation is critical as each charger has a modem that reports "in use", energy (kWh) dispensed and other real time operational details. Signage that includes instructions and a help line phone number is also an element of this work. Each charger has its own branch circuit and is fused in the adjacent pullbox providing instantaneous disconnection in the event of electrical problems.

Problems encountered

The challenges encountered during this initial phase were primarily due to the fact that BSL is one of the first major cities to install a large number of EVCS in the public right-of-way on streetlight poles. Currently most EVCS are located on private property, either in parking lots, parking garages or personal residences. Rarely are they installed at locations where the general public has 24-hr access to them. This aspect of the project caused several issues that needed to be addressed:

- how to mount the EVCS onto an existing energized structure.
- how to select the proper location for an EVCS
- how to properly connect each EVCS to the internet
- how to protect the EVCS from vandalism (by far the most problematic issue)

As a result of close cooperation between the engineering staff, maintenance crews and manufacturers these issues have been addressed. From requiring sturdier enclosures to creating criteria for site selection to mounting the EVCS 9 ft above the sidewalk, novel ideas and processes have been proposed and implemented to resolve the challenges. We anticipate mitigations and design improvements will continue well into the future.

Emissions Benefits

The programs success is evident by the feedback we have received from EV drivers and the amount of energy we have dispensed. The continuing and increasing need for public charging is indisputable. The City of Los Angeles has a population of 4 million and has made great strides in improving air quality since 1970 but is cognizant of the fact that a key solution is a transition to low and zero emission vehicles. The number one concern for a prospective electric vehicle owner is access to charge stations either at their residence or on the go. Until this impediment is mitigated resistance to EV technology may continue. This project and subsequent ones like it will help address electric vehicle owner concerns and needs. Providing convenient charging opportunities for electric vehicle drivers is critical to electric vehicle acceptance by the public. In the period 7/2/2018 to 5/1/19 our charging program has dispensed 130 mWh of electricity to charging vehicles.

Photographs & Outreach

The Bureau of street Lighting added a page to its official website dedicated to promoting MSRC's co-funding of the EV charging stations. A screen shot and link is attached.

Summary and Conclusions

This project installed 60 smart electric vehicle charging stations and became part of the BSL broader program that will continue to install curbside charging stations throughout the City of Los Angeles. This was made possible by the BSL LED Conversion project, which has reduced the electrical lighting load to such an extent that level 2 Electric Vehicle Charging Stations (EVCS) can be added to the existing electrical circuit infrastructure. The Stations are attached to existing street light poles and connected electrically to the street lighting circuitry. Street Light poles are located two feet from the curb, providing convenient access for electric vehicle car drivers to charge their cars while parked at the curb.

The success of this program is evident by the feedback we have received from EV drivers and the amount of energy we have dispensed. So far, 130MWh has been dispensed this fiscal year (7/2/2018 to 5/1/2019) by the Bureau of Street Lighting EV charging program. The environmental impact of this is equivalent to the reduction of 91.9 metric tons of greenhouse gas emissions or planting 1,520 trees. The continued success of this program and its benefits to the environment are dependent on the population's willingness to transition to zero emission vehicles. The City of Los Angeles has a population of 4 million and has made great strides in improving air quality since 1970. The number one concern for prospective electric vehicle owners is access to chargers either at their residence or on the go. The continuing and increasing need for public charging is indisputable. Until this impediment is mitigated resistance to EV technology may continue. This project and subsequent ones like it will help address electric vehicle owner concerns and needs.

The Bureau of Street Lighting EV charger program strives to improve each year. Our smart chargers will be constantly monitored and the data collected will help with subsequent plan design, equipment selection, and placement of curbside chargers. It is understood that charging equipment installed in the public right-of-way will always be under threat of vandalism or malicious use. Our experience will aid in collaborating with manufacturers to design robust and intuitive chargers that will improve the EV driving experience.

http://bsl.lacity.org/smartcity-ev-charging.html

BUREAU OF
STREET LIGHTING

SMART POLES

CONNECTED CITY COMMUNICATION ATTACHMENTS

INFORMATION BEACONS AND CONTROLS

EV CHARGING STATIONS

SOLAR TO GRID INSTALLATIONS

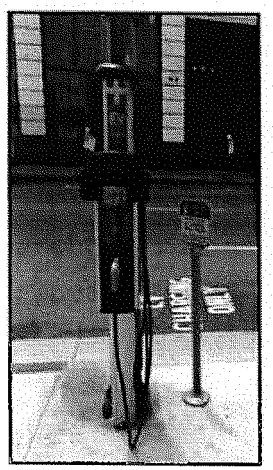
GAS COMPANY SMART METERS

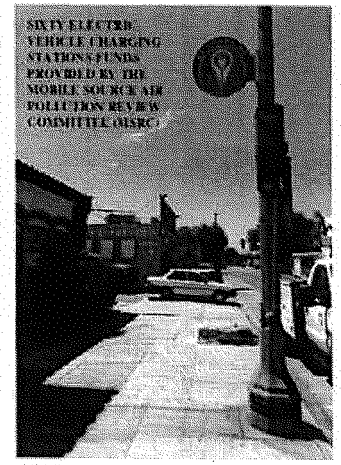
SECURITY CAMERAS

SOLAR STREETLIGHTS

STREETLIGHT BANNERS

EV CHARGING STATIONS





The Bureau of Street Lighting has installed electric vehicle charging stations on 132 of the streetlights in the City of Los Angeles.

View online map of locations

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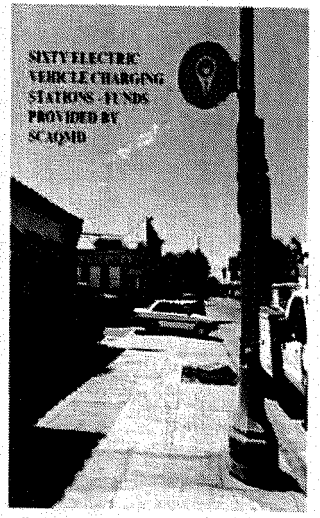

The Bureau of Street Lighting has installed electric vehicle charging stations on 132 of the streetlights in the City of Los Angeles.

View online map of locations

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If I require copyright attribution, I will provide notice of such copyright to AQMD/MSRC at the time this authorization is executed.

I am empowered by and on behalf of the entity herein to consent and authorize the above-specified.

Authorized Signature

Bureau of Street Lighting, City of Los Angeles

Executive Director

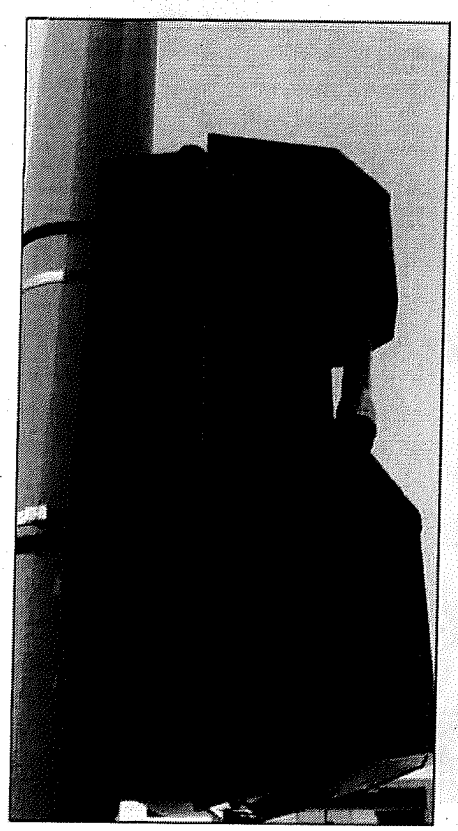
10/2/19
Date

CMI EV Charger

Installation Plan: EVC89

Location: Sunset Blvd between Allison Ave & Douglas St

Serial Number: C136180003

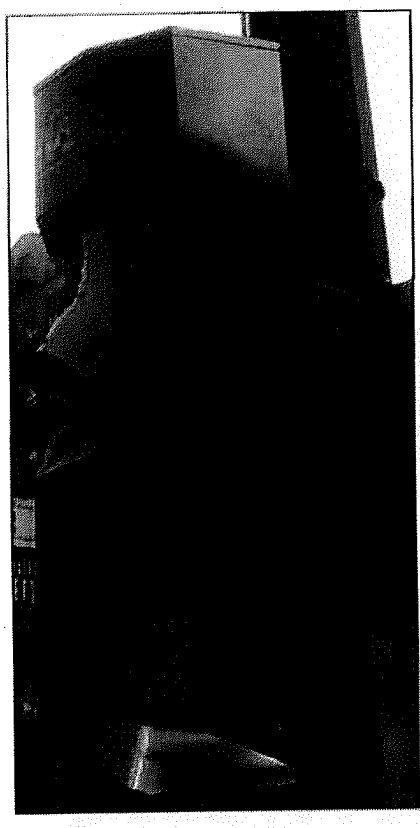


CMI EV Charger

Installation Plan: EVC113

Location: Avenue 60 between Figueroa St and Echo St

Serial Number: C201180030

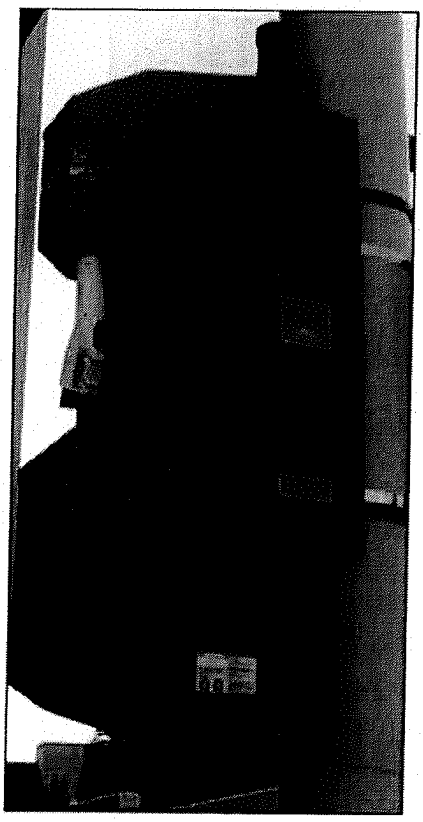


CMI EV Charger

Installation Plan: EVC111

Location: Laurel Canyon Blvd between Chandler Blvd and Weddington St

Serial Number: C201180009



CMI EV Charger

Installation Plan: EVC116

Location: Winnetka Ave between Leadwell St and Sherman Way

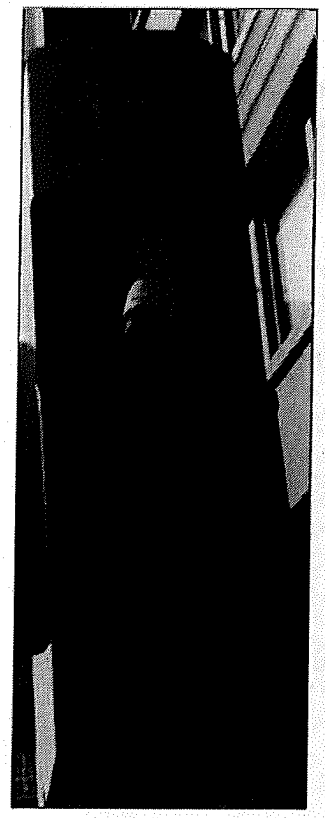
Serial Number: C136180010

CMI EV Charger

Installation Plan: EVC133

Location: Ventura Blvd between Winnetka Ave and Del Moreno Dr

Serial Number: C201180006

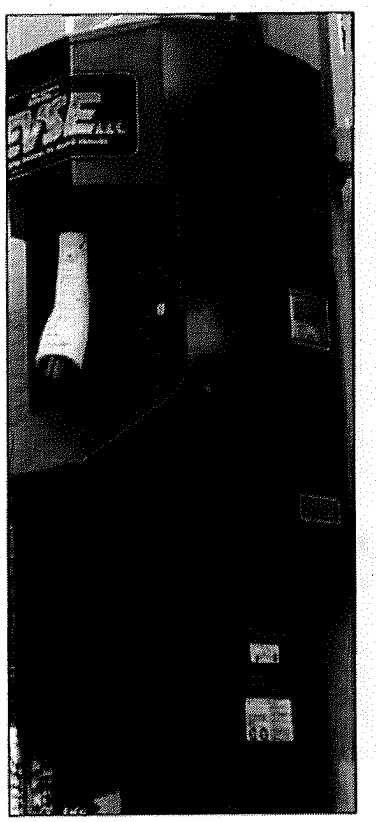


CMI EV Charger

Installation Plan: EVC140

Location: Sherman Way between Rhea Ave and Yolanda Ave

Serial Number: C201180020

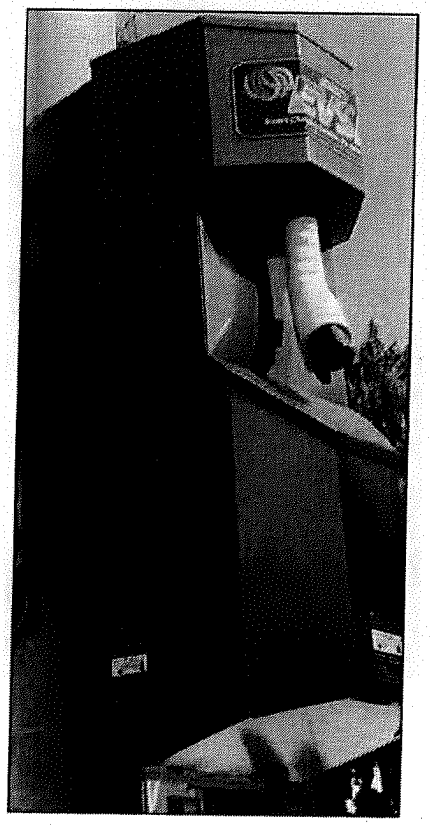


CMI EV Charger

Installation Plan: EVC119

Location: Victory Blvd between Tampa Ave and Vanalden Ave

Serial Number: C201180013

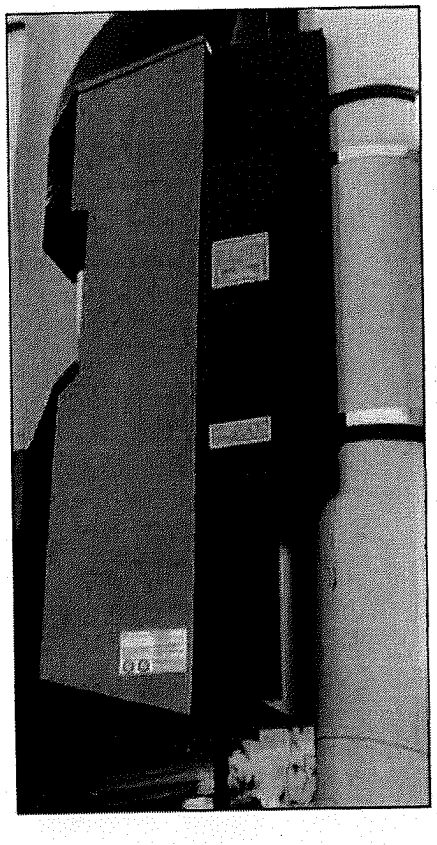


CMI EV Charger

Installation Plan: EVC132

Location: Gardner St between Blackburn ave and Colgate ave

Serial Number: C201180014

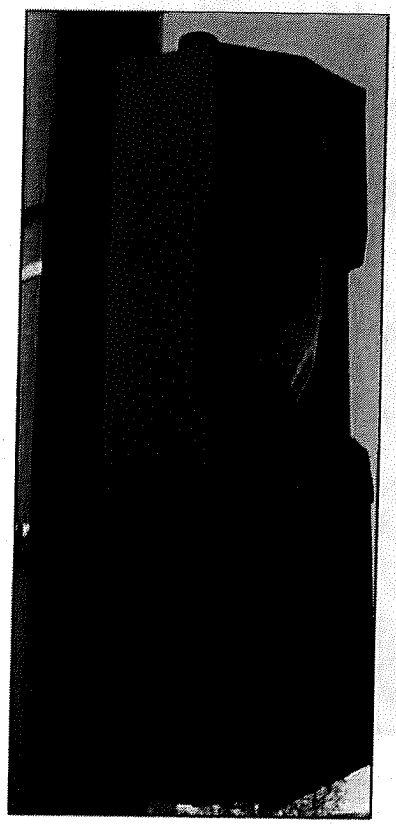


CMI EV Charger

Installation Plan: EVC115

Location: Nordhoff St between Wakefield Ave and Van Nuys Blvd

Serial Number: C20118004

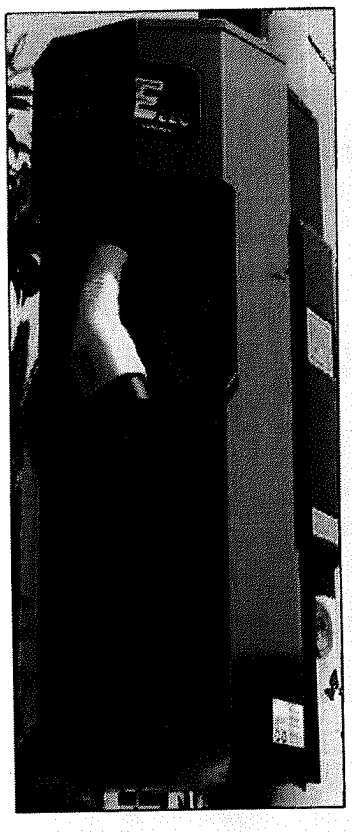


CMI EV Charger

Installation Plan: EVC131

Location: Victory Blvd between Balboa Blvd and Forbes Ave

Serial Number: C136180005



CMI EV Charger

Installation Plan: EVC102

Location: Foothill Blvd between Mcvine Ave and Nassau Ave

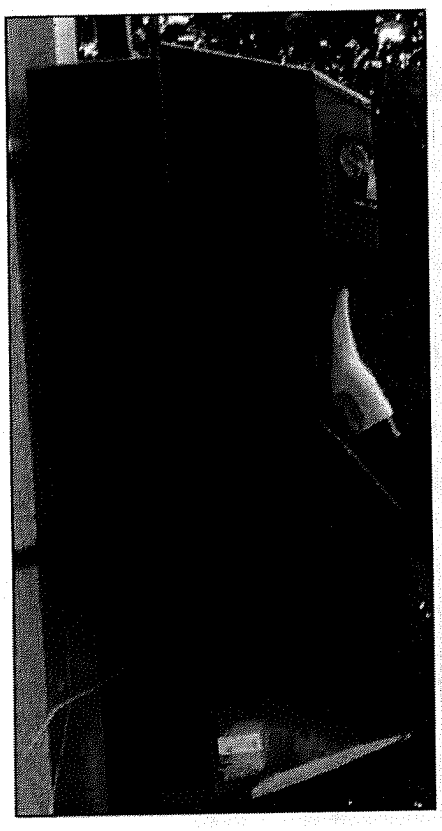
Serial Number: C201180017

CMI EV Charger

Installation Plan: EVC125

Location: Langdon Ave between Devonshire St and Marklein Ave

Serial Number: C201180005

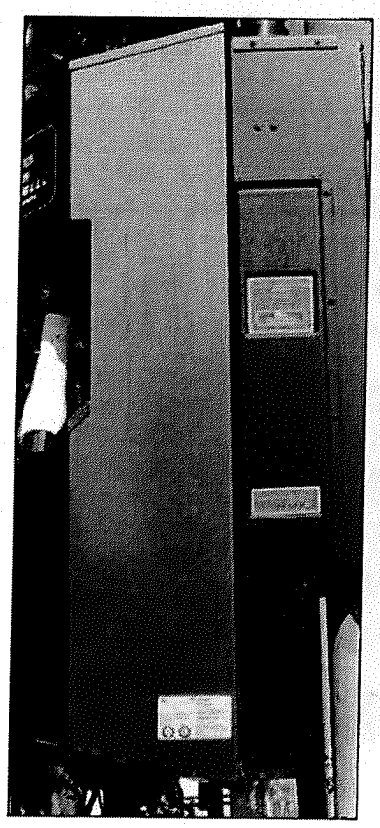


CMI EV Charger

Installation Plan: EVC118

Location: Foothill Blvd between Marnice Ave and Tujunga Canyon Blvd

Serial Number: C201180016

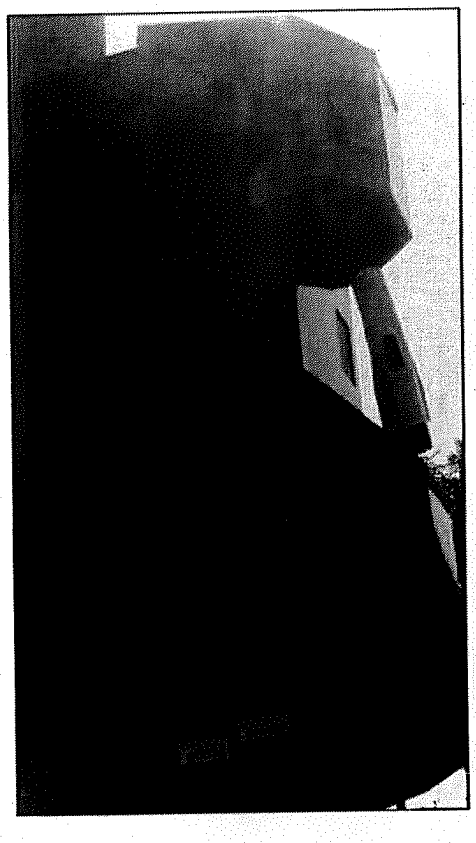


CMI EV Charger

Installation Plan: EVC142

Location: San Fernando Mission Blvd between Marklen ave and Sepulveda Blvd

Serial Number: C201180001

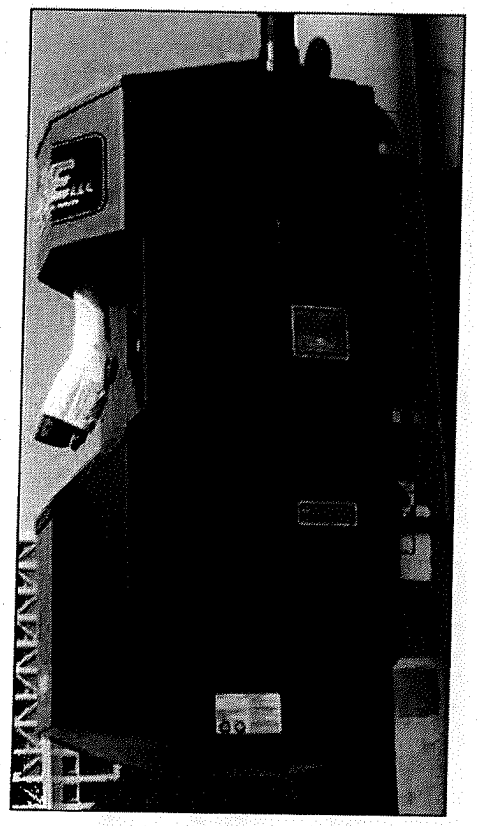


CMI EV Charger

Installation Plan: EVC128

Location: Sepulveda Blvd between San Jose St and Chatsworth St

Serial Number: C136180020

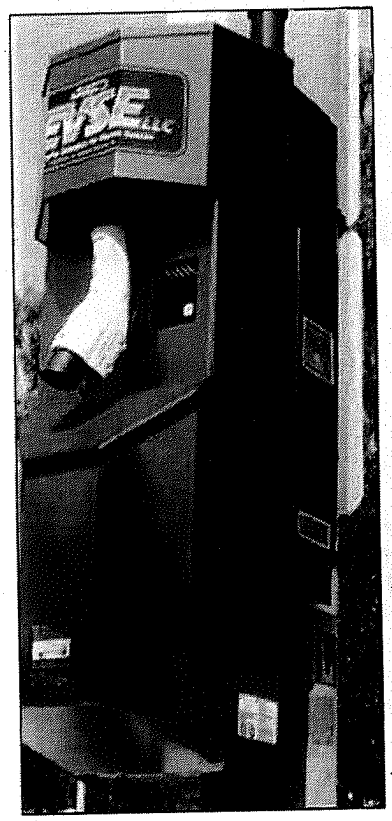


CMI EV Charger

Installation Plan: EVC129

Location: Van Nuys Blvd between Amboy ave and O'melveny ave

Serial Number: C2011180024



CMI EV Charger

Installation Plan: EVC136

Location: Encinitas Ave between Larkspur St and Roxford St

Serial Number: C201180015

CMI EV Charger

Installation Plan: EVC88

Location: 37th St between Hope St and Grand ave

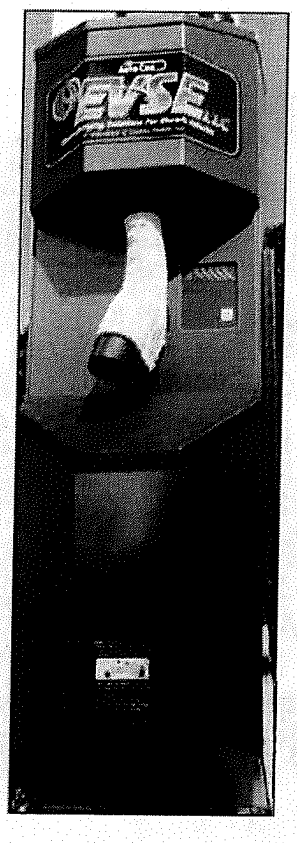
Serial Number: C136180018

CMI EV Charger

Installation Plan: EVC107

Location: Mcclintock Ave between Jefferson Blvd and 30th St

Serial Number: C136180013

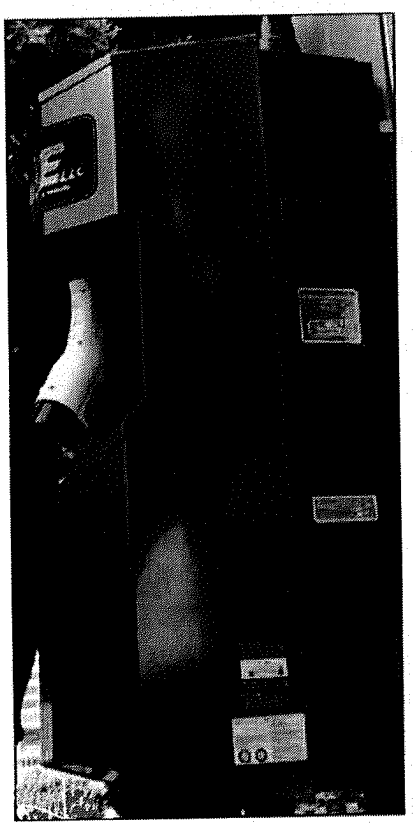


CMI EV Charger

Installation Plan: EVC106

Location: La cienega Blvd between Airdrome St and 18th St

Serial Number: C201180018

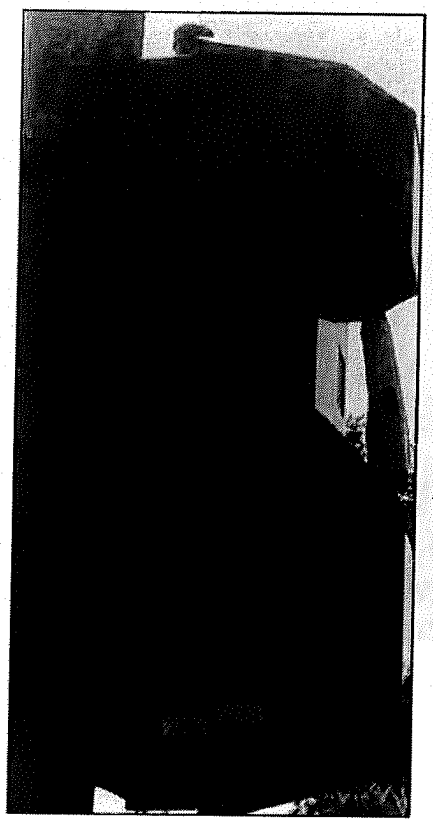


CMI EV Charger

Installation Plan: EVC112

Location: Vermont Ave between Wilshire Blvd and 7th St

Serial Number: C201180012

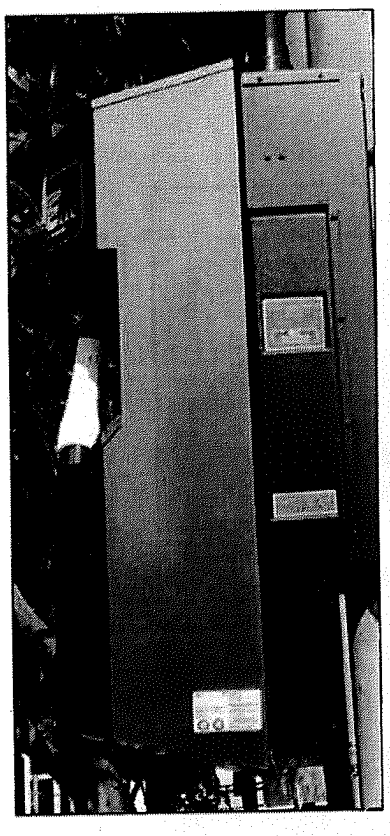


CMI EV Charger

Installation Plan: EVC123

Location: Leimert Blvd between Stocker St and 43rd St

Serial Number: C201180026

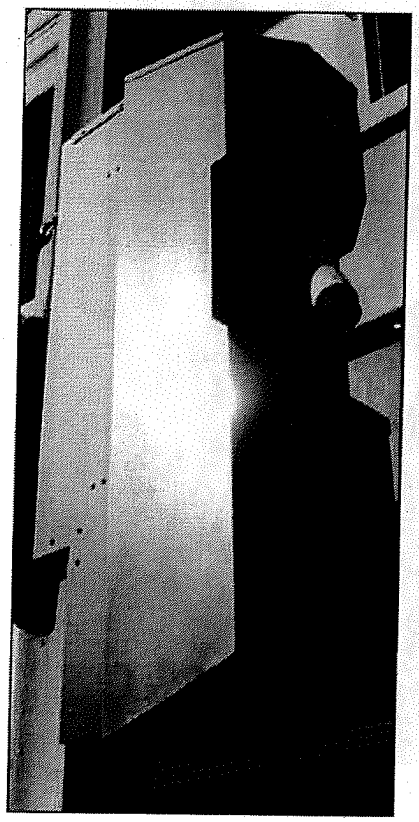


CMI EV Charger

Installation Plan: EVC114

Location: Central Ave between 109th St and Lanzit Ave

Serial Number: C201180007



CMI EV Charger

Installation Plan: EVC108

Location: Lankershim Blvd between Whipple St and Valley Spring Lane

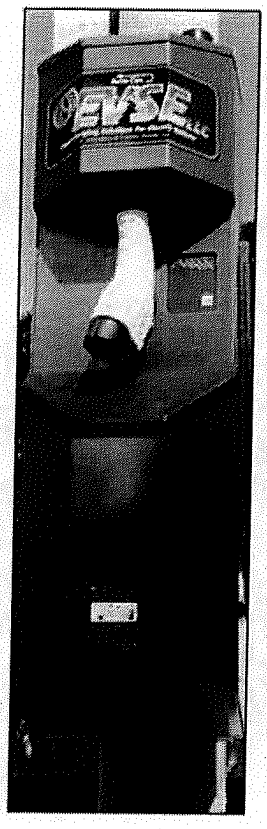
Serial Number: C136180007

CMI EV Charger

Installation Plan: EVC109

Location: Lankershim Blvd between Kling St and Hortense St

Serial Number: C201180025

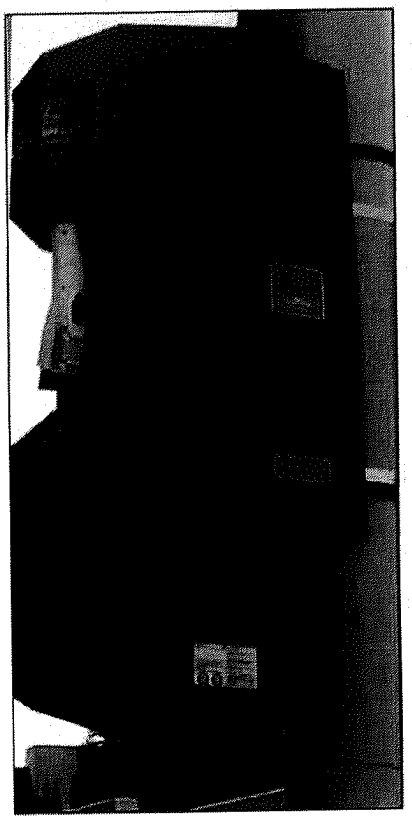


CMI EV Charger

Installation Plan: EVC110

Location: Laurel Canyon Blvd between Ventura Blvd and Maxwellton Road

Serial Number: C201180008

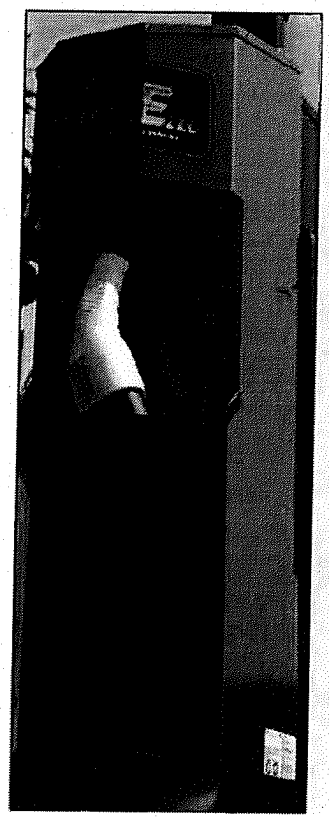


CMI EV Charger

Installation Plan: EVC141

Location: Vanowen St between Canby and Darby

Serial Number: C201180002

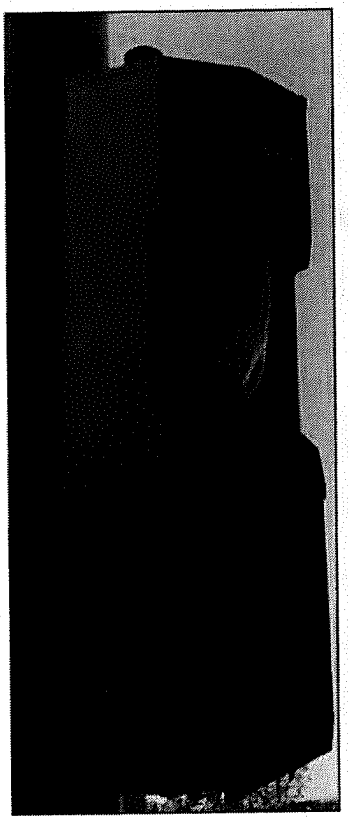


CMI EV Charger

Installation Plan: EVC85

Location: Highland ave between De Longpre ave and Fountain Ave

Serial Number: C136180017

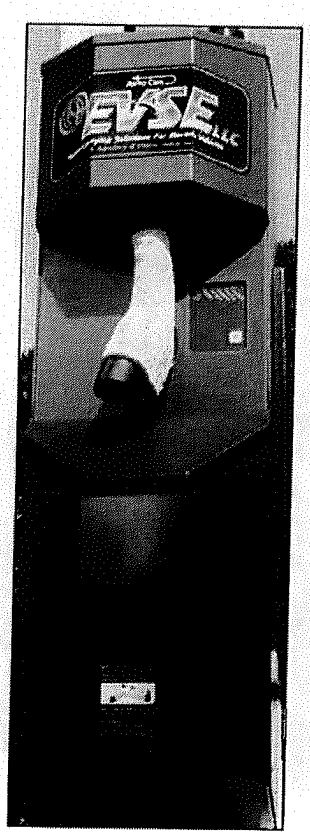


CMI EV Charger

Installation Plan: EVC91

Location: Sunset Blvd between Stanley Ave and Courtney Ave

Serial Number: C201180029

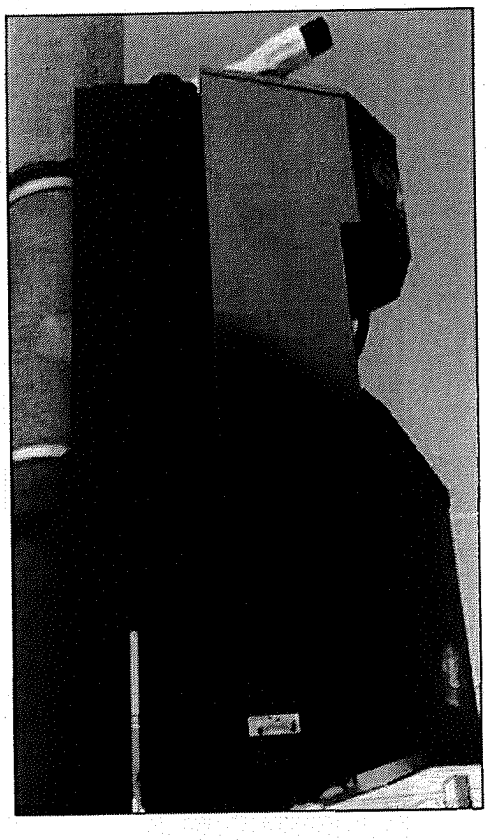


CMI EV Charger

Installation Plan: EVC92

Location: Sunset Blvd between Ogden Dr and Genesee Ave

Serial Number: C136180014

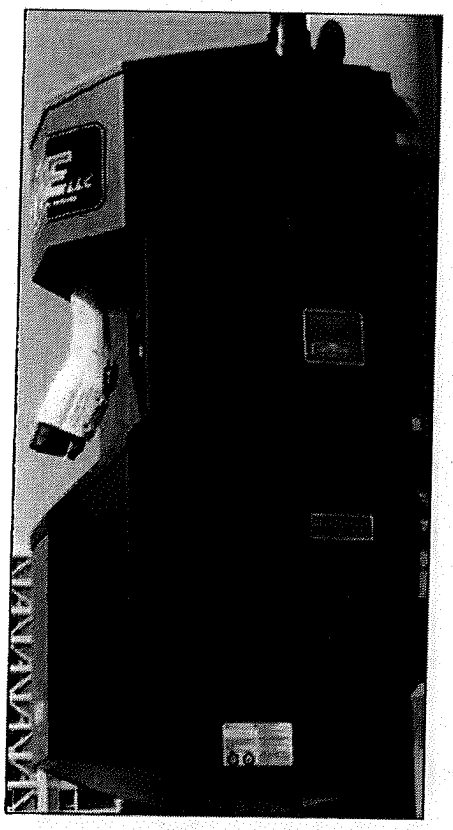


CMI EV Charger

Installation Plan: EVC93

Location: Kester Ave between Ventura Blvd and Moorpark St

Serial Number: C201180019

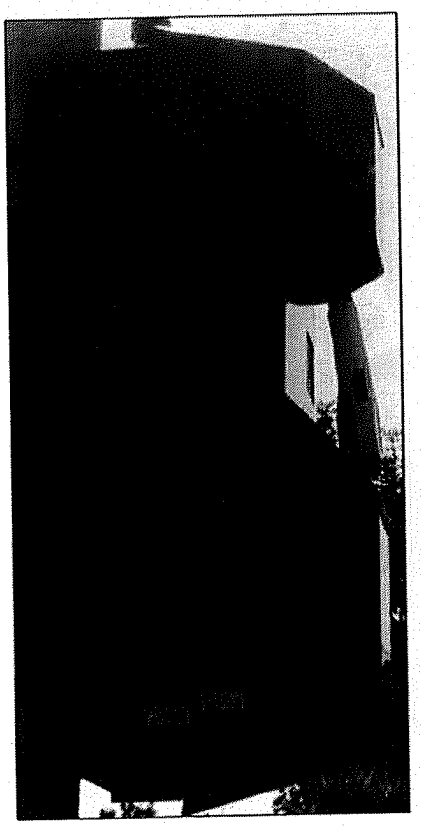


CMI EV Charger

Installation Plan: EVC98

Location: Van Nuys Blvd between Addison St and Huston St

Serial Number: C136180004

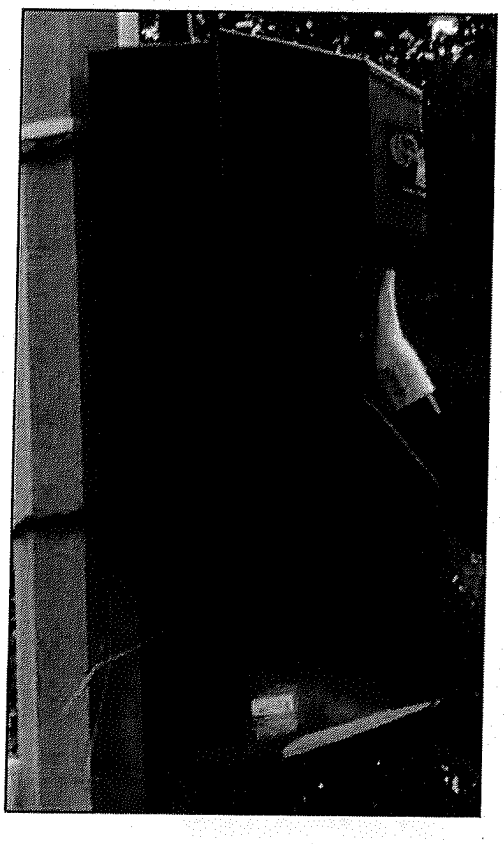


CMI EV Charger

Installation Plan: EVC103

Location: Westwood Blvd between Ohio Ave and Holman Ave

Serial Number: C136180011



CMI EV Charger

Installation Plan: EVC130

Location: Santa Monica Blvd between Greenfield ave and Veteran ave

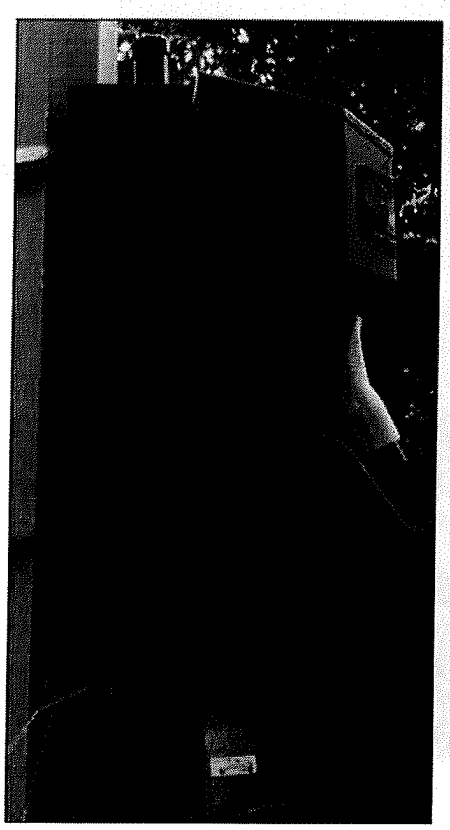
Serial Number: C136180016

CMI EV Charger

Installation Plan: EVC105

Location: Pico Blvd between Westwood Blvd and Midvale Ave

Serial Number: C201180022

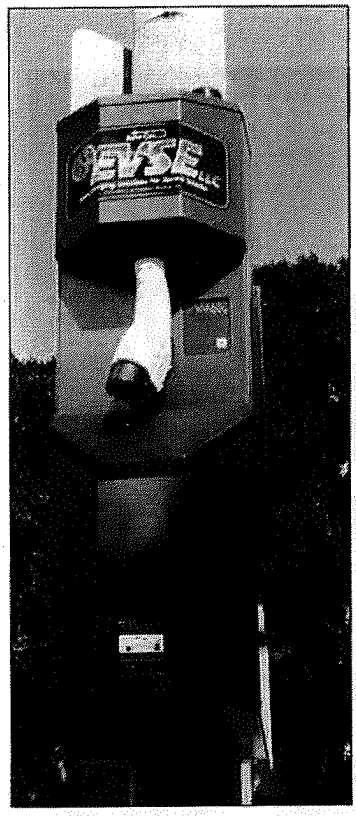


CMI EV Charger

Installation Plan: EVC134

Location: Sylvan St between Van Nuys Blvd and Sylmar ave

Serial Number: C201180021

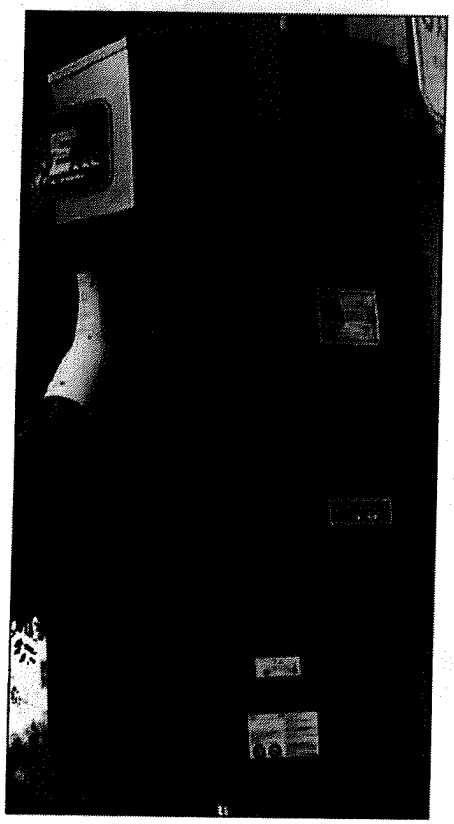


CMI EV Charger

Installation Plan: EVC135

Location: Laurel Canyon Blvd between Osborne St and Montague St

Serial Number: C136180006



CMI EV Charger

Installation Plan: EVC87

Location: Figueroa St between 28th St and 27th St

Serial Number: C136180009

CMI EV Charger

Installation Plan: EVC83

Location: Western Ave between Beverly Blvd and Council St

Serial Number: C136180019

CMI EV Charger

Installation Plan: EVC97

Location: Santa Monica Blvd between Armacost Ave and Brockton Ave

Serial Number: C136180008

CMI EV Charger

Installation Plan: EVC124

Location: Sawtelle Blvd between Olympic Blvd and Tennessee Ave

Serial Number: C201180023

CMI EV Charger

Installation Plan: EVC84

Location: Sunset Blvd between La Brea Ave and Orange Dr

Serial Number: C136180001

CMI EV Charger

Installation Plan: EVC101

Location: Sunset Blvd between Seward St and Cherokee Ave

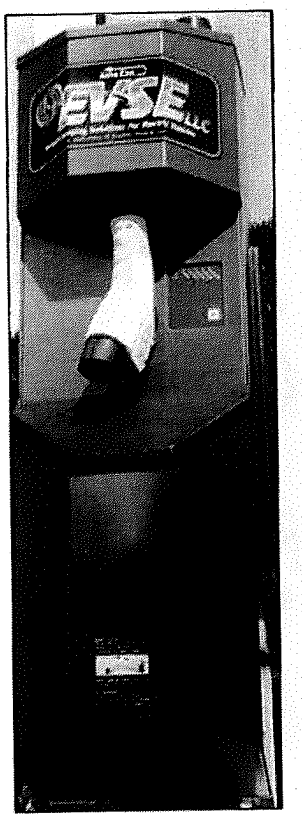
Serial Number: C201180028

CMI EV Charger

Installation Plan: EVC100

Location: Selma Ave between Vine St and Argyle Ave

Serial Number: C136180002

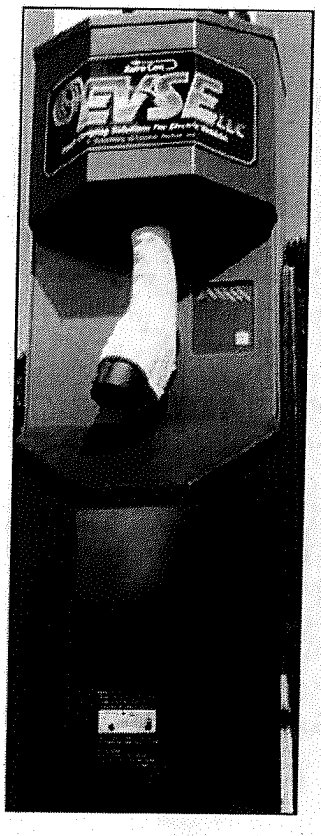


CMI EV Charger

Installation Plan: EVC99

Location: Cahuenga Blvd between Sunset Blvd and Selma Ave

Serial Number: C201180010

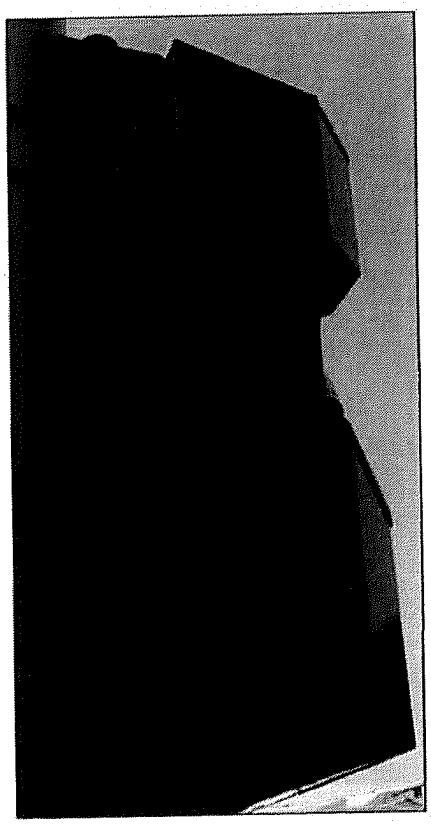


CMI EV Charger

Installation Plan: EVC94

Location: 1st St between Hope St and Grand Ave

Serial Number: C201180027



CMI EV Charger

Installation Plan: EVC95

Location: 8th St between Los Angeles and Main St

Serial Number: C136180015

CMI EV Charger

Installation Plan: EVC96

Location: Flower St between 9th St and Olympic Blvd

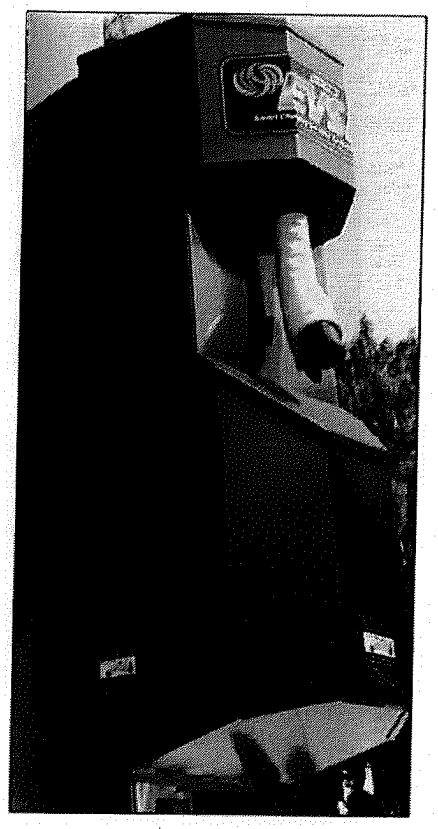
Serial Number: C136180012

CMI EV Charger

Installation Plan: EVCR-0064

Location: Hill St between Pico Blvd and 12th St

Serial Number: C107180058

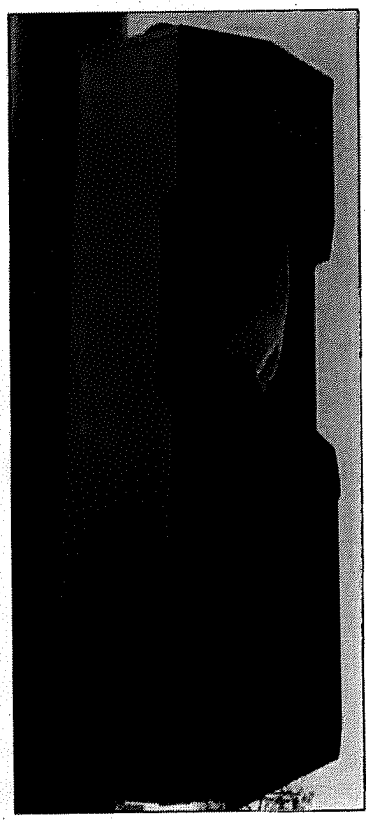


CMI EV Charger

Installation Plan: EVCR-0058

Location: 27th St between Figueroa St and S Flower St

Serial Number: C003180083



CMI EV Charger

Installation Plan: EVC56

Location: South side of Mission Rd ., 5th light north of N Main St

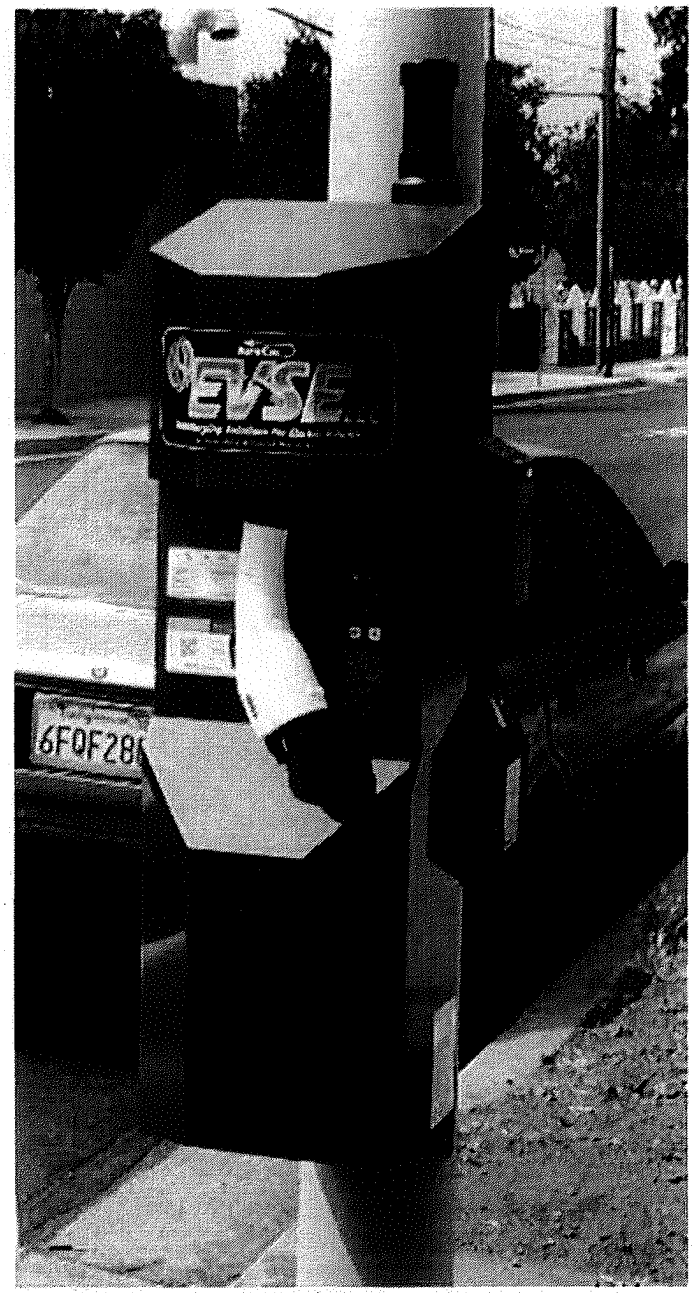
Serial Number: C190160040

CMI EV Charger

Installation Plan: EVC51

Location: East side of Beaudry Ave., 3rd light north of 1st St.

Serial Number: C190160060

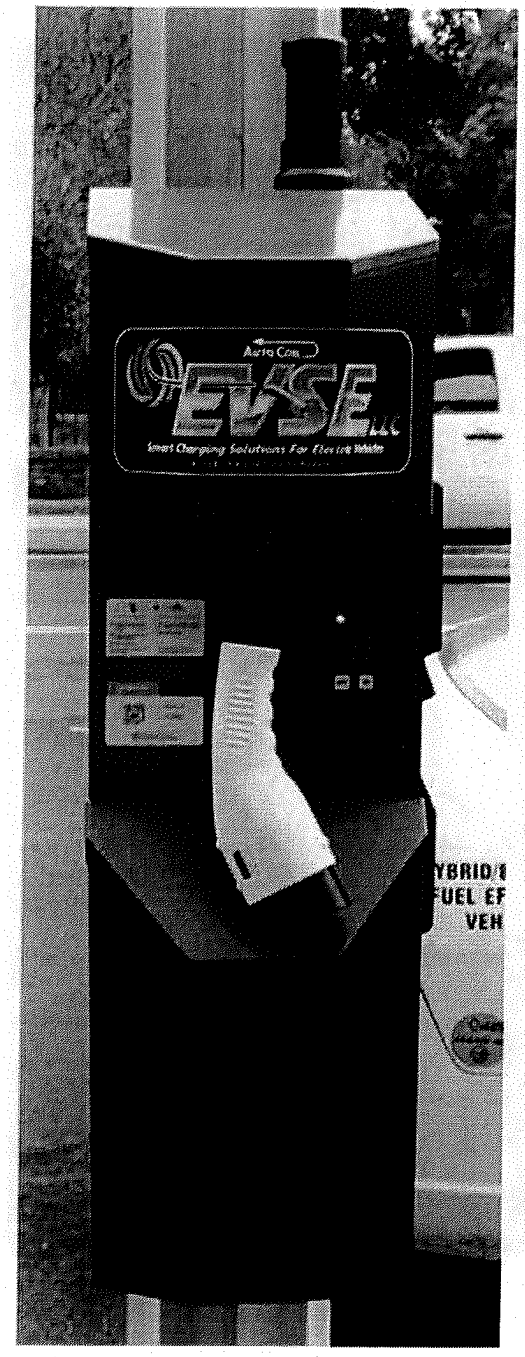


CMI EV Charger

Installation Plan: EVC54

Location: East Side of Lankershim, 1st light north of Hamlin St

Serial Number: C190160014



CMI EV Charger

Installation Plan: EVC55

Location: West Side of Vineland Ave, 1st light north of Vicland Pl

Serial Number: C190160010

CMI EV Charger

Installation Plan: EVC78

Location: North Side of Vanowen St, 1st light east of Rhodes Ave

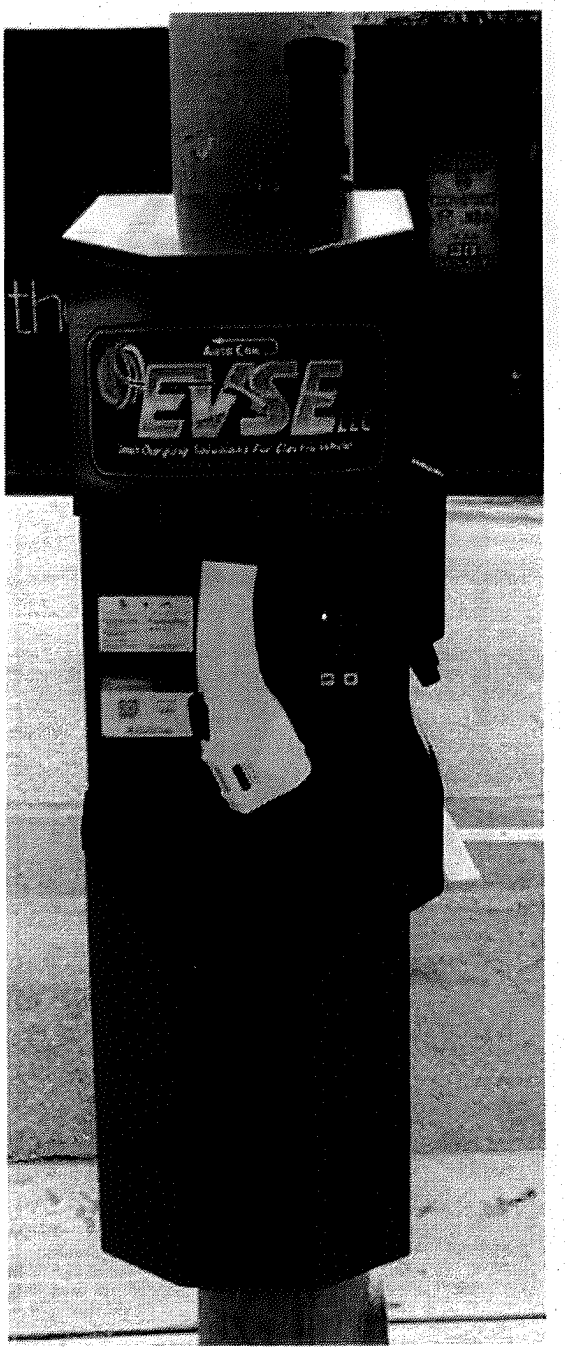
Serial Number: C103160041

CMI EV Charger

Installation Plan: EVC79

Location: South Side of Lankershim, 4th light west of Oxnard

Serial Number: C103160049



CMI EV Charger

Installation Plan: EVC66

Location: South Side of Roscoe Blvd, 5th light west of Winnetka Ave

Serial Number: C190160005

CMI EV Charger

Installation Plan: EVC60

Location: West side of Wilton Pl, 1st light south of San Marino st

Serial Number: C190160041

CMI EV Charger

Installation Plan: EVC69

Location: East side of Sepulveda Blvd., 1st light south of Charnock Rd.

Serial Number: C190160025

CMI EV Charger

Installation Plan: EVC71

Location: West side of Sepulveda Blvd., 3rd light north of Queensland St.

Serial Number: C190160021