# Settlement Year 2 – Third Quarter Progress Report to California Public Utilities Commission Electric Vehicle Charging Station Project

# PUBLIC, NON-CONFIDENTIAL VERSION

For the period June 6, 2014 through September 5, 2014 (the Reporting Period) Submitted October 3, 2014 by NRG EV Services LLC on behalf of the Dynegy Parties<sup>1</sup>

## **EXECUTIVE SUMMARY**

As of September 5, 2014 (the Reporting Date), NRG EV Services LLC (NRG) had a total of 82 Freedom Station sites either constructed or under development. During the Reporting Period, NRG completed construction on 10 additional Freedom Station installations, for a total of 46 completed sites. Adding 33 sites into the construction pipeline during the quarter demonstrates the continued strong pace of Freedom Station construction that will allow NRG to complete the required number of Freedom Stations in the Agreement.

Freedom Stations are now being upgraded with charging equipment supporting the new SAE Combo Charging Standard (CCS). As of the Reporting Date, three stations were installed and serving drivers. NRG has ordered equipment to retrofit all completed sites and delivery is pending.

Increased utilization of the charging infrastructure developed under the Agreement continued in the past quarter – with 140% more charging sessions and 135% more energy dispensed than the previous quarter. In fact, the top Freedom Station site averaged over 20 sessions per day, demonstrating that queuing is becoming a consideration that NRG is now addressing with additional equipment.

Additionally, to help meet this growing need for fast charging capacity, NRG eVgo is installing and networking publicly available, standalone DC fast chargers across the state and at EV dealerships, e.g. Nissan. As of the Reporting Date, our total fleet of fast charging stations is at over 70 statewide.

23% of the 82 Freedom Station sites in the construction pipeline are located in qualified low-income areas (PUMAs), exceeding the commitment of 20% of sites.

NRG also added 19 contracted Make-Readies Sites representing 145 Make-Ready Stubs, for a total of 104 Make-Readies Sites and 830 Make-Ready Stubs under contract. The total number of installed sites and installed stubs more than doubled in the Reporting Period to 48 and 351, respectively. These installations reflect the newest design for Make-Readies, facilitating easy connection of multiple type of EV charging hardware.

<sup>&</sup>lt;sup>1</sup> Capitalized terms not otherwise defined herein shall have the meaning ascribed to such terms in the Long-Term Contract Settlement Agreement (the "Agreement").

The Technology Demonstration process is proceeding with site design, and we have selected vendors for the battery pack, dispenser and power converter.

This infrastructure continues to support EV industry sales, continuing California's leadership. In August, roughly 40% of all U.S. EV sales occurred in California, and the state reached the significant milestone of its first 100,000 EVs on the road.

#### INSTALLATION OF PUBLIC EV CHARGING STATIONS (FREEDOM STATIONS)

As of the Reporting Date, a total of 82 Freedom Station sites were either completed, under construction, or in the permitting process. See maps attached as <u>Appendix A</u> showing the Freedom Station locations and development sites, identifying those that are in low-income PUMA locations. The maps demonstrate broad regional coverage, enabling drivers to cover nearly every region in the Agreement.

#### **Installations**

During the Reporting Period, NRG completed construction on 10 additional Freedom Stations, for a total of 46 Freedom Stations that are installed, energized and available for public use. Completed Freedom Stations are listed below, with new stations **in bold**.

	<b>Completed Freedom Stations</b>	City	Low-income PUMA
SF Bay Area			
1	Westlake Shopping Center	Daly City	
2	Whole Foods Fremont	Fremont	
3	Whole Foods San Francisco	San Francisco	
4	Vacaville Premium Outlets	Vacaville	
5	Livermore Premium Outlets	Livermore	
6	Walgreens San Francisco	San Francisco	
7	Public Market	Emeryville	X
8	The Mall at Northgate	San Rafael	
9	Whole Foods Novato	Novato	
10	Villages at Corte Madera	Corte Madera	X
11	Whole Foods Berkley-Telegraph	Berkeley	
12	Whole Foods Cupertino	Cupertino	
13	Great Mall	Milpitas	
14	Sywest Crossroads	Pleasant Hill	
15	Whole Foods Los Altos	Los Altos	
16	Nob Hill Foods Mountain View	Mountain View	
17	Petaluma Outlets	Petaluma	X
18	Linda Mar	Pacifica	
19	Coddingtown Mall	Santa Rosa	X



Nob Hill Foods, Mountain View (with SAE Combo charger)



Linda Mar, Pacifica



Coddington Mall, Santa Rosa

San Diego County				
20	Fashion Valley Mall	San Diego		
21	Las Americas Premium Outlets	San Diego	X	
22	Flower Hill Promenade	Del Mar		
23	Carlsbad Premium Outlets	Carlsbad		
24	Broadway Plaza	Chula Vista	X	
25	Energy Innovation Center	San Diego		
26	Del Norte Plaza	Escondido	X	
27	Rancho Penasquitos Towne Center	San Diego		
28	Camarillo Premium Outlets	Camarillo		
29	Warner Center	Los Angeles		
30	Stonewood Center	Downey		
31	Larwin Square	Tustin		

32	Outlets at Orange	Orange	
33	Walgreens Tarzana	Tarzana	
34	Pacific View Mall	Ventura	
35	Cabazon Outlets	Cabazon	X
36	Brea Mall	Brea	
37	Oaks Mall	Thousand Oaks	
38	County Fair SC	Chino	
39	Shops at Mission Viejo	Mission Viejo	
40	Westminster Mall	Westminster	
41	Inland Center	San Bernardino	X
42	Los Cerritos Center	Cerritos	
43	City of Hermosa Beach	Hermosa Beach	
44	Walgreens Huntington Beach	<b>Huntington Beach</b>	
45	Corona Hills Plaza	Corona	
46	<b>Dunlap Huntington Beach</b>	<b>Huntington Beach</b>	



Site Development

As of the Reporting Date, 6 additional Freedom Station sites were under construction, 8 more were fully permitted and another 22 sites had been submitted for permitting.

# San Joaquin Valley

In the last quarter, NRG initiated site development work in the San Joaquin Valley. Working with existing host partners and developing new partners in the Valley, multiple sites have been identified. NRG also hosted meetings with municipal power authorities and districts in key areas of the East Valley, establishing the service planning processes and seeking partners for additional sites. The first operational Freedom Station site in the San Joaquin Valley is expected next quarter.

To support market development in the San Joaquin Valley, NRG is a founding partner of the San Joaquin Valley EV Partnership, and Terry O'Day is co-chair. The group has convened multiple meetings of Valley stakeholders to augment planning, facilitate relationships, create market awareness, develop infrastructure, and ultimately sell more EVs. The group has been widely recognized to date in the media (e.g., Modesto Bee article:

http://www.modbee.com/2014/04/03/3275017/group-gathers-in-modesto-to-promote.html). Furthermore, NRG and Nissan recently received an award on behalf of the EV Partnership at the California Partnership for the San Joaquin Valley Annual Summit on September 19, 2014.

#### Low-Income PUMA Distribution

Nineteen of the 82 properties are located in low-income PUMAs: 8 in the San Francisco Bay Area, 6 in the Los Angeles Basin, 3 in San Diego County, and 2 in the San Joaquin Valley. They represent 23% of the construction pipeline, exceeding the goal of 20% in this category.

#### **Low-Income PUMA Sites:**



Las Americas Premium Outlets, San Diego

Public Market, Emeryville

#### SAE Combo Rollout Status

NRG has begun the process of upgrading its Freedom Stations to support the SAE combo standard (CCS), as required by the Agreement. As of the Reporting Date, three initial Freedom Stations have been equipped with SAE combo connectors: Fashion Valley Mall in San Diego (pictured below), Nob Hill Market in Mountain View and Hermosa Beach Pier in Hermosa Beach (both pictured above). All future stations will be installed with SAE Combo infrastructure, per the requirement of the Agreement.



Fashion Valley Mall (with SAE Combo charger)

On April 11, 2014, NRG issued a request for proposals (RFP) for SAE CCS equipment. NRG distributed the RFP directly to 19 suppliers. A total of 6 suppliers responded to the RFP, resulting in a dual award to ABB Inc. for Terra 53CJ dual hose chargers and BTC Power Level 3 DC Fast Charger. Currently, NRG has a purchase agreement for 40 to 60 of the ABB chargers to satisfy the equipment needs for retrofits and new installations. These chargers are being delivered during the 4<sup>th</sup> quarter.

Installation of CCS chargers has attracted great attention. The first stations in each of the three operational markets attracted significant media attention (see below). Drivers have already begun to utilize the stations and NRG is working with General Motors and BMW to ensure that all drivers have a great experience with the new infrastructure.



Credit Card Payment Upgrades Rollout Status

As previously reported, a credit card (CC) reader has been installed and tested at an initial Freedom Station site. The results of the first tests showed that modifications were required before a broader rollout to existing stations could be commenced. In order to protect the CC reader and keypad that is mounted to the customer service cabinet from the elements, NRG

designed a new faceplate enclosure. This CC equipment and new enclosure were installed at three Freedom Station locations in the San Francisco bay area between June and July.

New CC equipment and enclosures have been ordered and beginning in mid-October, NRG will be retrofitting all existing Freedom Station locations as well as installing CC readers at new Freedom Station locations. The new equipment also comes with enhanced software to support additional charging equipment and a wireless infrastructure. This software is expected to be deployed over-the-air to all CC installations by end of year.

All stations are open for anonymous credit card payment from the date of commissioning with the support of NRG's 24-hour / 365 day-per-year call center. In fact, many drivers are currently using this option. 905 drivers initiated charging sessions in the Reporting Period at California Freedom Stations utilizing this option (see below).

Region	Total CC-Only Transactions
Los Angeles	523
San Diego	115
San Francisco	267
Grand Total	905

## INSTALLATION OF MAKE READY STUBS AND MAKE READY ARRAYS

Status of Make-Readies Sites

Overall, NRG has 104 Make-Readies Sites under contract, representing 830 Make-Ready Stubs. Of these, 351 Make-Ready Stubs have been installed at 48 sites, as set forth on confidential Appendix B. In the past quarter, NRG doubled the total installed base of Make-Ready Stubs and sites. New partners include a 60 Make-Ready Stub installation at Sony Pictures Entertainment, 10 stubs at Silicon Image, Inc. and 10 Make-Ready Stubs at Butte College, a California community college.



Sony Pictures Entertainment

Pursuant to Section 4(b)(vi)(B) of the Agreement, NRG has established a website which identifies each installed Make-Ready Array's location and Start-Up Period expiration date. See <a href="http://www.nrgevgo.com/california-rev-progress/">http://www.nrgevgo.com/california-rev-progress/</a>.

NRG has conducted a total of 550 site assessments. Of these sites, 302 are Multi-Family Housing Sites, 184 are Workplace Sites and 64 are Public Interest sites, and they would equate to approximately 3,600 Make-Ready Stubs. Barriers addressed in previous reports remain; however, the number of sites assessed offers a promising foundation for achieving the goals when the barriers are removed. Additionally, make-readies were always expected to follow Freedom Station sites in market acceptance, and that has proven to be the case.

Mixed-Income Multi-Family Housing Sites

NRG is continuing outreach and has been in discussions with two low-income multifamily communities, but prospects in this area remain challenging.

#### **DEMONSTRATION PROGRAMS**

# **Technology Demonstration Program**

The objective of the Technology Demonstration Project is to demonstrate how micro-grid components (including power storage, conversion, generation, and dispensing) can reduce the cost of developing, constructing, and operating DC Fast Chargers when deployed as modules that are custom combined with the chargers to meet the needs and characteristics of individual properties.

During the Reporting Period, NRG has accomplished the following:

- Site Design NRG has hired the general contractor for the project. We have worked through the site design and expect to have the design drawings completed and submitted shortly. Once submitted, UCSD will require 3-4 weeks for review by their engineering team.
- Battery Pack We have engaged a vendor to develop a 25kWh battery pack system using used batteries from the Mini E project. They are currently developing the enclosure and working with UCSD to determine the requirements for a standalone battery system. We are in discussions with several other battery/system integrators for a standalone battery system. It is our intention to use at least 2 different suppliers in this project.
- Dispenser technology We have engaged a vendor to develop a dispenser system that is capable of connecting to different power converts and deliver DC fast charging. They are currently in the design process of the dispenser.
- Power Converter We have engaged 2 companies to develop power converters which can be used with the dispensers.

#### **EV OPPORTUNITY PROJECTS**

NRG has explored proposals in multiple categories for the Opportunity Projects. Electric bus demonstrations and community based charging initiatives seem to have the most promise.

#### **USAGE DATA**

NRG eVgo completed more than 18,500 charging sessions in the third quarter (compared to 7,700 in Q2) at Freedom Station sites during the quarter, a 140% increase, and dispensed over 210,000 kilowatt-hours of electricity (compared to 89,000 kWh in Q2), a 135% increase. This translates to 630,000 miles driven on electricity in this quarter alone, displacing 21,000 gallons of gasoline (assuming 30mpg).

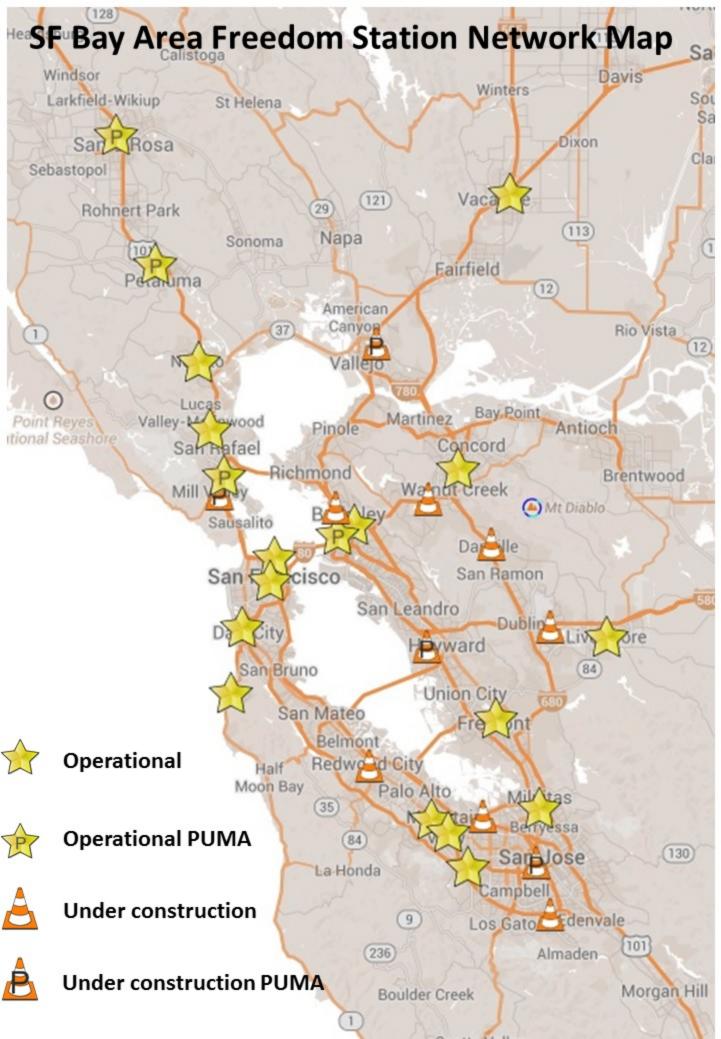
The data on usage of the charging infrastructure has reached the point where useful information can be gleaned. As a result, per the Agreement, NRG has reached out to University of California researchers at Davis and UCLA to develop insights into charging behavior.

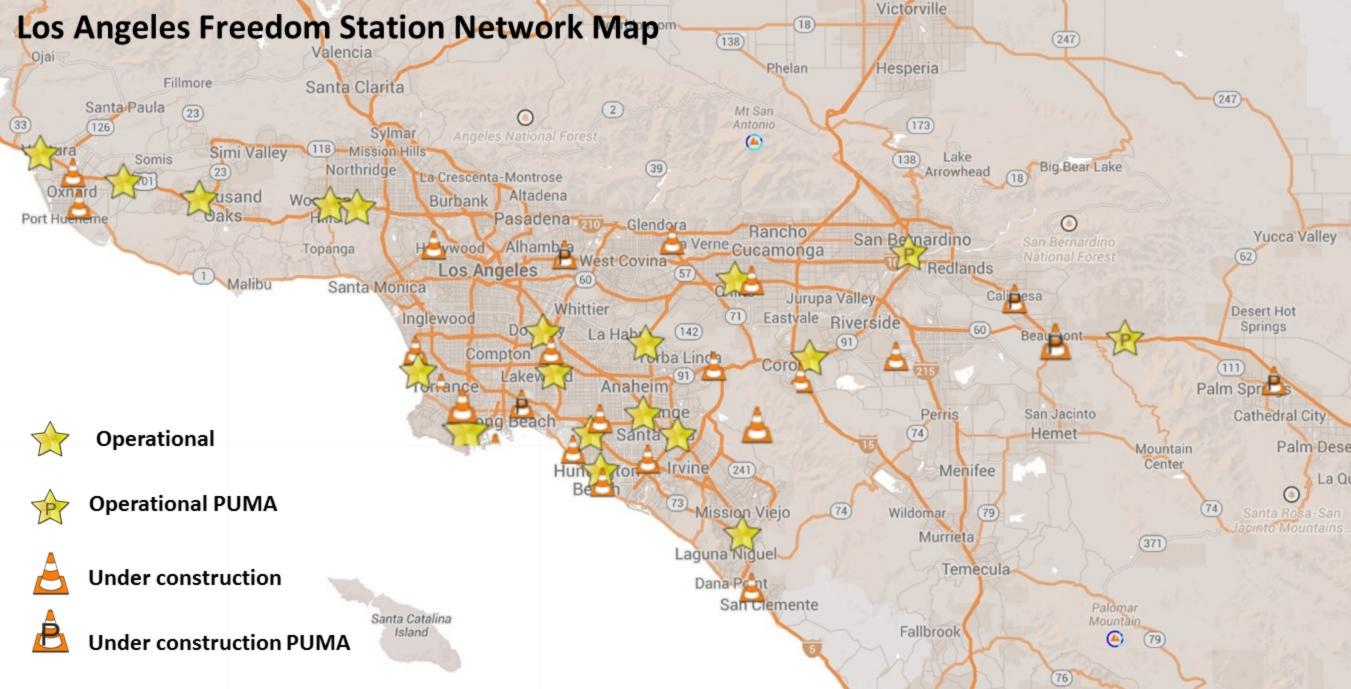
See confidential Appendix C for the original raw usage data for the Reporting Period.

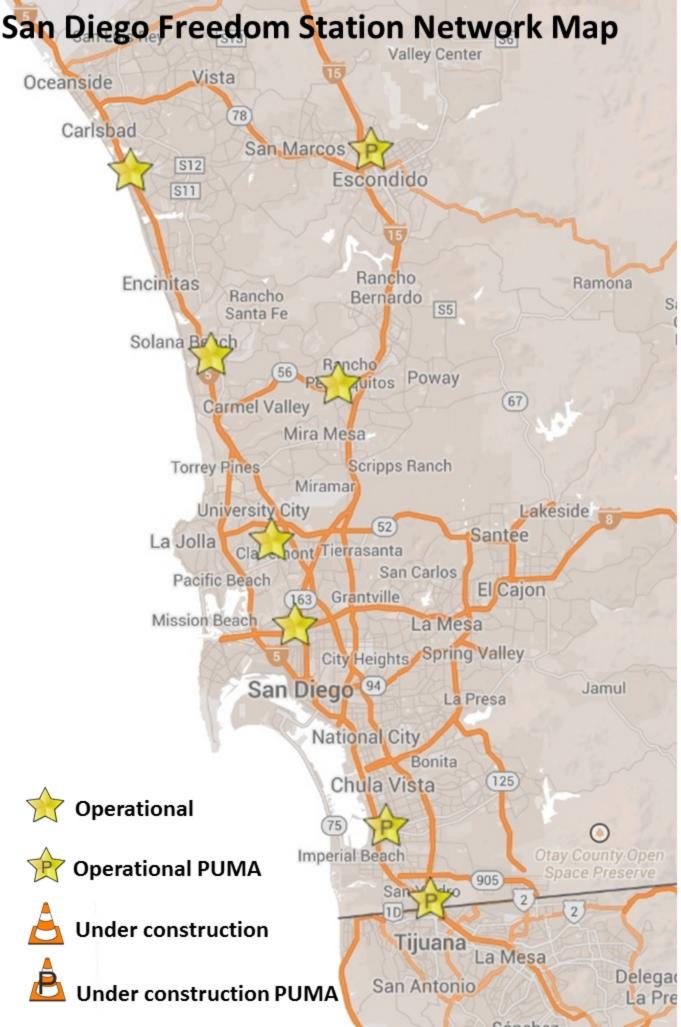
# Appendix A

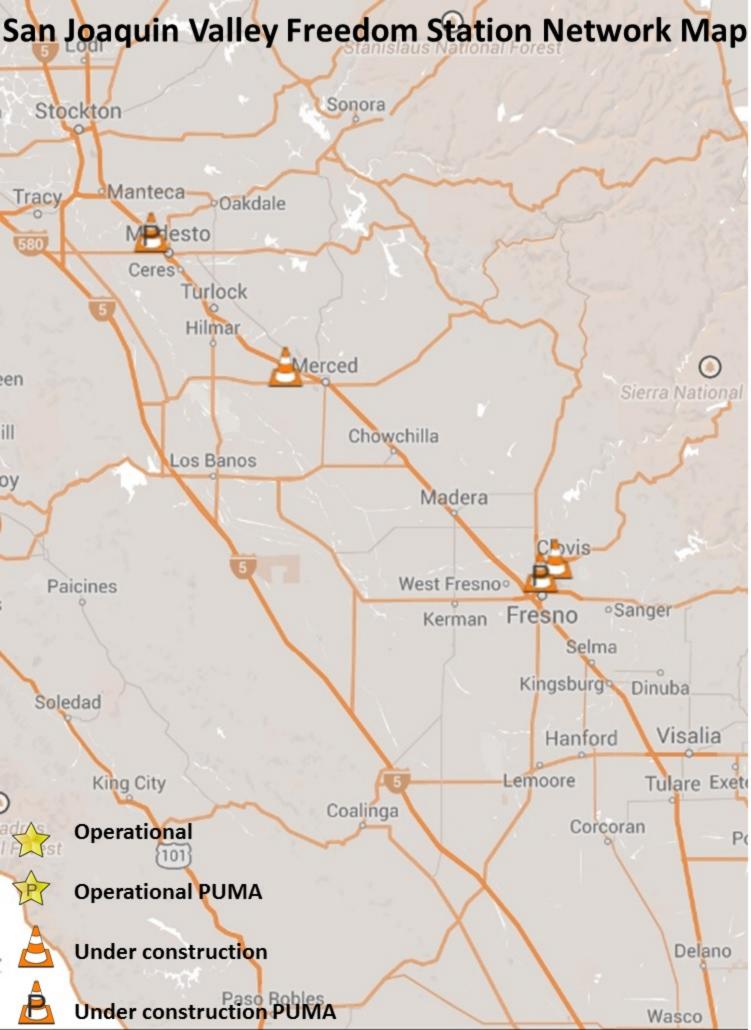
# **Freedom Station Maps**

See attached.









#### Appendix B

#### **Make-Readies Detail**

# See attached [CONFIDENTIAL].

The following information is confidential and protected material and may only be provided to those parties and their Eligible Reviewers that have executed a protective order in the FERC proceeding approving the Agreement and the settlement of the EL02-60/62 Proceeding. NRG retains an exclusive, non-public, proprietary right to such information for eighteen (18) months after the date of submittal to the CPUC, and during such time such information shall not to the extent permitted by law be subject to disclosure under FOIA or CAPRA.

Material Redacted in Public, Non-Confidential Version

# **Appendix C**

## Raw Usage Data

# See attached [CONFIDENTIAL].

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