



Lessons Learned – The EV Project Regulatory Issues and Utility EV Rates

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List of Acronyms

AC	Alternating Current
AEL&P	Alaska Electric Light & Power Company
AFV	Alternative Fuel Vehicles
AMI	Advanced Metering Infrastructure
APS	Arizona Public Service
ARRA	American Reinvestment and Recovery Act
BEV	Battery Electric Vehicle
CNG	Compressed Natural Gas
CPUC	California Public Utilities Commission
DC	Direct Current
DCFC	Direct Current Fast Charger
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EV	Electric Vehicle
EVAC	Electric Vehicle Advisory Council
EVSE	Electric Vehicle Supply Equipment
EVSP	Electric Vehicle Service Provider
GWP	Glendale Water & Power
HECO	Hawaii Electric Company
HELCO	Hawaii Electric Light Company
I&M	Indiana & Michigan Power
IOU	Investor Owned Utility
IPL	Indianapolis Power and Light
KU Energy	Kentucky Utilities Company

kWh	Kilowatt per hour
LADWP	Los Angeles Department of Water and Power
LEV	Low Emissions Vehicle
LG&E	Louisville Gas & Electric
LNG	Liquid Natural Gas
MECO	Maui Electric Company
MUNI	Municipal Owned Utility Company
NARUC	National Association of Regulated Utility Commissions
NBC	National Building Codes
NIPSCO	Northern Indiana Public Service Company
PEV	Plug-in Electric Vehicle
PG&E	Pacific Gas and Electric Company
PHEV	Plug-in Hybrid Electric Vehicle
POS	Point of Sale
PUC	Public Utility Commission
RESP	Retail Electric Sales Provider
RTEV	Residential Time-of-Use Electric Vehicle
SCE	Southern California Edison Company
SDG&E	San Diego Gas & Electric
TOU	Time-of-Use
U.S.	United States
V	Volt

1 Company Profile

ECOtality, Inc. (NASDAQ: ECTY), headquartered in San Francisco, California, is a leader in clean electric transportation and storage technologies. Its subsidiary, Electric Transportation Engineering Corporation (eTec) dba ECOtality North America (ECOtality), is the leading installer and provider of charging infrastructure for electric vehicles (EVs). ECOtality has been involved in every major EV or plug-in electric vehicle (PEV) initiative to date in North America and is currently working with major automotive manufacturers, utilities, the United States (U.S.) Department of Energy (DOE), state and municipal governments, and international research institutes to implement and expand the presence of this technology for a greener future.

ECOtality designed and currently manages the world's largest EV infrastructure demonstration - the EV Project. With a budget of over \$230 million, The EV Project will deploy and study Level 2 alternating current (AC) electric vehicle supply equipment (EVSE) stations for residential use, Level 2 AC EVSE stations for commercial and direct current (DC) fast charge (DCFC) stations. This represents thousands of field assets, utilized in concert with the deployment of Nissan LEAF™ vehicles and Chevrolet Volt vehicles.

The EV Project is a public and private partnership administered by the DOE through a federal stimulus grant, made possible by the American Recovery and Reinvestment Act (ARRA) and by the private investment of ECOtality and its partners.

The EV Project is an infrastructure study. The EV Project will deliver to ECOtality, the Government and the general public a wealth of directly-applicable technical and professional experience for jumpstarting regional EV adoption and replicating business models that lead to sustainable, market-based charge infrastructures.

One objective of The EV Project is to identify potential barriers to the widespread adoption of EVs and the deployment of charge infrastructure to support them. In support of this objective, The EV Project identifies lessons learned from its early deployment of charge infrastructure, which are of national interest in order to disseminate the lessons learned, facilitate their discussion and drive resolution of barriers to infrastructure deployment they present. This Lessons Learned paper documents utility regulatory issues in specific states, which impact the robust deployment of the EV charging infrastructure.

2 EV Regulatory Policy in Key States

Successful EV adoption relies heavily on having a sound and robust charging infrastructure that enables convenient and efficient charging solutions for both residential and publicly accessible charging. Deploying the infrastructure needed to support the anticipated demand, EV charging services necessitate action on the part of regulatory agencies. They need to address important policy issues necessary to provide regulatory certainty for investment in infrastructure to occur, whether from a small business hosting a publicly accessible EVSE unit, an Electric Vehicle Service Provider (EVSP) providing an entire charge network, or an electric utility, supplying electricity for transportation.

Rulemaking processes taking place at public regulatory/service commissions in several early EV adoption states have played an important role facilitating a supportive market business environment for charge infrastructure deployment. In some states, legislative action has been taken in the place of, or in conjunction with these regulatory proceedings. Regulatory issues impacting the deployment of charge infrastructure include: 1) Regulation of third party providers/charging stations as utilities 2) The role of utility ownership of EVSE in the marketplace and 3) The use of EVSE sub-metering for billing electricity.

Many states require that any entity selling electricity be regulated as a public utility. As third party EVSPs provide electricity to their EV owner/customers, a regulatory question exists, whether the EVSP should be regulated as an electric utility. The regulation of an EVSP as a public utility creates a burdensome operating environment for the emerging EVSP industry, undermining the creation of a competitive market for EV charging services and the rapid deployment of charging infrastructure. For a competitive EV services market to develop that will use private capital to deploy charging infrastructure, it is imperative that an EVSP not be regulated as an electric utility. To avoid such regulation in states which limit the resale of electricity to electric utilities, EVSPs generally do not sell electricity directly (by the kilowatt-hour), rather they sell access to their charge infrastructure. The charging service allowed by access to charging utilizes electricity in performing the charging service, but payment is for the service, not for the electricity. This is much like renting a recreational vehicle parking place that is served by electricity or paying for a hotel room that includes costs associated with providing the electricity used in that room. However, even without selling charging services by the kilowatt-hour, uncertainty exists in the marketplace that can deter private investment.

In contrast to the issue of regulating EVSPs as electric utilities, is the issue of allowing regulated electric utilities to own charge infrastructure. At the heart of this issue is the question of whether it is in the public interest for charge infrastructure to be deployed and, therefore, paid for by all users of electricity (ratepayers). Several factors have been argued in response to this question. On the utility side, it is argued that it is in the public interest to make charge infrastructure available ubiquitously, even in locations that may not be profitable (often referred to as traditionally underserved areas), and that it should be public policy that all ratepayers pay for this. EVSPs argue that having an entity in the marketplace that can subsidize its operations using ratepayer funds has the potential to create an uneven playing field in the marketplace

and creates significant uncertainty concerning the need to compete with a publicly subsidized entity. To resolve the uncertainty around utility ownership of charging infrastructure, several states have begun to outline the role of electric utilities in the early EV marketplace, defining to what extent utilities should operate in this space. Considerations are made to recognize the role that electric utilities typically take, which are in the form of regulatory commission proceedings, allowing input from electric utilities, EVSPs and the public.

Finally, the implementation of EV specific rates, by separating the billing of electric energy used for transportation from electric energy used for other purposes in either residential or commercial environments, allows the benefits that accrue to the electric grid from a smart EV charging infrastructure to be reflected directly in lower rates charged by energy providers for transportation energy. Without the capability to discriminate the amount of electric energy used specifically for transportation, utility rates will always be a compromise between conservation (for non-transportation energy) and marginal pricing (to encourage electricity use for transportation). The ability to discriminate the amount of electricity used specifically for transportation requires that this electricity be individually metered. This can be accomplished using either a separate meter for the transportation energy (fed independently from the grid) or a sub-meter (fed through an existing meter measuring all electricity used on at a location). In either case metering electricity separately as a transportation fuel is an important regulatory issue that must be examined to further develop a marketplace favorable to the adoption of EVs. Issues such as meter accuracy, meter accessibility, billing calculation and accuracy dispute resolution are issues, which require clarification in the regulatory arena.

The following sections of this paper provide an overview of the EV regulatory landscape across the U.S., focusing on states where regulatory and/or legislative activity impacting the above regulatory issues has taken place and where utility EV rates existed in the Summer of 2012 .

3 Current Landscape

3.1 States with Legislative Exemptions on EVSP or Charging Facilities as Public Utilities

Listed below are ten states that have determined that EVSPs or others that provide charging facilities for the sole purpose of providing electricity as a transportation fuel do not fall into the definition of a “public utility” and therefore are not subject to regulation as such an entity. The states are listed alphabetically and a brief description of the relevant regulatory language is provided.

3.1.1 California

(AB 631, 2011)

A corporation or individual that owns, controls, operates, or manages a facility that supplies electricity to the public exclusively to charge light-duty battery electric and plug-in hybrid electric vehicles is not defined as a public utility.

3.1.2 Colorado

(HB 1258, 2012)

This 2012 regular session bill exempts persons reselling electricity supplied by a public utility for use in an alternative fuel vehicle from being regulated as a public utility. The bill also exempts owners of properties that supply electricity to alternative fuel vehicles that is generated on the property from a renewable source.

3.1.3 Florida

(FL Rev. Stat. §27-366.94)

Passed into law in 2012, Chapter 27-366.94 is amended to specify that provision of electric vehicle charging to the public by a nonutility is not considered a retail sale of electricity. In addition rates, terms and services of electric vehicle charging services are not subject to regulation by the Florida Public Service Commission.

3.1.4 Hawaii

(HA Rev. Stat. §269-1)

Hawaii Revised Statutes state that facilities used primarily to charge vehicle batteries for electric vehicles are exempt from the definition of utility.

3.1.5 Illinois

(HB 5071, 2012)

Provides that an entity that owns or operates a facility that furnishes or sells electricity to the public for the purpose of charging electric vehicles is not and will not be deemed a public utility or an alternative retail electric supplier, unless otherwise classified as such. The adopted floor amendment requires the Illinois Commerce Commission to initiate rulemaking proceedings to establish certification requirements for persons or entities that install, maintain, and repair electric vehicle charging stations as well as rules regulation the installation of charging stations. This bill has passed both houses and on June 29, 2012 and then was sent to the Governor for signature.

3.1.6 Maryland

(HB 1280, Chapter 632 Laws 2012)

This 2012 regular session bill exempts persons owning EVSE or electric vehicle service providers from being deemed an electricity supplier or a public service company. The bill defines a retail electric customer as a person who owns or operates an electric vehicle charging station or an electric vehicle charging station service provider. Otherwise a person who charges their vehicle at an electric vehicle charging station is not considered a retail electric customer.

3.1.7 Minnesota

(MN Stat. §216B.02 Subdivision 4[2])

Minnesota Statute states that the definition of a public utility does not include a retail seller of electricity used to recharge a battery that powers an electric vehicle and that is not otherwise a public utility.

3.1.8 Oregon

(OR Rev. Stat. §757.005)

Oregon Revised Statutes make an exemption in the definition of utility for any entity that furnishes alternative fuels to any number of customers for use in alternative fuel vehicles so long as that entity does not otherwise provide utility service.

3.1.9 Virginia

(VA Code Ann. §56-1.2)

Virginia Code makes several stipulations stating that a person not otherwise a public service corporation and who provides electric vehicle charging service at retail is not designated as a public utility, public service corporation, or public service company. In addition, the statute stipulates that electric vehicle charging service does not constitute a retail sale of electricity.

(VA Code Ann. §56-232.2)

The Virginia Public Service Commission is prohibited from regulating fees, rates or charges for the provision of retail electric charging services provided by persons other than an electric service corporation. The Commission is authorized to regulate utility sales of electricity to non-public service corporations who furnish electric vehicle charging services to the same extent that other electric services are regulated.

3.1.10 Washington

(SHB 1571, Chapter 28 Laws 2011)

The 2011 legislation established that the Washington Utilities and Transportation Commission shall not regulate the rates, services, facilities, and practices of an entity that offers battery charging facilities to the public for hire if (1) that entity is not otherwise subject to commission jurisdiction as an electrical company; (2) that entity is otherwise subject to commission jurisdiction as an electrical company, but its battery charging facilities and services are not subsidized by any regulated service. An electrical company may offer battery charging facilities as a regulated service, subject to commission approval.

3.2 States Engaged in EV Regulatory Activity

In preparation for the roll out of electric vehicles, some states are addressing policy issues related to EVs through formal proceedings or working groups. Several states have passed regulatory policies identifying whether electric vehicle service providers should fall under the jurisdiction of state regulatory commissions and the utility role in the ownership of EVSE. In cases where the public utility commission (PUC) is making the ruling, that ruling only applies to investor owned utilities (IOUs) and that municipal owned utilities (MUNIs) will be subject to political decisions at a local level.

The following states have undertaken measures impacting both the role of the EVSP and utility in the EV marketplace. The EV Project, through ECOtality, was active in all of these proceedings, formulated strategic coalition relationships with EVSPs and/or utilities, filed petitions to intervene, and filed comments with PUCs and Legislatures to ensure a favorable policy environment for developing an environment supportive of a robust charging infrastructure.

3.2.1 Arizona

(Docket No. E-01345A-10-0123)

The Arizona Corporation Commission issued a ruling that Arizona Public Service (APS) could not own or deploy public charging stations and must over the next year work with current federally funded EV infrastructure contractors for the first year of their proposed study. Should APS identify a specific gap in charging infrastructure deployment or other deficiency in the federally-funded EV infrastructure efforts, APS could request to own infrastructure and approval of a public point-of-sale (POS) rate. APS was directed to conduct a feasibility study of offering a separately metered, non-tiered, time-of-use (TOU) rate for EV charging with a report of the findings of this study to be included in APS' first annual report to the Commission. The Commission has yet to conclude whether charging stations will be regulated like a utility.

3.2.2 California

(Rulemaking 09-08-009)

In Phase 1 of the proceeding, the California Public Utilities Commission (CPUC) concluded that given the legislative definition of utilities, EVSPs do not qualify as a utility. The CPUC ruled “that a seller of electric vehicle charging services that purchases electricity from an investor-owned utility is an end-user that purchases the electricity at retail. Thus, the sale of electricity by an investor-owned utility to an electric vehicle service provider is a retail sale of electricity, not a wholesale sale or a sale for resale.” The California Legislature has passed AB 631 codifying this decision into law and on October 6, 2011, Governor Brown signed the bill into law.

In Phase 2 of the proceeding, the CPUC found that utility ownership of EVSE is unlikely to result in safety advantages or reduce customer service costs. Therefore, the CPUC ruled in favor of customer ownership of EVSE. Should the utilities present evidence in future proceedings of underserved areas or market failure where utility involvement is prohibited, the CPUC will revisit the prohibition. Utilities may continue to own EVSE that are used to charge their own electric vehicle fleets or those that provide workplace charging for employees. Also out of the Phase 2 proceedings, the CPUC has directed the development of a plan for accommodating sub-meters.

3.2.3 District of Columbia

(Formal Case No. 1096)

The Public Service Commission of the District of Columbia has an open formal case on electric vehicles. The purpose of this proceeding is to investigate the regulatory treatment of electric vehicle charging stations and related services in the District. Among other issues, the Commission will need to decide whether, and to what extent, an EV rate should be subsidized by those who do not switch to electric vehicles, as well as whether, and how, the rate should be structured so as to avoid the unrestrained charging of EVs during peak usage times, especially on extremely hot days when demand on the electric system is already high. Opening comments and response comments have been submitted and this proceeding is ongoing.

3.2.4 Illinois

(Illinois Commerce Commission Initiative on Plug-In Electric Vehicles)

Formed in September of 2010, the Initiative on PEVs is co-Chaired by Commission Chairman Scott and Commissioner O’Connell-Diaz. The purpose of the initiative is to guide the Commission in understanding relevant regulatory issues in order to accommodate the adoption of EVs in Illinois. The Initiative collaborated with various stakeholder groups to make policy recommendations for EV adoption, and in March 2012, released a report on recommendations for the Commission as well as the Illinois legislature, including recommendations that EVSE not be regulated as at utility. The Initiative will periodically reconvene to explore emerging policy issues related to PEVs.

(Electric Vehicle Advisory Council)

The Electric Vehicle Advisory Council (EVAC) was created by Public Act 97-0089 to make recommendations to the Governor and General Assembly on how to support EVs and EV related industries in the state. A final report on recommendations was published in December of 2011, and the group continues to meet monthly to work on implementation of the medium and long-term recommendations made in the report. The EVAC works in tandem with the Illinois Commerce Commission Initiative on PEVs.

3.2.5 Maryland

(Electric Vehicle Infrastructure Council)

The Council is composed of 25 members from various transportation, economic, and environmental groups including the Public Service Commission and Department of Transportation (DOT). The purpose of the group is to facilitate the adoption of EVs into the state transportation network, including addressing issues related to EVSE installation and regulation. A final report on recommendations is due to the Governor's Office and state legislature in December of 2012.

3.2.6 Michigan

(Plug-in Electric Vehicle Preparedness Task Force)

The Task Force was established by the Michigan Public Service Commission to facilitate readiness and acceptance of PEVs. The Task Force addresses various issues relating to EV deployment including incentives, rates and infrastructure issues. Upcoming initiatives include expanding existing biofuels conversion credit to include installation of EVSEs, working with the National Building Codes (NBC) committee to update building code to provide structure for EVs, and working with stakeholder groups to make recommendations for EV zoning, signage, and permitting.

3.2.7 New York

(Rulemaking 11-M-0701)

The City of New York has proposed an expansion of the sub-metering exemption under this rulemaking to include EVSEs, suggesting that alleviating sub-metering review of EVSEs by the Commission will encourage EV adoption in New York. The Commission has held technical workshops to discuss various topics pertaining to EVs and charging infrastructure. The Commission has still not provided a formal response.

3.2.8 Oregon

(UM 1461 Proceeding)

On January 19, 2012, the Oregon PUC completed an investigation of matters related to charging infrastructure of EVs and concluded that an EVSP does not meet the legislative definition of a utility nor does it qualify as an EVSP as it does not provide “ancillary services.” The PUC ruled in favor of unregulated participation by IOUs in the EVSE market, as well as allowing rate-based recovery of EVSE costs, where a utility makes a compelling case that such recovery would benefit rate-payers. The PUC neglected to mandate EV specific rates, but did direct utilities to provide either existing flat rates or TOU options to EV customers, regardless of rate class. The PUC noted that as the EV market develops, they will revisit these issues or address new issues that arise.

3.2.9 Pennsylvania

(Docket No. M-2012-2287224)

In light of the many advantages in reducing the use of imported petroleum in the transportation sector, the PUC has begun a process to focus on alternative fuel vehicles (AFVs), specifically those technologies which utilize natural gas (both compressed natural gas (CNG) and liquid natural gas (LNG) and electricity (Plug-Ins/Battery). The PUC is examining:

- The state of development and costs of various technologies;
- What constraints exist in developing AFVs – both nationwide and in Pennsylvania;
- What are the appropriate private sector, utility and Commission roles in fostering the economic development and the expansion of the necessary infrastructure;
- What specific transportation sector markets (e.g. private, commercial, mass transit, etc.) hurdles exist;
- What impact will AFV development have on the operation and reliability of both our power grid and natural gas supply system; and
- What are the specific local, state and federal regulatory needs required to support the growth of AFVs.

The Commission is particularly interested in exploring how we can foster policies and regulatory frameworks that support investments in CNG, EVs and their required infrastructure. The PUC hosted a forum to examine these issues on May 31, 2012, at Anthony J. Drexel Picture Gallery at Drexel University, Philadelphia. On April 9, 2012, the PUC issued a Secretarial Letter announcing an AFV Forum and seeking comments in advance of the forum.

3.3 Utility EV Rates

Several utilities have established special rates for electricity supplied for EV fueling. These rates take many forms, and may include TOU incentives or tiered systems. Below is an overview of current EV rates at utilities with larger service territories. Some utilities require a separate meter installation in order to take advantage of special EV rates, which may prove to be an obstacle for EV adoption due to the significant installation costs associated with this installation. Others may allow a sub-meter which can be installed at much less cost, but require special calculations by the utility to determine the amount of electricity used for transportation.

3.3.1 Alaska

Alaska Electric Light and Power Company (AEL&P)-Experimental

AEL&P offers a special TOU rate for the first 10 residential customers who qualify as EV owners and agree to allow the utility to collect data on energy use and grid impact of EVs. The experimental rate allows customers to pay off-peak prices for peak season demand- 5.80¢ per kilowatt-hour (kWh) between 10 p.m. and 7 a.m. and on-peak prices of 11.94¢ per kWh between 7 a.m. to 10 p.m. The experimental rate will end in January of 2017. The rate requires a separate meter for EV charging and stipulates that once a customer has complied with rate requirements for one year, they become eligible for reimbursement of up to \$1,000 for EV charging equipment.

3.3.2 Arizona

Arizona Public Service (APS)-Experimental

APS offers an experimental residential TOU rate (ET-EV rate) for EVs. To take advantage of this rate, customers are required to have an Advanced Metering Infrastructure (AMI) meter. This plan has three time periods: On-Peak, Off-Peak and Super Off-Peak during summer and winter periods. Summer prices are 24.78¢ per kWh On-Peak, 6.46¢ per kWh Off-Peak and 4.19¢ per kWh Super Off-Peak. Winter rates are 20.16¢ per kWh On-Peak, 6.46¢ per kWh Off-Peak and 4.19¢ per kWh Super Off-Peak. This experimental rate is set to expire at the end of 2014.

3.3.3 California

Glendale Water and Power (GWP)

GWP customers who submit a copy of the EV vehicle registration receive a 33¢ per day discount on their electricity bill. GWP requires that customers who use an EVSE to charge their vehicle install a second sub-meter, the additional meter and socket will be paid for by GWP.

Los Angeles Department of Water and Power (LADWP)

LADWP offers two options that are TOU options, both of which have a service fee of \$8.00 a month.

Option 1: Electric Vehicle Time-of-Use – Customers can keep their home on the standard rate and install a separate service for their EV to be on a TOU rate with the discount for Off-Peak charging. Option 1 requires a qualified electrician to install a second service at the home to exclusively be used for EV charging. All charging during the off-peak period would have the 2.50¢ discount applied for an average rate of 9.50¢ per kWh.

Option 2: Residential Time-of-Use and Electric Vehicle Discount – This option allows customers to move the whole house to a TOU rate and receive a block of energy at a discount during Off-Peak periods. Option 2 requires a TOU meter change by LADWP. Through this rate, customers are given a block of energy at the 2.50¢ per kWh discount. Currently, the block is 500 kWh.

Pacific Gas and Electric Company (PG&E)-Experimental

E-9A: This option provides a single meter; one baseline amount is shared by both the home and PEV. The rates in this option depend on what percentage of the baseline rate is being used, as well as time of year and time of day that electricity is supplied. These rates range from 3.74¢ per kWh for summer baseline usage, Off-Peak to 54.04¢ per kWh for summer peak, over 300% of the baseline.

E-9B: This option provides two meters — one for the home, which remains on the current residential rate (E-1, E-6 or E-7), and a second meter for the PEV on the E-9B rate. Therefore, the customer has two baselines. This option requires a second electrical panel and customers also will incur a \$250 fee for the second meter. These electricity rates range from 4.48¢ per kWh for summer baseline usage, Off-Peak to 53.58¢ per kWh for summer peak, over 300% of the baseline.

Sacramento Municipal Utility District (SMUD)

Residential Time-of-Use Electric Vehicle (RTEV) rate titled Option 1: Upon selecting Option 1 (proof of vehicle registration is required) and installing a TOU meter at the charging location, the customer will receive the following discounts: 2.43¢ per kWh off the Winter Off-Peak Residential rate, and 2.71¢ per kWh off the Summer Off-Peak Residential rate. The monthly service charge will be waived for the PEV charging rate (Rate Category RTEV). Customers are required to stay on this rate for at least 12 months. If after 12 months the customer has saved money, they will receive credit for this amount.

San Diego Gas & Electric (SDG&E) - Experimental

SDG&E offers two EV–TOU rates, one for vehicles that are separately metered (EV-TOU), and another for homes that use a single meter for the house and vehicle (EV-TOU-2). Customers who sign up for the EV rates must stay on the rate for at least 12 months. Both EV-TOU rates offer Super Off-Peak charging at 14.50¢ per kWh, Off-Peak charging at 16.70¢ per kWh, and On-Peak charging at 25.80¢ per kWh.

Southern California Edison (SCE) - Experimental

Home & Electric Vehicle Plan (TOU-D-TEV): The Home & Electric Vehicle Plan uses one meter to measure energy for the entire home, including the EV. It offers lower energy rates from midnight to 6 a.m. and higher energy prices on weekdays between 10 a.m. to 6 p.m. The Home & Electric Vehicle rate plan uses a tiered structure with two tiers, while the standard residential rate has five tiers. With the tiered rate plan, the cost per kWh rises as more electricity is used in a billing period. With this rate plan, rates change seasonally too, rising in summer and dropping in winter. Rates in summer range from 10.00¢ per kWh in Tier 1 super off-peak to 56.85¢ per kWh in Tier 2 on-peak during the summer.

Electric Vehicle Plan (TOU-EV-1): The EV rate plan is designed just for an EV. To select this rate, the home must have a second electricity meter dedicated exclusively for EV charging. SCE will install the second meter at no additional cost. On this rate plan, electricity used to charge the EV is billed at a different rate than usage in the home. Lower rates apply during off-peak hours from 9 p.m. to 12 noon, and rates change seasonally. For usage between 12 noon and 9 p.m., rates are higher in summer, ranging from 11.80¢ per kWh Off-Peak to 28.02¢ per kWh On-Peak. Customers on these plans must commit for 12 months.

3.3.4 Georgia

Georgia Power Company

Georgia Power Company's PEV rate provides a discount on electricity during night time hours. The PEV rate has three different time periods: On-Peak, Off-Peak and Super Off-Peak. The vehicle does not require a separate meter to be on this rate. The PEV rate is designed for all electricity usage in the home, including the EV. Customers must commit to one year on the PEV rate. These prices range from 6¢ per kWh Super Off-Peak to 25¢ per kWh On-Peak.

3.3.5 Hawaii

Hawaiian Electric Company (HECO), Maui Electric Company (MECO), and Hawaii Electric Light Company (HELCO)-Experimental

As of October 1, 2010, customers may apply for HECO's EV Pilot Rates. These rates are also available for MECO and HELCO customers. The EV pilot rates will be open to 1,000 customers on Oahu, 300 in Maui County, and 300 on Hawaii Island for charging highway-capable, four-wheeled EVs. The pilot will be in effect for three years. All EV rates are TOU, in which the electricity cost is dependent upon the time it is consumed. HECO, MECO, and HELCO offer three different types of EV rates:

One Meter (TOU): For residential customers on Oahu, the Off-Peak EV charge rate will be about 6.00¢ per kWh below the standard. Charging during other times will be possible, but at 2.00 to 5.00¢ per kWh above the residential rate, depending upon the time of day.

EV-R (residential separate EV meter): Customers enrolling on Schedule EV-R will have a new EV-R meter installed exclusive for EV charging. The customer's existing load will remain on the existing meter and account. For residential customers on Oahu, the Off-Peak EV charge rate will be 6.00 to 7.00¢ per kWh below the standard. Charging during On-Peak times will be possible, but at 1.00 to 3.00¢ per kWh above the residential rate.

EV-C (Commercial account with separate meter): For commercial customers on Oahu, the Off-Peak EV charge rate for non-demand customers will be around 5.00¢ per kWh below the standard. Charging during On-Peak times will be possible, but at about 2.00¢ per kWh above the standard commercial rate.

3.3.6 Indiana

Indianapolis Power and Light Company (IPL)-experimental

IPL offers a special EV rate for charging at home called the EVX rate. As part of the incentive for this rate, the first 150 eligible customers who agree to take service under Rate EVX for 12 months will receive EV charging equipment free of cost. The EV rate is dependent on the Time of Year, as well as TOU. EV rates range from 2.33¢ per kWh Off-Peak to 12.15¢ per kWh On-Peak during the summer months, and from 2.76¢ per kWh Off-Peak to 6.91¢ per kWh On-Peak during non-summer months.

Northern Indiana Public Service Company (NIPSCO) IN-Charge Electric Vehicle Program

As part of NIPSCO's IN-Charge EV Program, EV drivers who purchase a Level 2 charging station for their home may receive free electricity for vehicle charging between the hours of 10 p.m. and 6 a.m. daily.

3.3.7 Kentucky

Kentucky Utilities Company (KU Energy) low emissions vehicle (LEV) service pilot

KU Energy offers a pilot program for LEV charging to encourage vehicle charging during Off-Peak periods. The three year pilot began in 2010 and is open to a maximum of 100 customers who use energy to power an LEV, including an EV or CNG vehicle. The rate comes with a basic service charge of \$8.50 per month, with tiered pricing for On-Peak at 13.04¢ per kWh, Intermediate at 6.73¢ per kWh, and Off-Peak at 4.63¢ per kWh.

Louisville Gas and Electric (LG&E)-LEV service pilot

LG&E offers the same three year pilot plan as KU Energy. Customers who fuel either battery electric vehicle (BEV), plug-in hybrid electric vehicle (PHEV), or a CNG vehicle at their home are eligible for tiered rates that encourage Off-Peak charging. On-peak electricity costs for this pilot are 13.43¢ per kWh, Intermediate at 7.05¢ per kWh, and Off-Peak at 5.02¢ per kWh.

3.3.8 Michigan

Consumers Energy-Experimental Residential Plug-In Electric Vehicle Charging Program

Consumers Energy offers three residential EV charging rates on an experimental basis:

1. *Residential Home and Plug-in Electric Vehicle Time-of-Day Rate (REV-1)*: Level 1 or Level 2 Charging of an EV combined with household electric usage based upon On-Peak, Mid-Peak and Off-Peak periods and through a single meter.
2. *Residential Plug-In Electric Vehicle Only Time-of-Day Rate (REV-2)*: Level 2 Charging of the electric vehicle based upon On-Peak, Mid-Peak and Off-Peak periods through a separate meter.

Pricing for Time-Day Rates are as follows:

Off-Peak – summer at 7.00¢ per kWh

Mid-Peak – summer at 14.00¢ per kWh

On-Peak – summer at 22.00¢ per kWh

Off-Peak – winter at 7.00¢ per kWh

On-Peak – winter at 13.00¢ per kWh

3. *Residential Plug-In Electric Vehicle Only Monthly Rate (REV-3)*: Level 2 Charging of an electric vehicle based on a monthly fee up to 300 kWh, through a separate meter. The monthly charge up to 300 kWh is \$40.25 with additional charges for each kWh over the inclusive amount. This additional charge is 14.4134¢ per kWh in the summer months and 8.9969¢ per kWh in the winter months.

Detroit Edison Electric: Plug-In Electric Vehicle Rates

The Electric Vehicle Rate, (D1.9), offers two rate options: *TOU rate* or *Monthly Flat bill*. The rate requires the installation of a separate meter and a Level 2 EV charger. The first option is a TOU rate, which is 18.95¢ per kWh on-Peak, and 7.69¢ per kWh Off-Peak. The second option is a flat monthly bill of \$40.00 per month per EV (limited to 250 customers). These rates do not currently have an expiration date.

Indiana and Michigan Power (I&M) TOU rate

I&M has instituted a time of use rate that is available to all consumers. Owners of EVs can chose to apply the TOU rate to their entire home or install a separate meter to apply the TOU rate to their vehicle while keeping the rest of their home on the standard electricity rate. The On-Peak pricing for the rate is 14.18¢ per kWh, while Off-Peak (from 9 p.m. to 7 a.m.) rate is 3.68¢ per kWh.

3.3.9 Nevada

NV Energy

NV Energy offers a special EV TOU rate for its northern and southern Nevada EV customers. It allows customers to pay a discounted rate if they charge the vehicle during the utility's Off-Peak hours between 10 p.m. and 6 a.m. The discount applies to all the power the customer uses during those periods.

Electric Vehicle Rates in northern Nevada: This option has a basic service charge of \$9.83 and an off peak rate of 6.67¢ per kWh.

Electric Vehicle Rates in southern Nevada - Southern Nevada rates are offered in two options:

1. *Option A:* Lower On-Peak rate, but the peak season is longer. It also has a basic service charge per meter of \$9.10, a summer Off-Peak rate of 6.29¢ per kWh and a winter Off-Peak rate of 5.22¢ per kWh.
2. *Option B:* Higher On-Peak rate but the peak season is shorter. It also has a basic service charge per meter of \$30.79 during the summer, with an Off Peak rate of 5.46¢ per kWh and a winter Off-Peak rate of 4.45¢ per kWh.

3.3.10 Oregon

Pacific Power Separately Metered EV rate¹

Pacific Power offers a special EV rate for separately metered charging points. The rate includes a \$9.00 per month metering cost, 4.204¢ per kWh energy charge, and \$2.20 per kW demand charge (for an agreed maximum demand value) for sites with a three phase meter.

3.3.11 Texas

Green Mountain Energy-Pollution Free EV rate

Green Mountain Energy (a subsidiary of NRG) offers a Reliable Rate plan that guarantees EV drivers a special rate for 12 months on 100% wind power to charge their car and the rest of their home. The rate is not dependent on time of day and varies depending on location. The rates range from 10.80¢ per kWh to 12.42¢ per kWh.

1

http://www.pacificpower.net/content/dam/pacific_power/doc/About_Us/Rates_Regulation/Oregon/Approved_Tariffs/Rate_Schedules/Separately_Metered_Electric_Vehicle_Service_for_Residential_Consumers_Delivery_Service.pdf

3.3.12 Virginia

Dominion Virginia Power-Experimental Rates

Dominion has two experimental EV charging rates.

1. *Schedule 1EV rate:* Available to the first 750 participants in the company's EV pilot program who contract with this service before December 31, 2013. The rates vary by time of year as well as time of electricity usage, which is broken up as On-Peak, Intermediate, Off-Peak, and Super Off-Peak charges that range from 3.50¢ per kWh to 13.01¢ per kWh. Customers are also subject to a \$7.00 service charge per billing month. This rate is for residential single family homes or units.
2. *Schedule EV rate:* Available to the first 750 participants in the company's EV pilot program who contract with this service before December 31, 2013. This rate includes a basic customer charge of \$2.90 per billing month and electricity supply and transmission rates based on TOU, with rates for On-Peak at 14.29¢ per kWh, Off-Peak at 4.95¢ per kWh, and Super Off-Peak at 4.21¢ per kWh. This rate is only applicable to electricity supplied via a dedicated hard-wired circuit, single phase, at not more than 240 volts (V).

4 Alternative Definitions for EVSPs

Statutes in many states specify alternative definitions that may be applied to EVSPs as an alternative to classifying them as electric utilities. For example, definition as a Retail Electric Service Provider (RESP) can prevent EVSP regulation as a utility. Although not regulated as a utility, regulations applied to RESPs can still be cumbersome and potentially prove undesirable for effective market penetration. It may be necessary to take action to ensure that EVSPs are not defined as RESPs or their equivalent in other states.

The following is a list of states where EVSPs could be regulated as a RESP:

4.1 Alabama

(AL Code §37-14-2)

Alabama Code defines EVSP as “any municipality, municipally-owned utility or other governmental entity, any cooperative, corporation, person, firm, association or other entity engaged in the business of supplying electric service at retail” while excluding universities, colleges and military bases. Electric service at retail is defined as electric service furnished to a customer for ultimate consumption, but does not include wholesale electric service furnished by an electric supplier to another electric supplier for resale.

(AL Code §37-14-4)

EVSP would be considered a “secondary electric supplier.” However, this definition is subject to the discretion of the “primary” supplier (utility) who can choose to purchase the distribution facilities of a secondary supplier.

4.2 Arizona

(AZ Rev. Stat. §40-201)

Electricity supplier is defined as “a person, whether acting in a principal, agent or other capacity, that is a public service corporation that offers to sell electricity to a retail electric customer in this state.” This definition stipulates that an electricity supplier is a public service corporation, which may preclude EVSPs from qualifying as a supplier. EVSPs may fall under the statutory definition of electric distribution service which is “distribution of electricity to retail electric customers through the use of electric distribution facilities.” Electric distribution facilities are “all property used in connection with the distribution of electricity from an electric generating plant to retail electric customers, except electric transmission facilities.”

(AZ Rev. Stat. §40-207)

An electricity supplier shall obtain a certificate from the commission before offering electricity for sale to retail electric customers in this state.

The commission may adopt, amend and repeal rules reasonably necessary to carry out this section. On or before December 31, 1998, the commission shall adopt rules providing minimum standards of disclosure and complaint procedures applicable to certificated electricity suppliers. The commission may impose conditions on the certification of electricity suppliers to assure their financial stability, including periodic reports, bonds and deposits.

As a condition of obtaining a certificate required under Subsection A, an electricity supplier shall agree to be subject to the transaction privilege taxes and affiliated excise taxes pursuant to Title 42, Chapter 5 and the provisions of the model city tax code.

4.3 Ohio

(OH Rev. Code §4933.81)

Ohio Statute defines electric suppliers as those who provide electric service, which is retail electric service provided at an electric load center, but excludes furnishing electric power at wholesale for resale, as well as service deemed a “competitive retail electric service.” Electric load center is defined as “all the electric-consuming facilities of any type or character owned, occupied, controlled, or used by a person at a single location which facilities have been, are, or will be connected to and served at a metered point of delivery and to which electric service has been, is, or will be rendered.”

4.4 Pennsylvania

(PA Consol. Stat. §66- 2803)

An Electric Supplier is defined as any person or corporation who sells electricity to end use customers using the jurisdictional transmission lines of an electric distribution company. Electric suppliers must be licensed by the Pennsylvania Public Utilities Commission.

4.5 Texas

(TX Util. Code §31.002(17))

Texas Code defines retail electric service provider as “a person that sells electric energy to retail customers in this state. A retail electric provider may not own or operate generation assets.”

(TX Util. Code §39.352)

- (A) After the date of customer choice, a person, including an affiliate of an electric utility, may not provide retail electric service in this state unless the person is certified by the commission as a retail electric provider, in accordance with this section.
- (B) The commission shall issue a certificate to provide retail electric service to a person applying for certification who demonstrates:
 - (1) The financial and technical resources to provide continuous and reliable electric service to customers in the area for which the certification is sought;
 - (2) The managerial and technical ability to supply electricity at retail in accordance with customer contracts;
 - (3) The resources needed to meet the customer protection requirements of this title; and
 - (4) Ownership or lease of an office located within this state for the purpose of providing customer service, accepting service of process, and making available in that office books and records sufficient to establish the retail electric provider's compliance with the requirements of this subchapter.

5 Compressed Natural Gas (CNG) Policy Precedent for Exempting Electricity as a Transportation Fuel

Although a number of states that are potentially fertile market areas have not yet addressed the participation of EVSPs in the marketplace through regulatory policy or legislation, statutory exemptions preventing CNG suppliers from being regulated as a utility if CNG is used for the purpose of fueling vehicles may provide a precedent for exempting electricity from regulation. The following states present opportunities to utilize this precedent:

5.1 Florida

(FL Stat. §366.02)

Florida Statute provides an exemption from the definition of public utility for any “ natural gas transmission pipeline company making only sales or transportation delivery of natural gas at wholesale and to direct industrial consumers; any entity selling or arranging for sales of natural gas which neither owns nor operates natural gas transmission or distribution facilities within the state; or any person selling or arranging for sales of natural gas which neither owns nor operates natural gas transmission or distribution facilities within the state; or owning or operating facilities beyond the outlet of a meter through which natural gas is supplied for compression and delivery into motor vehicle fuel tanks or other transportation containers, unless such person also supplies electricity or manufactured or natural gas.”

5.2 South Carolina

(SC Code Ann. §58-5.10)

South Carolina Code stipulates that “a corporation or person furnishing, supplying, marketing, and/or selling natural gas at the retail level for use as a fuel in self-propelled vehicles is not a public utility by virtue of the furnishing, supplying, marketing, and/or selling of natural gas.”

5.3 Texas

(TX Code §3.A.101.003)

Texas Code excludes any person who sells natural gas for use as vehicle fuel, sells natural gas to a person who later sells it for use as vehicle fuel, or owns or operates equipment or facilities to sell or transport natural gas for use as a vehicle fuel from being considered a gas utility.

6 States with No EV Market Regulation Activity/Exemptions

Several states remain which are of interest to the industry as the EV market share develops. These states have not yet taken steps to formally address or finalize regulatory issues pertaining to EVs and the treatment of EVSPs or exemption of charging stations as utilities.

- Alabama
- Connecticut
- Delaware
- Georgia
- Idaho
- Iowa
- Kentucky
- Massachusetts
- Michigan
- Mississippi
- Missouri
- Nebraska
- Nevada
- New Jersey
- North Carolina
- Ohio
- South Carolina
- Tennessee
- Texas
- Vermont

7 Lessons Learned

Several lessons can be learned from the experiences from The EV Project in various states. By evaluating the Lessons Learned throughout the project, best practices are available to further address regulatory issues faced by the industry. Below are the key lessons learned from engagement to date by The EV Project:

7.1 Market Monitoring

Even in states that have established desirable regulatory policies for EVSP, it is still necessary to keep a close eye on the regulatory and legislative proceedings developing in those states as they continue to pave the way for other EV markets. As the EV industry grows, it is encountering new issues that must be addressed through effective policy. Thus, issues such as EVSP permitting fees, utility rates, and metering will need to be addressed in the near future. Maintaining a presence with the regulatory commissions will be essential to continue securing favorable business environments for EVSPs and promoting EV adoption across states. For example, in California, ECOtality is actively involved in the sub-metering protocol working group discussions called for by the CPUC Phase 2 decision. The development of this protocol could be influential in keeping consumer costs down in California, and other states will possibly follow California's example. In Oregon, the decision by the Oregon Public Utilities Commission regarding utility ownership of EVSE will determine what steps ECOtality needs to take in this state in the future.

7.2 Market Education and Outreach

Although registering as a RESP provides an alternative to regulation as a utility, such identification needs to be approached cautiously. In all states that have definitions for retail electric service providers, or similarly "electricity supplier", it is required that an entity be certified by the state public utilities commission, and in some cases, registered through a utility before it can provide electric service. This would seemingly defeat the purpose of avoiding classification as a utility in order to avoid investment deterring over-regulation. Should EVSPs be classified this way, undue burden could fall upon EVSPs or their customers.

It is highly recommended that an exemption that specifies that EVSPs are not considered electric service providers should be established, either through legislative action or through utility commission rule-making processes. For example, in Pennsylvania, an electric supplier is typically a generator of electricity, but as this is unclear in statute, it will be necessary to pursue clarification in this state as well. Within the competitive electricity supply market, such as in Ohio, an EVSP may avoid being classified as an electric supplier if they are deemed a competitive electric service by the Ohio Public Utilities Commission. Alternatively, an EVSP could also pursue definition as an "electric load center" that would also prevent regulation as an electric supplier. However, a clear policy to not regulate EVSPs as utilities is the most optimal for the industry.

Utility EV sub-metering is another important area that ECOtality needs to work to educate state utility commissions as to the potential barrier some methods may pose for EV adoption. Requiring a separate sub-meter adds significant cost to the overall cost of EVs. Additionally, tiered electricity rates can significantly increase an EV owner's electric bill if they charge their car at home. Rates that are meant to provide incentives off-peak charging that are not structured properly may prove to be a serious deterrent to EV adoption.

It is incumbent upon the industry to engage in effective outreach and education with regulatory bodies, legislative staff and policy makers to affect successful policy outcomes. A significant effort must be made to build understanding with policy makers that are faced with issues from the emerging EV and EVSE marketplace, both before the proceedings begin, as well as throughout the process. This education process is vital to help the industry create a public policy environment that does not impede the operations of third party charging providers, the expansion of EV infrastructure, the adoption of EVs, and consequently the reduction in the use of petroleum.

7.3 Market Opportunity

In several states, policy precedent can be utilized to establish that electricity used for the purpose of a transportation fuel shall not be regulated by utilities commissions, in the same way that distribution of natural gas for the purpose of use as a vehicle fuel is exempted from regulation. Florida, Illinois, South Carolina, and Texas all have existing legislative exemptions for natural gas that provide a pathway for similar legislation applied to EVSEs. In these states, as long as an EVSP does not distribute electric service other than to charge EV batteries, it should be able to avoid regulation as an electric service provider. However, utility ownership of EVSEs could be subject to regulation by utility commissions. In order to secure an EVSE exemption of this sort, it would be necessary to reach out to state legislators who might sponsor legislation that is similarly worded to the CNG exemption.

Several states have begun the process of preparing the market for EV entry by establishing working groups to address policy needs related to EV and EVSP. It will be essential to engage with states actively working toward establishing regulatory policy for EVSE. It is crucial that ECOtality use these groups to shape policy and make inroads to useful policy for EVSP.

In states that have yet to establish any preparations for EVs that are new market opportunities, it will be necessary to engage in more active efforts with regulatory commissions and utilities to develop relationships that could be used to produce policies that benefit EV adoption.

7.4 Implications

Addressing these issues state by state is time and consuming of resources. One option for the industry may be to bring these issues to the attention of the National Association of Regulatory Utility Commissioners (NARUC) as a best practice for addressing EV charging. Introducing legislation on a state by state basis is also another alternative to exempt the industry from regulation.

7.5 Industry Partnerships

Industry partnerships are essential to making inroads and impact in the regulatory process at the state level. Working with other interested industry parties gives weight to initiatives that seek to promote beneficial regulations for the industry as a whole. The EV Project has successfully worked with other industry leaders to communicate the importance of sound regulatory policies, while maintaining a level playing field in the marketplace.

7.6 Regulatory Processes are Time Intensive and Require Extensive Input/Expertise

Regulatory proceedings are lengthy, often taking several months or even years to conclude. These proceedings demand not only abundant time, but also extensive resources. A petition to intervene must be filed to participate actively in the proceedings and significant effort must be dedicated to provide comments and participate in associated workshops related to the proceedings. Successful participation in regulatory proceedings requires not only political prowess, but also technical, and in some cases, legal expertise. This requires a diverse set of individuals to navigate key decision makers and the regulatory processes of each state.

7.7 Legislation is an Optimal Alternative to Regulatory Processes to Exempt Charging Providers from Regulation

As an alternative to the lengthy regulation processes, legislative action is beginning to provide a desirable alternative to establish regulatory exemptions and the role of EVSPs in the EV marketplace.

7.8 Pursuing a Competitive Marketplace Is Essential for Third Party Providers

A competitive EVSE marketplace is required for third party providers to be successful in establishing sustainable business operations. It is imperative that public policy, whether derived by regulation or legislation, provide third party service providers a level playing field with municipal and investor owned utilities who may choose to enter into the nascent marketplace with products and services for EVs.

7.9 Each State to Determine the Future

The question of whether the charging services industry will be regulated is up to each state to examine. Several states have addressed this question through either a regulatory commission or legislation: California, Colorado, Florida, Hawaii, Illinois, Maryland, Minnesota, Oregon, Virginia and Washington. Other states that have yet to address this question but have precedent in non-regulation of CNG facilities are key market opportunities to expand the non-regulation of EV charging stations. Based on experience within The EV Project, it is recommended that EVSPs not be regulated as electric utilities. To implement this recommendation, additional work is needed in outreach and education within key EV market adoption states to drive timely legislation and/or regulation codes to make sure that charging stations will not be regulated. An industry coalition of partners will be needed on a state by state basis to undertake this effort since states and regions have keen interest in owning how EVs will interface with their respective grid in their distinct market areas.