



Providing Public Electric Vehicle Charging Services for Municipalities

ChargePoint Network Electric Vehicle Charging Infrastructure

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Introduction

Electric cars are here. Auto manufacturers are responding to market demand and global pressure to reduce dependence on oil imports and reduce green house gases by introducing a range of capable, energy-efficient, low emissions, electric-powered vehicles. In 2010, ten major auto manufactures will make electric vehicle models available for sale to the public. Projections estimate that by 2012, twenty models will be available and that by 2015 there will be over 3 million plug-in electric vehicles in use worldwide.

Why should a city be concerned about providing electric vehicle charging services? Won't electric car owners just charge their cars at home? Not necessarily. Housing density in cities often force car owners to park on the street or in public parking garages. The limited range of early electric vehicles makes having charging stations where people work, play and shop a necessity.

Auto manufacturers anticipate that the first wave of electric vehicle owners will be concentrated in major metropolitan areas. These vehicles create an opportunity for municipalities to address the interest that residents and businesses have in improving the environment, reducing dependence on oil, and reducing the cost of transportation.

As a city planner, you may be tasked with choosing and implementing a fiscally responsible charging infrastructure that lowers green house gas emissions, provides safe and open services for all consumers and integrates seamlessly with the utility's Smart Grid. What are the challenges you should consider?

Challenges

Open access

An electric vehicle charging infrastructure solution must provide impartial access for all drivers. The city's charging services should not discriminate against users, energy providers, or vehicle types.

Public safety

An electric vehicle charging infrastructure solution should ensure the public's safety and limit legal liability.

Energy costs

As more electric vehicles enter the market, you can expect to deliver gigawatts of electricity to the community to fuel the vehicles. An electric vehicle charging infrastructure solution should provide a mechanism for recouping electric energy costs.

Support and Maintenance

The public will rely on the electric vehicle infrastructure for their transportation and will have high expectations for the level of service from the city. City maintenance teams will be expected to provide a high-availability charging infrastructure. Your electric vehicle charging solution should enable high service reliability and expand with growing demand at low cost.

Utility Smart Grid

With the time-variable nature of renewable energy sources and with anticipated increase in electrical demand, utility companies are implementing Smart Grid capabilities to ensure reliable energy delivery during peak load times within their service area. As Smart Grid capabilities evolve, utility companies may require charging systems that are Smart Grid enabled. They will also offer rate incentives for Smart Grid compatibility. To leverage future utility Smart Grid energy services, charging stations should support Advanced Metering Infrastructure (AMI), demand response programs, and time-of-use (TOU) pricing.

Tax revenue

With the increase in electric vehicle usage, anticipate a reduction in gasoline tax revenue. Parking meter revenue may also be impacted as metered parking locations become transformed for electric vehicle charging stations. As tax and other revenues decrease, an electric vehicle charging infrastructure solution should enable new replacement revenue streams for city services.

Staying current

The electric vehicle world is undergoing rapid change and will soon undergo tremendous growth. Within five years there will be millions of electric vehicles with new capabilities. Your infrastructure decision should consider this growth and be built to accommodate the scale and evolving requirements of this emerging market. Over-the-air downloads and the ability to upgrade your charging station network inexpensively must be part of your life cycle cost calculation.

Solution

Coulomb Technologies' ChargePoint® Network provides the world's most advanced, easy to use electric vehicle charging solution that delivers fiscally responsible, safe and open citywide electric vehicle charging services for the public. Electric Vehicle charging is delivered via ChargePoint® Networked Charging Stations which cover the entire range of Level I, Level II, and Level III electric vehicle charging needs. The ChargePoint Network provides station owners a centralized view of the charging stations anywhere there is Internet connectivity. Web-based ChargePoint Network Software Application Services makes it easy to provision, manage and maintain ChargePoint Charging Stations for every business need.

Provide open, impartial charging services

Similar to a cellular phone system, the ChargePoint Network Services enable users to access ChargePoint Networked Charging Stations with multiple options including credit card, 24/7 toll free telephone call, and ChargePass™ RFID cards thereby allowing users to seamlessly roam from city to city, independent of utility and charging station service provider.

Protect public safety and limit city liability

A ChargePoint Networked Charging Station will only energize a charging session if it is in good working order, the user is safely isolated from electricity, and access is authorized over the ChargePoint Network. The charging stations can detect maintenance issues that can arise from vandalism, misuse and normal wear and tear. City maintenance staff can be automatically notified before maintenance issues escalate to safety or reliability problems.

Recoup electricity costs

Choose the best way to recoup energy costs used for electric vehicle charging services and decide if charging stations are accessed for free, or for a fee. If you choose the for-fee option, drivers can use multiple payment methods to access the charging stations including ChargePass™ cards, major contactless credit cards, or other major credit cards (by calling the 24/7 toll-free number displayed on the charging station).

When a charging station is accessed, the ChargePoint Network Flex Billing™ service processes ChargePass and credit cards immediately, and automatically transfers funds from the driver's account to the city account. Transaction data can be centrally monitored via the ChargePoint Network and can be exported to other accounting systems to help your city manage the return on investment.

Set prices on a per time basis (similar to a parking meter) with the ChargePoint Network Flex Billing Manager. When combined with ChargePass Card access options, prices can vary by time, by calendar and by driver. For example, station access options can be set so that city fleet EV drivers can access city-owned charging stations for free, while city visitors continue to pay standard parking fees.

Provide high reliability at low cost

The ChargePoint Network takes care of drivers so you don't have to. Drivers can elect to receive Email or text notifications alerting them if their vehicle is completely charged or if their charging session is interrupted for any reason such as a GFCI fault or disconnected cable. Drivers can also receive personal assistance 24 hours, 365 days a year by calling the toll-free number displayed on every charging station.

Protect your investment, reduce downtime and minimize the need for on-site maintenance by dispatching maintenance personnel only when needed. The ChargePoint Network automatic notification services will alert your service personnel of issues before they escalate to employee complaints. Service personnel can make informed decisions before they come on-site by accessing, managing and diagnosing all of your charging stations via the ChargePoint Network from their office. Alternatively, city planners can elect to outsource and make use of the maintenance and monitoring services provided by a ChargePoint Network authorized distributor.

Integrate with Smart Grid systems

Leverage utility-pricing incentives by ensuring compatibility with an electric utility's AMI. ChargePoint Networked Charging Stations are designed with the Smart Grid in mind. Utility-grade meters and the demonstrated ability to communicate bi-directionally with other Smart Grid systems via the ChargePoint Network enable demand response, TOU pricing, and other Smart Grid programs provided by the Utility.

Enable new revenue sources

Attract environmentally conscious residents with a city branded ChargePoint Network Driver Portal. The portal allows commuters to locate charging stations along their driving route within your city. Leverage energy usage data aggregated by ChargePoint Network Application Services to offer incentives to environmentally conscious businesses and residents. Or, introduce new parking meter revenue options with ChargePoint Networked Charging Station pay-per-use features.

Start now, be prepared for the future

Don't be caught with a stranded asset. Unique in the industry, the services of the ChargePoint Network are available to supply the entire range of charging needs, with Level I, Level II, and Level III charging stations all managed by one integrated network. ChargePoint Networked Charging Stations can be remotely upgraded to accommodate future advancement in electric vehicle charging needs. The ChargePoint Network can also scale from one to thousands of charging stations allowing a city to provide EV charging services today and meet growing demands of the future.

Find Out More

Coulomb Technologies is the leader in electric vehicle charging station infrastructure with networked charging stations installed in municipalities and organizations worldwide providing the most advanced vehicle-charging infrastructure, with an open system network: the ChargePoint Network.

For more information, please visit www.coulombtech.com and follow Coulomb on Twitter at twitter.com/coulombevi.

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