



## **Québec-Maine Electric Vehicle Charging Corridor RFI**

In response to:

State of Maine  
Governor's Energy Office  
RFI#201608160  
Deployment of Québec-Maine Electric Vehicle Charging Corridor

**September 7, 2016**

**Submitted to:**

Department's RFI Coordinator  
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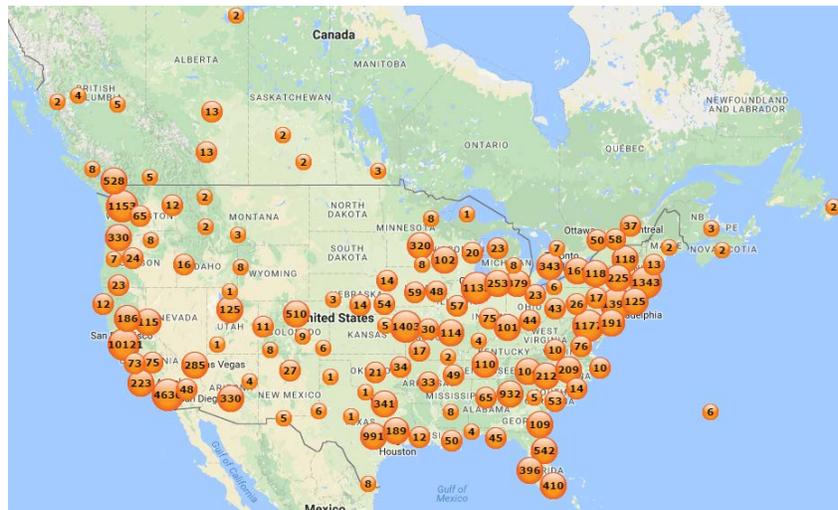
**Submitted by:**

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Mrs. Smith,

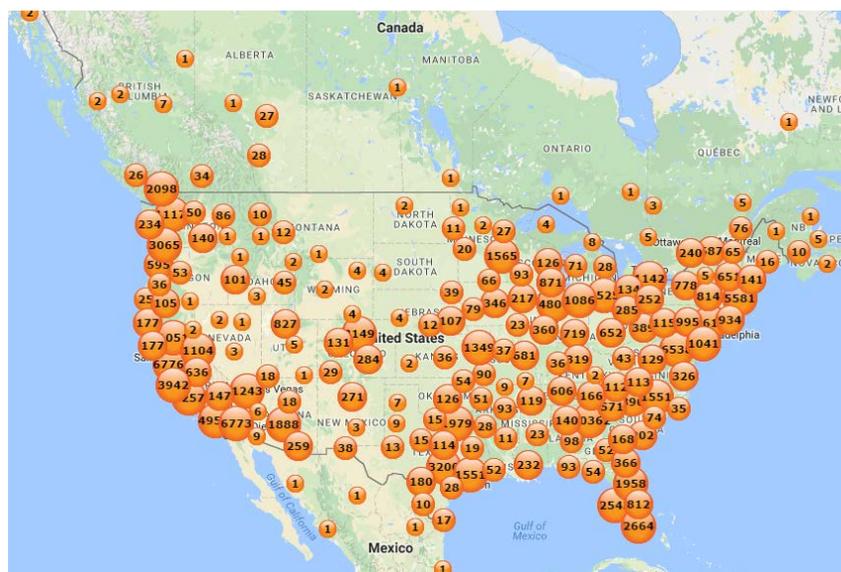
Thank you for the opportunity to respond to this RFI for the Deployment of a Quebec-Maine electric vehicle charging corridor. As the world largest operator of electric vehicle charging stations, with more than 30,000 total charging spots and over 360 DC fast charging locations across North America, we at ChargePoint are well equipped to help inform this activity and later provide charging solutions that best fit the needs of the corridor.

### ***ChargePoint Charging Spots across North America***



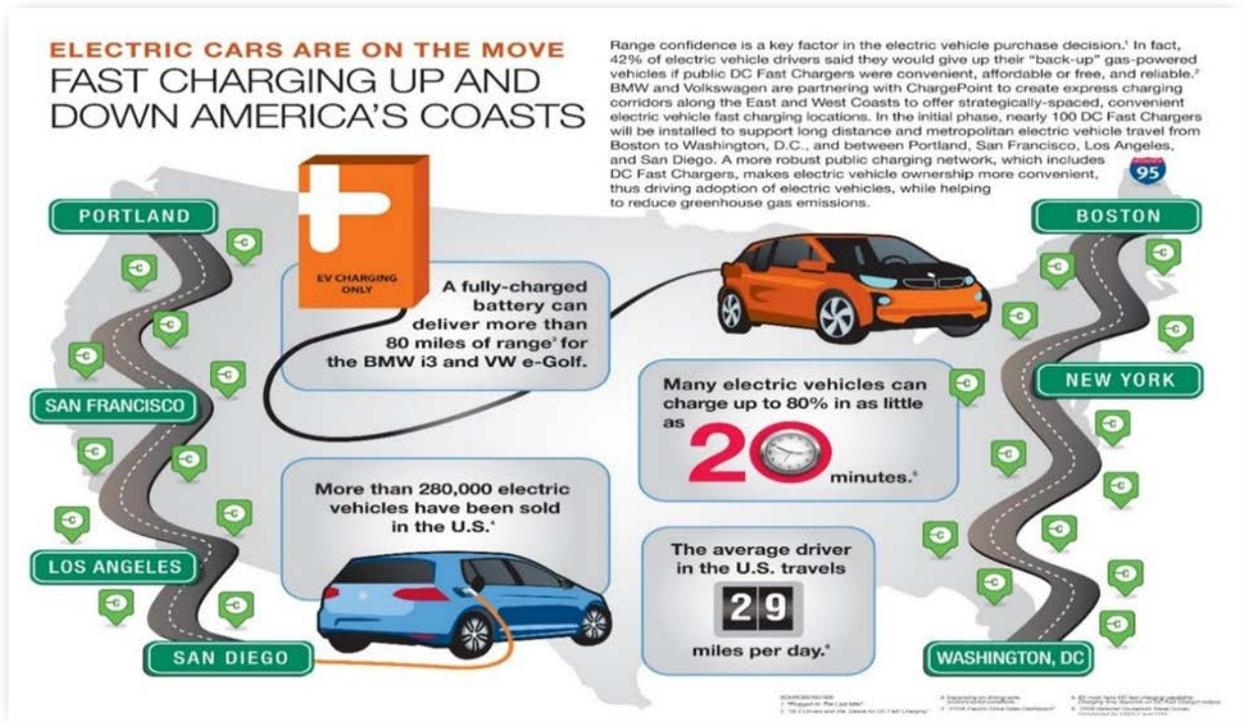
Beyond our extensive experience with the planning and deployment of charging infrastructure we also support the day to day needs of the largest registered EV driver base of over 244,000 accounts and growing!

### ***ChargePoint Drivers Across North America***



This intimate understanding of both the needs of the station owner and the EV driver has given us rare perspective of the critical importance of both operational simplicity and user convenience. Our products and this perspective has earned us many opportunities to assist others like you in efforts to enable long distance EV travel. For example, ChargePoint was the first EV charging company to partner with major automakers like Chevrolet, BMW, and Nissan. Through ChargePoint's leadership, these competitors have frequently collaborated to invest in a shared EV infrastructure. In one recent example, ChargePoint partnered with BMW and Volkswagen to roll out a DC fast charging network from San Diego, California to Portland, Oregon and Washington D.C. to Boston, Massachusetts. In recognition of the innovative and transformational nature of this work, the United Nations (UN) Climate Change Secretariat awarded "The Momentum for Change Award" to ChargePoint in November 2015. According to the UN, these awards went to organizations implementing "practical, scalable and replicable" examples of what people, businesses, government and industries are doing to tackle climate change.

***An infographic developed to illustrate the BMW/VW corridor***



**Examples of corridor site installations with 24KW and 50KW DC Charging Stations**

**Examples of BMW / VW “Corridor” Locations**



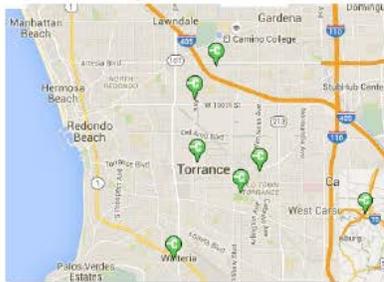
**Total of 95 stations at 80 sites on east and west Coast**

**Other Corridor projects include:**

**CEC Corridors (96 locations)**



**City of Torrance**



**10 more stations coming to Delaware soon!**

**State of Maryland**



In service of these past endeavors we have also created other, more logistical advancements we are also fully prepared to bring to bear to help ensure success wherever we are called upon. These important yet somewhat less glossy resources include optimized business processes, skilled site host engagement and project management staff, relationships with installation and maintenance contractors, scalable site acquisition processes, national relationships with potential site hosts, and extensive utility and government relations resources.

We hope that you find our response helpful and look forward to supporting your activity in the future.

## RFI Response Q&A

**1) Are the specifications described above sufficient to meet the EV Task Force goals of interoperability, accessibility, and reliability? If not, what changes should be made (e.g., distance between stations, proximity to corridor; choice of DCFC technology)? Should there be minimum requirements in the infrastructure to ensure interoperability?**

Let us input on each specification separately:

➤ *highly visible*

Absolutely, but we suggest you consider this on three fronts.

First, to help the driver as he exits the highway to find the physical stations and make it safe. Assure the proposed sites are easily accessible via a route that can safely and conveniently accommodate all light duty electric vehicles traveling to the facility, entering and leaving the facility, returning to the interstate highway, and continuing in the original direction of travel. Additionally, for all the corridor projects ChargePoint recommends security lighting and video surveillance.

Secondly, on the internet via a smartphone app so the driver can identify the location ahead of time as well as any other pertinent details such as real time availability, cost and access details. EV drivers generally tech savvy individuals who will utilized app or web browsers to map out their long road trips and interact with charging stations. Below is an overview of our mobile app and the value it provides for your reference.

Third, station integration with EV in-dash navigation. Most EV's today offer GPS navigation standard with one touch access to the closest EV charging stations. Some EV charging providers rely on third party services to collect and report static information which often lacks accuracy and consistency. ChargePoint works with EV manufacturers to integrate real time station information directly into the in-dash navigation units without intervention.

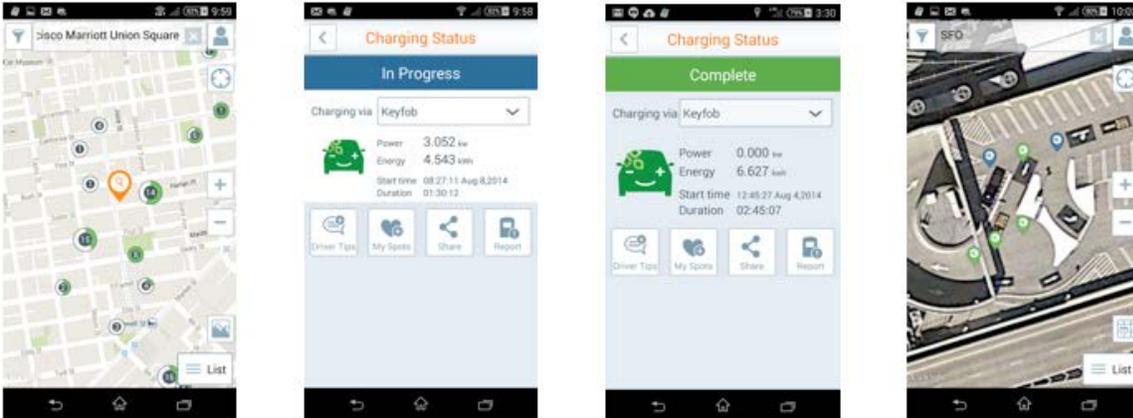
### **Mobile applications**

Mobile applications are a key component of the ChargePoint service offering and critical to driver experience and growth of the industry. ChargePoint's vision is for a single application that drivers use for all aspects of public, workplace, and home EV charging. As part of its core strategy, ChargePoint is committed to investing in and updating its mobile app to provide the best driving and charging experience. As the largest network operator of EVSE in North America, ChargePoint is in the unique position of having the most experience and the most direct, actionable feedback from drivers and from station owners on how they use EVSE. This feedback goes directly back into updating and enhancing products and our services.

In 2011, ChargePoint released its first mobile application. To date there have been over 100,000+ unique downloads on both iOS and Android platforms. ChargePoint is now on its 5th major release of its mobile application. The mobile application is an absolutely critical component of the company's driver services,

enabling drivers to locate stations on the ChargePoint Network, 3rd party networks, as well as non-networked stations. EV drivers can use the ChargePoint mobile app to view real-time availability, navigate to any station using their own preferred mobile navigation tool, start and pay for sessions, view real-time charging status, receive alerts on charging events, and view charging history.

### ***Images of the ChargePoint Mobile App***



### ***➤ DCF infrastructure deployed at intervals of 50-70 miles along the length of the corridor;***

50-70 mile interval is a suitable general guideline but placement of stations on a corridor is subject to area of the country, temperature and site host availability. Cold temperatures have a relatively substantial negative effect on EV range. If you live in San Diego the average temperature is ideal vs. Maine where you can get sub-zero temperatures. According to a recent study by the AAA Automotive Research Center in Southern California, extreme cold weather conditions can reduce EV range by as much as 57 percent, while extreme hot weather conditions can reduce it by 33 percent. Thus, an EV with a range of 75 miles may only be able to travel 32.25 miles in extreme cold and only 50.25 miles in extreme heat, with most of the reduced range resulting from the need to power the heater or air conditioning with the EV battery. The average EV range is 70-75 miles with some going 200 miles. 50-70 miles intervals between stations may need to be reduced to ensure confident EV travel between sites during coldest winter months.

Site availability is very important also, in urban areas site locations are plentiful and often eager to agree to host a fast charging station. Depending on which business model is selected for implementation, finding a qualified site can be very difficult as you search in remote locations along the corridor; the planned interval amount of will vary based on finding ideal sites.

Final site counts and intervals should remain flexible through the completion of the project.

➤ *infrastructure which is compatible with all types of electric vehicles;*

Compatibility should not be a major concern but should absolutely be consideration for selecting equipment. Compatibility should be reviewed from two perspectives. First, the physical connector standards (ports) offered at the charging station and second, the vehicle/station communication standards that control charging once the vehicle is plugged in. The equipment selected should be required to demonstrate best available compatibility on both fronts as well as measures for ensuring compatibility as standards evolve over time. For reference, all ChargePoint stations are compatible with automotive industry standards. EV's have the option to design in their own port type but must follow an industry specification to ensure interoperability with station manufacturers. It is common practice for interop testing at ChargePoint HQ for new car designs prior to release. If ever needed, ChargePoint stations are all networked (via cellular network) and station software fixes can be downloaded *over the air* to keep up with vehicle communication updates. Further, ChargePoint has a working relationship with all major auto manufactures from the marketing and technical (interoperability) side to ensure the most seamless acceptance of vehicle technology as it emerges.

➤ *payment system(s) that are accessible by both Canadian and US vehicle operators;*

Driver accessibility and payment options are important considerations for selecting the best charging solution, however traditional payment methods aren't the most popular when it comes to EV charging. Like locating charging stations, EV drivers prefer more streamlined, feature-rich payment methods compared to traditional fueling. Additionally, charging stations that accept credit cards require PCI compliance, the industry standard for data security and if not supported or followed credit card information could be at risk. To ensure optimum functionality, convenience and security, charging sessions/payments should be authorized at the charging station by use of as many of the below as possible:

- RFID card
- Mobile application
- Smartphone based payment systems (e.g. Apple Pay, Android Pay, etc)
- Over the phone 24/7 via a toll-free phone number using a credit card.

Another consideration for the payment component of EV charging technology review is how payments are processed and supported on the backend. Some charging technologies use "bolt-on" payment systems and services to accept payments. These systems are often manufactured, operated and supported by different vendors with different standards. The end result can be complicated, unreliable and unsecure. For reference, with ChargePoint all of the payment methods above are supported and with the use of over-the-air software updates any next generation payment options can also be integrated.

Station owners can set pricing in such a manner to encourage the long-term viability of the proposed stations and maximize utilization. Pricing can be set by time, energy, user or any combination. The payment system is provided, operated and supported by ChargePoint and all payments are processed by ChargePoint as well. If ever an issue arises it need not go further than ChargePoint 24/7 Support. The most popular and feature rich payment method for any charging station is the ChargePoint RFID card. New drivers can open an account online and sign up to receive a free Charge Point card. The driver's Charge Point account is synched to the driver's credit card. When ready to charge, drivers simply tap this

card over the reader symbol, press the handle button to remove the charging connector, and plug in. Once an EV is charged, the driver unplugs the connector and returns it to the station. The charging session fee is automatically deducted from the drivers ChargePoint account. ChargePoint has also partnered with major Automotive OEMs, including BMW, Cadillac, Chevy, Fiat, Nissan, Volkswagen, and Smart to provide custom branded ChargePoint welcome kits included in the glove box. Many EV drivers in your area are already ChargePoint cardholders.

### ***Examples of branded ChargePoint RFID Cards***



### ***➤ a charging network in which interoperability and reliability are paramount.***

Reliability is an important consideration of establishing a fast charging corridor that is expected to inspire confidence to purchase an electric vehicle and drive it long distances. For this reason, it is important to choose a partners and equipment providers with corridor experience, top class products and most of all an established customer support team that can handle the support and maintenance of the stations. Charge Point has all three; many successful corridor projects, proven product reliability with over 30,000 Charging spots installed and the largest driver Support team in the industry.

Interoperability is also a critical topic in the advancement of EVs and charging stations but is often misunderstood. Before attempting to characterize the importance of interoperability it is important to define what interoperability really is. Generally, there are three categories of interoperability. First, is interoperability between vehicles and charging stations. Meaning whether the station will charge the car. We covered this in detail as “compatibility” earlier in our response. Second, is interoperability between various station access cards. In other words, the ability to use a ChargePoint card at a different kind of charging station. This form of interoperability is a high priority on the radar of companies like ChargePoint but is still in nascent stages. In fact, ChargePoint has lead the industry in this form of interoperability by founding and propelling an organization called ROAMING FOR EV CHARGING or ROEV. ROEV is an Electric Vehicle (EV) industry trade association focused on increasing adoption in the US through the convenience of network interoperability. ROEV aims to simplify EV charging by enabling drivers to use any participating charging network account for convenient access to charging stations across multiple charging networks. Roaming across networks is important for the future but less so in the shorter term in rural areas such as Maine.

Third is interoperability between charging station hardware and charging station software. This kind of interoperability is often overblown and used as a tactic by smaller, less equipped technology providers but it has sparked an effort in the industry to standardize the interface (language) between hardware and software. This standard “language” is called Open Charge Point Protocol or OCPP. OCPP is not a standard but currently acts as a guideline and not fully established between vendors. It is important to understand the vendors’ present and future support of OCPP. OCPP is not recognized as a standard by any national or international standards body such as ANSI (USA) or ISO/IEC (worldwide), a new international standards development organization, eMI3, has been formed to bring a standard station-

to-network management system protocol (among other needed standards) to the IEC for ratification. OCPP is the leading candidate for that protocol. ChargePoint is a founding board member of eMI3 and is devoting significant resources to transitioning OCPP to become a real standard. A ChargePoint employee co-wrote the original version of OCPP and ChargePoint engineers have actively and regularly contributed to the evolution of OCPP.

## 2) Should the Department seek a vendor to oversee the entire project, including selection and installation of system components, or simply provide cost-share for any company installing electric vehicle charging infrastructure along this corridor? Could there be a combination of both options?

Considering the project objectives, timing and EV adoption in the area, it is likely that the best way to approach is to engage a public sector entity such as a state office to purchase, install and control the stations. With this approach the Department could ensure all important specifications around timing, equipment, reliability, interoperability and driver experience are met. This approach has been met with success in other lower EV adoption areas where accelerated infrastructure development is desired. It is possible that by providing a complete subsidy on equipment and installation, and by imposing strict requirements on any participating party the Department could reach the same result but over a longer time period. ChargePoint has crafted, advised and implemented many different deployment models tailored to fit the objectives and constraints of specific areas. We would be happy to engage in a more specific discussion along these lines.

## 3) What should the Department and Task Force take into consideration when determining individual sites (e.g., cost, ownership, visibility, accessibility)? Should this initiative try to leverage potential hosts to purchase electric vehicles for use by their organization or others? Should that be a factor in the evaluation between competing host sites?

ChargePoint emphasizes the selection of site hosts from the local business community wherever feasible. Ownership should be with the site host who can manage, set pricing, make available too public, etc. Ultimately the site selection has to be designed for public use first, additional use after. Below is a more detailed breakdown of how ChargePoint has approached site selection through previous corridor projects. Some of this will likely be inapplicable to corridor locations suggested here but the below could be helpful none the less.

### **SITE SELECTION PROCESS**

To select those sites best suited for the installation of EVSE equipment, you need to pursue a rigorous site selection process that included consideration of a variety of factors, including state coordination, driver experience, location in the corridor, nearby amenities, safety, lighting, shelter, and accessibility. Key factors in the site selection process include:

- **State Coordination:** Maintain clear and consistent communication among state and local stakeholders, while implementing applicable readiness plan and associated strategic advances in vehicle charging.
- **Driver Experience:** a great driver experience is the cornerstone of the site selection process, with a focus on safety, nearby amenities, minimal wait times, and lighting.

- **Location in Corridor:** sites are spaced at distances that will reasonably serve public electricvehicle users across the corridor within half a mile of the nearest highway corridor.
- **Safety:** stations will be located in safe, well-lit locations with regular foot and vehicle traffic, and all installations will comply with applicable safety requirements and standards.
- **Convenience:** stations will be within a 2-minute walk to a clean 24/7 accessible restroom and within a 5-minute walk to a clean, reputable restaurant.
- **Support for Local Businesses:** selection of the site should support the local businesses, and have primary and back-up sites that are either located at local places of business, or that are placed in locations in close proximity to local businesses (i.e., public parking lots).

In choosing sites, you need to actively sought station host partners who wish to actively promote EV adoption and who see EV charging as an amenity that they can offer to the public at large—thus enhancing the long-term viability of each station.

**Some details that will resonate with site hosts particularly from an economic benefit:**

Charge Point recognizes that siting DC fast chargers near commercial areas should also bring a significant increase to foot traffic at nearby businesses, resulting in greater local and state tax revenues from sales, highlighting the importance of careful site selection. While recharging, EV drivers and their passengers generally tend to visit nearby stores and attractions to occupy their time. According to an April 2015 survey of EV drivers, 90% of respondents typically made a purchase while charging their vehicle at a retail location.

**While EV drivers charge up, they will be able to enjoy a variety of amenities—**

everything from rest rooms and free Wi-Fi to meals, shopping, or a quiet walk in a park, depending on the specific station. After reviewing data from its existing network, Charge Point determined that each charging session would generate an average of \$20 in additional spending by the driver and his or her companions at the site host and other local businesses. Also, the Tax benefit to Maine as people shop close to the station.

**4) What should be the minimum/ideal technological specifications, such as DCFC, level 2, or both; number of chargers per station; reliability and speed of technology?**

Considering expected traffic and the needs alluded to in this RFI, ChargePoint would suggest at minimum, (1) 50 Kilowatt (KW) DC Fast Charger offering both CHAdeMO and SAE CCS Combo connectors. As well as future capacity for expansion to 2 or 3 units over time (i.e. stub-outs/make ready). This will satisfy the fast charging needs of the interstate driver. Depending on site selection a level 2 station may also be a good fit if longer stays can be accommodated like sites with tourist attractions, overnight stays, shopping, restaurants, etc. DC Fast adds up to 200 RPH (miles of Range Per Hour) and level 2 adds up to 25 RPH (miles of Range Per Hour). Though level 2 is charging is slower than DC, many plug-in hybrid vehicles do not accept a DC fast charge. So if the Department intends to accommodate EV charging of all kinds, level 2 charging would also need to be integrated. Finally, it is expected that EV's will evolve, eventually requiring higher DC charging power than currently exist today.

To accommodate future, higher capacity EV batteries and greater quantities of EVs on the road, planning should also be considered for ultrafast (150 KW) DC fast chargers.

Reliability should rightly be of paramount importance, especially with corridor projects where “off-corridor” charging options don’t really exist. Though reliability begins with durable hardware, reliability is only achieved over time with a complement of exceptional support and maintenance operations. It will be critical to measure any partner and/or equipment provider’s ability to excel at all of these things over time. We would recommend considering the following ancillary factors when selecting equipment or service providers for this corridor.

- DC Fast Charging Hardware Construction. As indicated above, a strong foundation for reliability over time. Consider whether the equipment is built too last.
- Equipment Preventative Maintenance (PM) Needs. Many DC fast chargers will require preventative maintenance to ensure reliable operation while others require none. Depending on site location it may be difficult to perform this PM so equipment that requires none, or services that include it may be desirable.
- Proactive Station Monitoring. Some station/services allow for remote monitoring of the station hardware and offer instant remote technician troubleshooting to prevent failures. Without this, station failures often remain unknown until a driver attempts to use it and cannot.
- Technician Dispatch. Some station/services allow for immediate technician dispatch once a problem is discovered to reduce downtime while others will take days just to locate someone with the expertise to troubleshoot the station.
- Parts and On-Site Labor Maintenance Coverage. Some station/service include maintenance coverage that pays for coordination, parts and on-site labor to repair things. It will be important to manage costs and attract site hosts not to leave the burden of maintenance to chance.
- Live Driver Support. No matter what the issue is, when an EV driver faces a problem at a corridor charging station they want help. Some stations/services provide 24/7/365 live driver support to help that driver through the issue they are facing. In some case Support can resolve station issues remotely or if they can’t, they can direct the driver to another working station before they run out. A live level of driver support is a must with rural corridor projects to establish confidence among drivers.

For reference, below is the specification for ChargePoint equipment, Warranty and Support that meets the above requirements:

- **Charge Point Express 200, 50-kilowatt DC Fast Charger**

The Charge Point Express 200 is a 50kW output station that charges at a rate of up to 200 RPH (miles of Range per Hour). Actual charging rate is controlled by each EV’s battery management system; actual range is dependent on driver style, environmental conditions, topography, and vehicle load. Each single-port, dual-connector Express 200 includes both CHAdeMO and SAE J1772 Combo connectors and is capable of charging all EVs equipped for DC fast charging (Tesla drivers can charge with the proper adapter). The Express 200 is only 13 inches deep and 1/3 the weight of many dual-port DC fast chargers, which provides maximum flexibility at installation locations



The Express 200 is a highly reliable station and capable of operating over a wide range of temperatures—from minus 31°F to 131°F—and weather conditions, including flooding, heavy rains, and high winds. All critical electronics components are environmentally sealed to prevent malfunctions and

condensation. Remote diagnostics capabilities enable the Charge Point Support team to identify potential problems before they impact charging, thereby keeping downtime to a minimum. Station operators and Charge Point Support can remote-start the system if necessary. All units are also compliant with the Americans with Disabilities Act (ADA). Maintenance costs are kept low with the only liquid-cooled DC fast charger on the market. Instead of replacing air filters several times a year, the Express 200 coolant will last up to 10 years and can be easily replaced if needed. Warranties include repair and replacement for vandalism.

- **Charge Point CT4000 Level 2 Charging Station**

The proposed CT4000 Level 2 charging stations will each offer two standard SAE J1772™ Level 2 charging ports supplying up to 7.2kW. With its standard connectors, Charge Point Level 2 stations can charge any EV CT4000 models come standard with 18-foot cords, enabling stations to service up to four parking spaces and to reach all car models, regardless of parking style or EV size—thereby greatly increasing the usability of EV parking/charging spots. These ultra-reliable second-generation gravity-operated cords remain flexible over the entire product temperature range of -40°F to +122°F.



- **Warranty and Support team detail:**

To keep your stations online and to ensure an enjoyable experience for both the driver as well as the station owner, we go beyond the typical warranty break fix features. We've included station management, station performance metrics reporting and unlimited software configuration changes at no additional cost. We back our performance with a Service Level response time commitment and a 98% annual station uptime commitment. We even cover labor costs for items typically excluded from most warranties like vandalism, abuse and accidents.

Ongoing station management service is a key part of Assure. The annual Cloud Services Subscription is required for all ChargePoint stations and gives you, the station owner, access to a rich set of data and analytic tools to monitor the usage of your charging stations, identify problems, and assess how well your stations are meeting your business goals. You can easily add new stations, and design and modify your station policies, however with Assure, you may request these changes be performed on your behalf by our expert staff.

With the station management service from ChargePoint Assure, you can request the day-to-day management of your stations be performed by the ChargePoint team for hands-off management.

Key benefits of ChargePoint Assure:

- Unlimited software configuration changes
- 98% annual uptime guarantee with non-performance penalty
- 1 business day response time to station failures or 1 business day from Parts arrival when required
- Monthly summary reports and detailed quarterly reports of your station's performance metrics

- Proactive station monitoring and dispatch
- Labor coverage for station equipment issues typically not covered by warranty such as vandalism, abuse and accidents caused by reckless drivers or snow plows

• **Support team detail:**

ChargePoint support team will be OVER 50 staff members by end of 2016, by far the biggest team in the industry, presently we are:

**Driver Support: 29**

**Stations Support: 16**

**Activations Support: 2**

**Due to high demand for stations and expanding network the plan is to increase an additional 11 staff members in FY16.**

***Driver Support***

ChargePoint provides 24/7 toll-free live driver support to anyone using a ChargePoint station, including non-ChargePoint cardholders, **all at no cost to the driver**. With over 30,000 charging spots across the country, ChargePoint has a long track record of success and provides the highest level of support in the industry.

***Station Host Support***

ChargePoint offers dedicated support for station hosts that require assistance, available weekdays from 8AM EST to 9PM EST.

***Current Support Metrics***

	<b>Driver Support</b>	<b>Technical Support</b>
Service Level: Call Center	95%	98%
Avg. Call Speed of Answer	<30 secs	<8 secs
Avg. Email Response Time	24 hrs.	4 hrs.
<b>Monthly Call Volume</b>	<b>12,500</b>	<b>1,200</b>
<b>Monthly Email Volume</b>	<b>1,600</b>	<b>3,000</b>
<b>Support Hours</b>	<b>24 x 7</b>	<b>M-F, 8am – 9pm EST</b>

## 5) What are the pros and cons of the various hardware options and operational/maintenance models and technologies?

Generally, DC fast and L2 charging hardware are designed to industry standards for basic functions such as plug type and power level. In other words any DC charger or L2 charger out of the box should be able to plug into a vehicle with the correct socket and charge at the same rate. However, advanced functionality like much of the content outlined in previous questions varies greatly among equipment manufacturers and/or EV service providers. It will be important for the Department to identify expectations for the capabilities and performance of the corridor (e.g. reliability, driver experience, accessibility, upgradability, etc). Then use these expectations to best craft vendor relationships as well as review and select equipment and service providers. For measurement of equipment and driver service we believe the capabilities outlined in questions 1 and 4 offer a strong start. In regards to vendor relationships it will be important to weigh risks with perceived benefits of different business models that may be offered. For instance, if an entity offers to own and operate the charging sites consider what's in it for them before simply assuming it's a great fit. Vendors whose business is to own charging stations will require control of what drivers pay to use the station and will often levy substantial premiums on drivers in the early days where usage is low.

Depending on the goals of the corridor, at least in the beginning, maintaining control of pricing will likely be desirable to the Department. As you can imagine, these premiums often cause aggravation amongst drivers, particularly when state funding is used to subsidize deployment of stations. Additionally, entities that own stations and are made responsible for maintenance will want to control response time and reliability. Depending on size of the provider and reach of their service network providing timely service may be a challenge and will likely threaten reliability. Comparatively, by leaving control of these sites to a state office or department, that entity can ensure fair pricing to drivers, contract for best available maintenance and preserve driver experience in what will likely be a visible state initiative.

For reference with ChargePoint hardware, Network Services and Assure Maintenance Service, control remains securely in the hands of the station owner but day-to-day management is provided by ChargePoint. Virtually no time or resources need be allocated to the effort. Finally, no matter what hardware, software or business model is selected it will be critical to review the business viability of any provider.

Since the reemergence of EV technology in the late 2000's there has been much attrition among market participants. While some small companies have grown into considerable brands others have struggled and closed their doors. Similarly, large, established companies with well-known brands in the electrical space have fallen short recognizing the evolving needs of the market and chosen to exit the business unexpectedly. Our recommendation would be to establish guiding principles to define success and then compare business model, equipment and service options holistically for the best chance for long term success.

**6) What are the various ownership models being used in other locations, and what are the pros and cons of each?**

Ownership models can range from (1) government subsidized site host owned, (2) utility owned with or without government subsidy, (3) government owned/controlled and (4) private EV service provider owned/controlled. Government subsidized private sector purchases are typically successful where EV demand is strong enough to entice local businesses to take on the responsibility of owning charging stations but not strong enough for private businesses to cover the costs. Utility based programs are typically designed and managed by the utility, some with free charging and others with the intent of recouping costs via pay-for-charging. These programs are less common and often raise controversy about whether utilities should also own electric fueling stations in developed markets. However, in very early markets with pilot projects, utilities can act as a stable, local anchor and learn quite a bit about how private EV charging will impact their business in the future. The government owned and controlled programs also help to stabilize programs in early markets but strong equipment and service providers are required to maintain long term success without a large resource outlay. Finally, private service provider model is where a private company installs, operates and charges for the charging network. As described in question #5 this model typically relies on high EV demand to prove fair and successful for any parties involved. In fact, even in most parts of California sites don't experience enough demand to survive. In the near term (5 years or more) it is impossible that demand on this corridor would cover the cost to operate a fairly priced, convenient and reliable EV charging network. ChargePoint would recommend exploration into (1), (2) and (3) only.

**7) Are there organizations/municipalities/businesses who would be interested in partnering with the state on this project? What might that partnership look like? Examples include, but are not limited to, additional infrastructure at charging locations; promotion of corridor; ongoing operations and maintenance; private or municipal ownership once completed. The form of local participation may be the subject of a future RFP.**

We at ChargePoint, believe we are best suited to support the Department in their deployment of this corridor on many fronts;

- Sharing advice and best practices in developing an optimum ownership and operation model for this corridor as provided in this RFI.
- Assistance in collaboration with governmental departments and utilities in planning and implementing a project of this type.
- Assistance with site selection and installation estimation.
- Sale of award winning hardware, management software and maintenance services for every location.
- Assistance with installation and commissioning of all equipment.

We look forward to the opportunity to provide a full proposal for the sale and provision of the above.

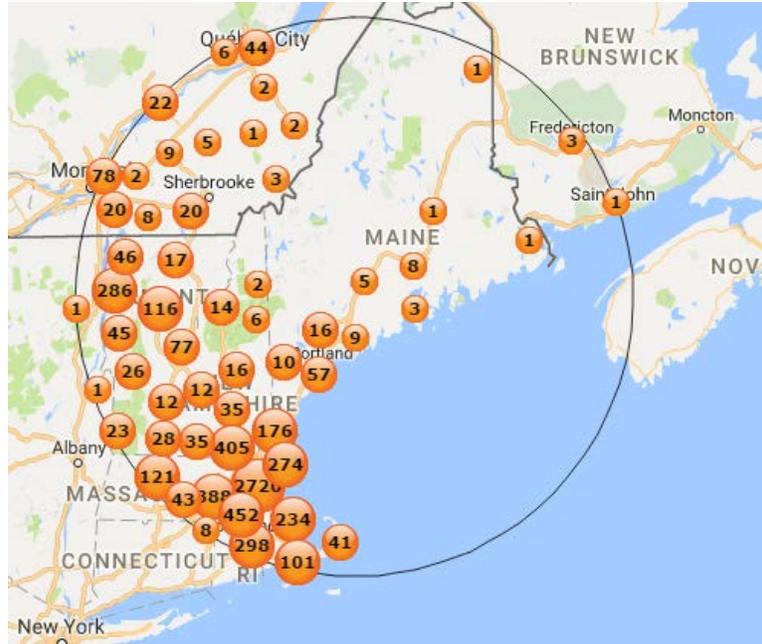
## 8) How have other similar projects successfully promoted the existence and use of the facilities once installed?

Charge Point has teamed up with States, Utilities, and Automotive companies on various PR programs as part of their corridor projects. The scope of each varies but below is an overview of some of actions that have we have used to promote corridor completion.

- Create a Commissioning Plan before site completion to prepare stakeholders for promotion.
- Plan and hold Ribbon-Cutting events
- Outreach to local, regional, and national stakeholders
- Press releases, social media, and news stories.
- Communicate the siting of new EV infrastructure to the local and regional community through paid media.
- Communicate to local and regional fleet operators the availability of DC Fast Charging infrastructure and the plans
- The stations will also be found on the Charge Point App for all EV drivers to find if driving in Maine and Quebec. Nearly 70% of new EV driver's signup for a ChargePoint account and download the Mobile App. Driver App is detailed in question #1.
- Send alerts to local ChargePoint drivers to announce the opening of new stations.
- Create ChargePoint Places "special offer" to encourage drivers to use these stations.

***A map of the registered ChargePoint account holders.***

***Today 6,396 EV drivers have registered ChargePoint accounts within 200 miles of Augusta ME.***



## 9) Should data on the usage of the future charging infrastructure be collected? Are there privacy concerns related to the collection of data?

Yes, absolutely. All large infrastructure projects should plan to track and measure success. The only way to do that is to collect and report comprehensive, meaningful data. These reports can be published to public websites, reviewed by decision makers and used to optimize this and future projects. Data collection and reporting should be another critical component of the Department's technology review before selecting equipment for the corridor. Like other factors covered in previous questions, the amount, presentation and ease of data reporting is not created equal across equipment and service providers.

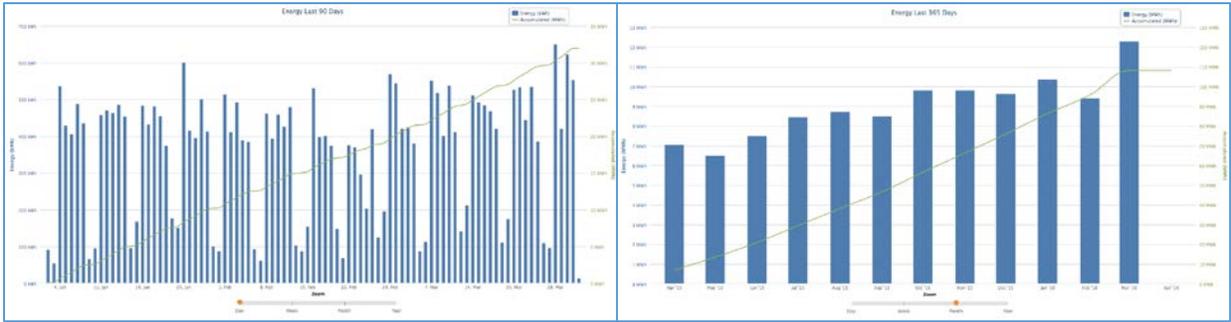
The collection of anonymous charging data is not a privacy concern. However, personal driver information must be protected and controlled. If certain personal information is important to the Department, some technologies allow for legal access of personal information through 'opt-in' programs and with express driver approval. The Department should confirm that any data collected is treated appropriately.

As reference, below is a list of data that is readily accessible and reportable through the ChargePoint Network as well as some sample reports of how this information can look.

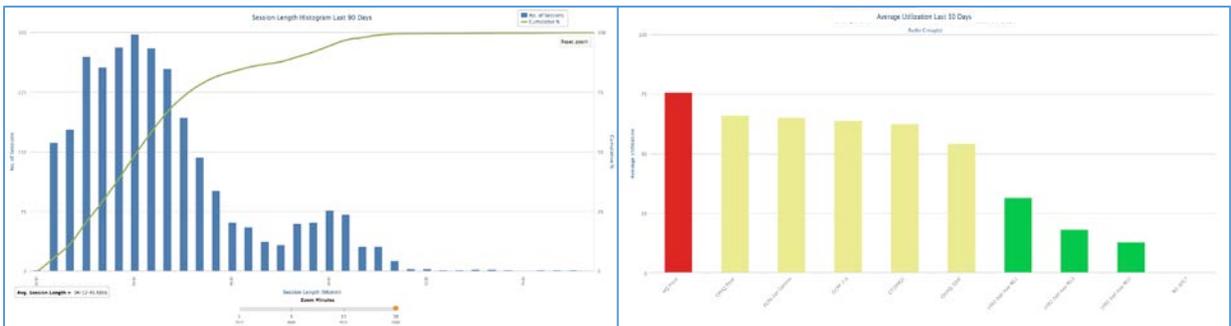
- **Energy:** Shows the amount of electricity output by your charging stations by day, week, or month.
- **Green House Gas Savings (GHG):** Calculates the total GHG reduced resultant from real time usage of stations.
- **Unique Driver:** Shows how many different drivers utilize the station in a given timeframe. This is very useful in determining whether you have the same people charging all the time at the stations or if there are a wide variety of drivers using the stations
- **Session Length Histogram:** Shows the average stay time at a station. When stations are used all the time it is important to look at how long people are staying.
- **Average Utilization:** Shows how many hours during the day stations are being used.
- **Revenue:** If a fee is associated with charging, this report shows the monthly Flex Billing statement, including how much Drivers spent charging at the Organization's stations, and how much money the Organization receives on a monthly basis.
- **Logs:** A chronology of configuration changes and the success or failure of any attempt by the ChargePoint cloud to download information to the stations.
- **Audit Trail:** All configuration and other actions including the user account that performed the action
- **Alarms:** A table of station events, including service-affecting faults

**Sample Reports:**

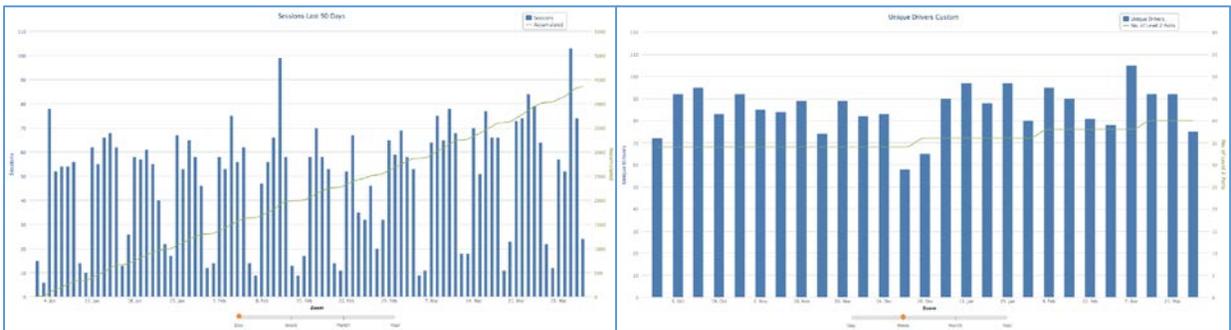
**Energy by Day, Energy by Month:**



**Session Length Histogram, Average Utilization:**



**Sessions, Unique Drivers:**



**10) Please provide any additional information that may guide optimal design, purchase, installation, operation, maintenance, and ultimate use of the facilities.**

ChargePoint is far and away the leader in EV charging technology and equipment deployment with a tremendous amount of experience with corridor projects. Ultimately, ChargePoint would like to be selected as the hardware, network and maintenance provider for the Québec-Maine DC fast charging corridor. Beyond providing world class hardware, software, support and maintenance services ChargePoint will also deliver an unmatched driver experience that will instill confidence along an unfriendly EV route. Additionally, ChargePoint would be happy to advise the Department and Task Force from the planning stage right through data collection and reporting. By selecting our products and services we would establish a partnership that would ensure long term success of this corridor long into the future.