CASE STUDY

Overseeing Portland International Airport's Rental Car Facility Electrification

Futureproofing PDX Rental Car Facility: Scalable Fast-Charging Infrastructure for RAC Fleets

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Portland International Airport (PDX) has made significant advancements in sustainable travel by installing overhead-mounted DC fast-charging infrastructure for rental car (RAC) fleets. The Port of Portland approached Conrac Solutions (CS) Operators to oversee this project, which aimed to meet the growing demand for electric vehicle (EV) charging at the Airport. CS Operators engaged a reputable energy services provider to implement an innovative, long-term solution focused on sustainability and efficiency. Additionally, CS ensured efficient coordination between all stakeholders, including the Airport, the RACs, the EV program designer, the charging solutions provider, engineers, and electricians, to bring the project to fruition.

The system is located at PDX's Quick Turn-Around (QTA) rental car facility, which CS Operators has managed since its opening in 2018. The facility serves 11 RAC brands, including 72 fueling stations and 16 car washes. The QTA is located alongside the customer service lobby and ready return garage facilities, which collectively span 1.3 million square feet. The project was considered a Tenant Improvement Project, with the Port of Portland reimbursing the RACs for project costs.

"PDX partnered with CS to find a solution to install a DC Fast Charger system in our rental car QTA. Even though the facility was not originally designed to incorporate EV infrastructure, Conrac Solutions and PDX innovated to find creative solutions, resulting in a valuable EV setup for PDX and our rental car partners."

- Jeremiah Hartley,
Rental Car Manager, Landside Properties Group, Port of Portland

Fast Chargers in PDX QTA Facility

Key Benefits

- **Cost-Effective Power Maximization:** The project worked with a goal that 100% of the available electrical capacity was utilized efficiently, maximizing the use of the existing infrastructure.
- **Efficient Use of Space:** The design maximized the use of available space, ensuring the system was compact and ready for potential future expansion without occupying additional land.
- **Futureproofing:** By preparing the infrastructure to handle future power needs, the facility is set up for easy expansion as EV fleets continue to grow.
- **Minimal Disruption:** Given that the project took place in an operational facility, CS Operators coordinated with RACs to ensure minimal disruption to operators during project installation.
- **Mindful Integration:** CS collaborated with the Port of Portland to ensure this project aligned with the Airport's long-term energy transition planning, which is slated to include electrification of ground service equipment and the transition of all Port-owned vehicles to zero-emission vehicles.

Challenges and Solutions

CS oversaw needs assessment, design, and installation. A key challenge was addressing the increased demand for electricity without incurring the costs of adding new equipment. The solution involved capitalizing on the existing power capacity and maximizing its output. The team also repurposed circuits initially intended for other uses, such as car wash blowers, to support the new charging stations.

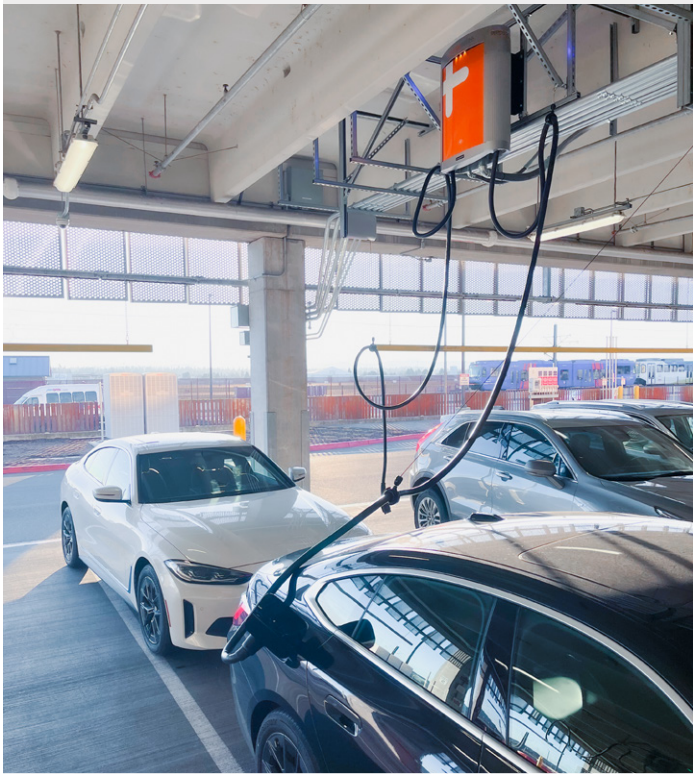
This design was tailored to accommodate future expansion as the EV fleet continues to grow. Extra piping was installed with open trenches, enabling the facility to bring in future additional power without disturbing the ground again, thus reducing future costs.

Cost Savings

The project yielded significant cost savings, primarily due to the consolidated approach to electric power distribution and the effective space optimization strategy. By maximizing the use of available power and minimizing unnecessary infrastructure, the project reduced the overall installation cost, benefiting all parties involved.

Power Blocks

Fast Chargers in PDX QTA Facility



Project Features

- The EV system uses **ChargePoint Express Plus 1000 Technology,** which charges EVs approximately eight times faster than a standard Level 2 charger[1].
- **10 Dual-Port Chargers,** which are allocated by RAC brand and allow 20 vehicles to be plugged in simultaneously, with 10 actively charging at a time.
- **Smart charging platforms** allow for programmed charge caps based on time or charge limit, and remote monitoring and troubleshooting.
- The **space-saving design** features chargers mounted overhead with retractable cable management, a first for an airport. This minimizes vehicle obstruction and makes the system efficient and cost-effective by running conduit and wiring to the units.

[1] https://www.transportation.gov/rural/ev/toolkit/ev-basics/charging-speeds

Project Timeline

The project began in January 2024 and was completed in November 2024, spanning 11 months. This timeline included design, approval, and installation phases. The final step requires establishing an internet connection to each charging unit to allow over-the-air updates from ChargePoint. Airport IT and ChargePoint have been working together to establish an effective solution.

Conclusion

The fast-charging infrastructure project at Portland International Airport represents a well-executed strategy for providing reliable, cost-effective, and scalable EV charging solutions. It successfully maximizes power capacity, minimizes space utilization, and paves the way for future growth as EV adoption continues to rise.

Related Articles

- https://www.flypdx.com/Newsroom/pdx-powers-on-fast-charging-stations
- https://www.aviationpros.com/airports/article/55271113/fast-chargers-vs-standard-chargers-best-practices-for-airports-embracing-ev-infrastructure

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