STAFF REPORT

To: County Council
From: Zack Darby, Sustainability Analyst
Emily Quinton, Sustainability Program Manager
Date: June 22, 2022
Type of item: Work session
Subject: Review usage of County electric vehicle chargers and discuss possible changes to fee structure

Purpose & Requested Council Action

The focus of this work session is for staff to share recommendations and for the County Council to discuss the possibility of implementing a fee structure for use of County-owned electric vehicle (EV) charging stations. To support staff recommendations and the Council discussion, the presentation will include a cost analysis of current County charging infrastructure. Staff will also share updates on 2022 installations and the status of the County fleet with regards to electrification. This work session will include a presentation and initial discussion. Staff will return in July for a decision from Council.

Background

Why EV charging infrastructure at County facilities

The Summit County Council set an objective\(^1\) to transition at least 50% of the County’s on-road passenger vehicle fleet to alternative fuel, hybrid, and electric vehicles by 2022 as part of their strategic goal to reduce greenhouse gas (GHG) emissions of county government operations 80% below 2016 levels by 2040. The Council recognized that to meet this goal, the County needs to install EV charging stations at County facilities. In addition to “fueling” electric fleet vehicles, the Council determined that providing public EV charging at County facilities is one way to encourage the adoption of EVs throughout the community, one of many steps needed to meet the Council’s target of an 80% reduction of countywide GHG emissions by 2050.

The 2021 GHG emissions inventory\(^2\) of County government operations estimated that 17% of the county’s emissions were associated with transportation—county fleet vehicles, employee commute, and the transit system. Furthermore, transportation emissions account for 47% of the

\(^1\) https://summitcounty.org/DocumentCenter/View/6777/Staff-Report-and-Resolution-2017-16
\(^2\) https://www.summitcounty.org/DocumentCenter/View/19489/2021-Summit-County-Greenhouse-Gas-Emissions-Inventory
total GHG emissions produced within the geographic boundaries of the county\(^3\). Transportation emissions also contribute to local and regional air pollution.

With the increasing affordability of electric vehicles and the volatility of gas prices, EVs are becoming more prevalent in our community. Data from the Utah Tax Commission suggests that electric vehicle registrations are up by 45% since 2021 in Summit County\(^4\), and we expect this trend to continue. The Summit County fleet is now composed of 9% alternate fueled vehicles: 3 EVs, 1 plug-in hybrid, and 23 hybrids. The County is continuing to aid in the electrification of vehicles through the installation and maintenance of chargers for both the public and fleet use.

### Summit County EV Chargers

To support the Council’s fleet transition and GHG reduction goals, the first public charging station was installed in 2016, and the County now has 15 stations across five different sites.

- Coalville Courthouse: Two (2) level II and one (1) DC fast charging stations
- Kamas Public Services Building: Two (2) level II charging stations
- Health Department (Quinn’s Junction): Two (2) level II charging stations
- Ecker Hill Park & Ride: Five (5) level II charging stations
- Sheldon Richins Building: One (1) level II and two (2) DC fast charging stations

The 2019 Summit County EV Charging Station Infrastructure Report and Strategic Plan\(^5\) lays the groundwork for additional chargers, including up to 11 additional EV chargers that are being installed in 2022.

When the County first installed charging stations, it was decided that the chargers would be free to use to incentivize EV adoption. As well, given the newness of the technology, the County had little information about how frequently the chargers would be used, and the costs that would be incurred with usage, maintenance, networking, etc. When staff met with Council in November 2021 regarding the 2022 budget, Council members requested that staff return to Council in 2022 with an update and recommendation regarding a possible fee structure.

### A Note About Charging Station Types

There are several different types of chargers that the County utilizes. The terms “level I”, “level II” and “DC fast charger” are used to describe the power output of a given station, and therefore how fast a vehicle can be charged. The County has level II and DC fast chargers. Typically, level II chargers provide 5-10 kilowatt (kW) output and require 5-8 hours to fully charge a battery\(^6\).

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\(^4\) https://tax.utah.gov/econstats/mv/registrations  
\(^6\) https://www.rockymountainpower.net/savings-energy-choices/electric-vehicles/charging-your-ev.html
Level II chargers are ideal for fleet vehicles because the battery will receive a full charge if left on overnight. DC fast chargers will provide anywhere from 50-200 kW output and can charge a battery in 30 minutes to an hour\(^7\). Fast chargers often require substantial electrical upgrades upon installation and incur high costs in monthly electricity bills. Fast chargers are ideal for individuals driving long-distances that utilize quick “refueling” stops and are often found along highway corridors.

**Data Availability and Analysis Process**

The following data sources were used in the analysis presented in the next section:

- Monthly usage, number of charging sessions, and cost for the 12 networked ChargePoint stations was gathered from the backend ChargePoint customer portal and electricity bills from Rocky Mountain Power
- Monthly usage and cost for the two BTC Power fast chargers was gathered from electricity bills from Rocky Mountain Power.

For charging stations not separately metered, it can be difficult to determine the cost for each individual charger. When this was the case, a common set of cost assumptions, based on both usage data and previous billing cycles, was applied. Cost estimates are conservative to ensure the County is not underestimating.

**Findings**

*Usage and cost of current EV charging stations*

Based on the amount of energy used, the majority of charging happening at County facilities takes place at the three DC fast chargers. Figure 1 depicts the breakdown of kilowatt hours used at each charging station in 2021. The three fast chargers (on the right side labeled “DCFC”) make up roughly 62% of the total usage.

Figure 2 shows the breakdown of costs associated with charging at County facilities. In 2021, the estimated cost to operate the chargers was $56,382. This figure includes the monthly electricity costs (related to total usage), and the ongoing costs such as networking\(^8\) and warranty fees. The three fast charging stations also cost significantly more to operate. These stations use enough power (50 kW) to trip the demand charge\(^9\) from our utility provider Rocky Mountain Power, which in turn means higher monthly bills at these utility meters. The cost of electricity at the three County fast charging stations was $27,756 and accounted for nearly 50% of the total cost

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\(^7\) [https://www.rockymountainpower.net/savings-energy-choices/electric-vehicles/charging-your-ev.html](https://www.rockymountainpower.net/savings-energy-choices/electric-vehicles/charging-your-ev.html)

\(^8\) Networked stations are connected with a cellular plan to allow for the collection of data and the ability to charge a fee. There is a yearly fee for networking stations. Currently 14 of the 15 County stations are networked and would allow for fee collection.

\(^9\) Demand Charges are based on the highest level of electricity you demand at one time during the billing period and at the time of day it's needed. Because the fast chargers require a high amount of electricity, every time they are plugged in, they trip the Rocky Mountain Power demand charge which adds a lot to our monthly bill.
of operation. Comparatively, the estimated cost of electricity at 12 of the level II charging stations was $10,000.

Figure 1 depicts the usage of each charging station in kilowatt hours (kWh).

Figure 2 represents a breakdown of costs associated with operating County charging stations in 2021.

Estimated Annual Cost for the 15 Current EV Charging Stations  Total Cost: $56,382

Networking fee
Warranty fee
level II Electricity
DCFC Electricity
**Potential Usage Fee**

Across the public EV charging landscape, users are often charged a fee for usage to offset a portion of the costs detailed above. The most common fee structure is to charge the driver per unit of energy used (kWh). Other fee structures charge per minutes or hours plugged in or a flat rate. From our research, most local governments and companies that own charging stations have a usage fee, however several local municipalities, notably Park City and Salt Lake City, do not currently have fees at their stations. Given the difference in operating cost between level II and fast chargers, there are often different fees associated with each. In the tables 1 and 2 below, the different charging levels have been separated for the ease of comparison.

Table 1 depicts the total amount of revenue that could be generated by implementing one of three hypothetical fee structures at the County fast charging stations. The middle rate is based on the average rate seen across public charging stations in Northern Utah and the other rates represent the upper and lower bounds of current market values. The total cost of the three County fast chargers was $42,906 in 2021. If the County elected to charge $0.43/kWh (the average rate), up to $20,533 could be recovered. This would account for 47% of the total operating cost of the fast chargers and cover 100% of the electricity costs.

<table>
<thead>
<tr>
<th>Hypothetical Fee DC Fast Charger</th>
<th>Potential Expenses Recovered</th>
<th>Percent of Expenses Recovered</th>
<th>Profit Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>$0.30/kWh</td>
<td>$14,325</td>
<td>33%</td>
</tr>
<tr>
<td>Average</td>
<td>$0.43/kWh</td>
<td>$20,533</td>
<td>47%</td>
</tr>
<tr>
<td>High</td>
<td>$0.50/kWh</td>
<td>$23,876</td>
<td>55%</td>
</tr>
</tbody>
</table>

Table 1 represents three hypothetical fee scenarios and how much of the total cost of Summit County’s three DC fast chargers could be offset if implemented.

Table 2 shows potential cost recovery for the twelve level II stations. The total cost of level II charging was $13,476 in 2021. If the County elected to charge $0.15/kWh (the average rate), an amount up to $4,378 could be recovered. This would account for 23% of the total cost of operating the level II chargers.

<table>
<thead>
<tr>
<th>Hypothetical Fee Level II</th>
<th>Potential Expenses Recovered</th>
<th>Percent of Expenses Recovered</th>
<th>Profit Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>$0.10/kWh</td>
<td>$2,919</td>
<td>21%</td>
</tr>
<tr>
<td>Average</td>
<td>$0.15/kWh</td>
<td>$4,378</td>
<td>32%</td>
</tr>
<tr>
<td>High</td>
<td>$0.20/kWh</td>
<td>$5,838</td>
<td>43%</td>
</tr>
</tbody>
</table>

Table 2 represents three hypothetical fee scenarios and how much of the total cost of Summit County’s 12 level II charging could be offset if implemented.
Recommendations

Based on the analysis above, conversations with other communities, research on current charging trends, and stakeholder input, the sustainability team has these recommendations:

• Implement the Market Rate Fee ($0.43/kWh) for fast charging. Fast charging is very costly and implementing the market rate fee would allow the County to recoup some of that cost. Continue to offer fast charging for free to fleet vehicles.

• Continue to allow level II stations to remain free of charge. The cost of electricity at these stations is so minimal, that it is worth the cost to encourage EV adoption.

• Continue to monitor charger usage, cost, and industry trends.

It should be noted that staff believe implementing a fee will be most easily accomplished on the ChargePoint brand fast charger. Staff are currently troubleshooting an issue with the modems in the BTC Power brand fast chargers that, if not resolved, will prevent the implementation of a usage fee (the nonfunctioning modems are also preventing BTC Power from diagnosing why the charging stations are having other maintenance issues right now). Staff are exploring other avenues to offering fast charging access at the Richins Building through RMP’s company owned fast charging network being rolled out in 2022 and the coming years.

Feel free to contact Zack Darby (zdarby@summitcounty.org) with any questions.

Next Steps

We invite the Council to consider these recommendations over the next few weeks. The sustainability team will return to in July for formal Council direction on a fee structure for current charging stations.