

Introducing a Plan to Install 30 EV Chargers over the Next Seven Years at Central Washington University to Promote Clean Energy

Zachary Benton

Introduction

Climate change is a major issue today, and the biggest contributor to climate change is carbon dioxide emissions. One of the major contributors to carbon emissions is gas powered cars, with about 30% of carbon dioxide emissions in the US comes from transportation including cars, public buses, and other vehicles. To reduce emissions many people are turning to electric vehicles (EV), and the number of EVs on the road has increased from 4% in 2020 to 14% in 2022 (Lea, 2023). The increase in EV use is increasing demand for EV chargers. Currently CWU has a total of 10 EV chargers on campus. The purpose of this project is to plan where to install an additional 30 EV chargers over the next 7 years at CWU.

EV Vehicle Sales

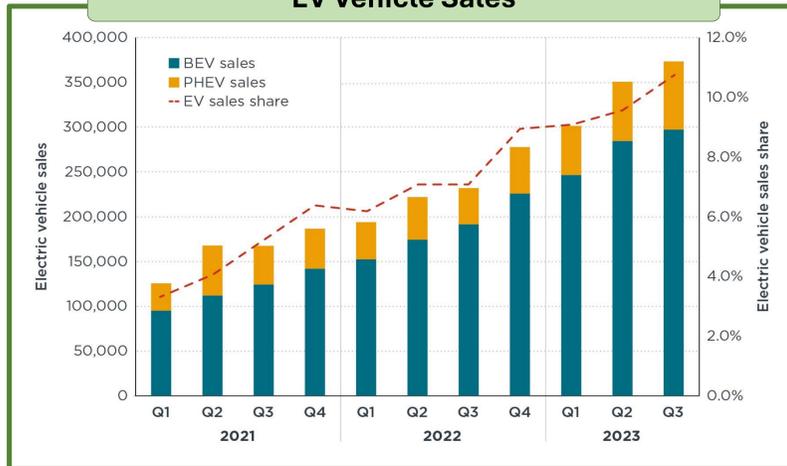


Figure 1: TEV Vehicle sales from Alliance for Automotive Innovation over the past 3 years.

Previous Research Conducted by CWU Students on EV Charger Installation:

Dr. Liz Fountain's class conducted background research on EV charger installation, and came up with three scenarios for installing six EV chargers on campus:

- Scenario 1: Install all six EV chargers at the SURC
- Scenario 2: Install three EV chargers at the SURC and three at Mclyntre
- Scenario 3: Install two EV chargers at the SURC, two at Mclyntre, and two in the Psychology Building parking lot.

References

https://www.applevalleynewsnow.com/lifestyle/automotive/cwu-police-add-tesla-patrol-car-in-push-for-eco-friendly-sustainable-policing/article_00b969f0-d237-575f-9e50-f766c6ebf387.html
<https://www.iea.org/data-and-statistics/charts/electric-car-sales-2016-2023>

Progress on Plan to Install 30 Additional EV Chargers at CWU

In collaboration with Jeff Bousson, CWU's Sustainability Officer, this quarter I have been working on a project plan to install 30 new level 2 dual head EV chargers on campus by 2030. This plan will help inform CWU on how best to install 30 EV chargers. After researching new construction projects on campus, highly trafficked areas, and my own personal knowledge of the campus I identified three locations to place 6 EV chargers each

- The SURC. This would happen in the first 1-2 years of the project after grant funding is provided by the state.
- Mclyntre. This would be step 2 of the project and would be completed the 2 years following the SURC installation.
- CWU's new North Academic Complex. This would need to be done by the end of 2030 to meet CWU's goal of having thirty new EV chargers installed by 2030.

Charger Map Plans



Figure 2: Campus map showing the locations of current (Green and Black) chargers and proposed (Blue) Chargers.

This project supports the following UN Sustainable Development Goals



Future Work

- Consult with Buddy Stanavich, City of Ellensburg - Power & Gas Manager/Energy Resources Manager, in order to get an electrical map to decide where in the parking lots to place the chargers.
 - Contact CWU Campus Police, and CWU Motor Pool and Facilities to determine if they will also need chargers in the near future.
- Once these two requirements are met I can start working on finishing my project plan.

Summary

This project will assist CWU in planning to install an additional 30 EV chargers at CWU by 2030. These 30 new EV chargers will support the growing amount of EV powered vehicles in America. My hope is this project will make the public more prone to buying EV vehicles because there is infrastructure in place to support their decision to go green.

Lot H-9 Chargers



Figure 3: CWU's existing EV chargers in lot H-9

Acknowledgments

I would like to thank Jeff Bousson for his help in my research and supporting my project from the start.