EQUAL ACCESS CHARGING: IMPROVING ACCESS TO ELECTRIC VEHICLE CHARGING IN SAN DIEGO

1 EV CHARGING IN SAN DIEGO

- San Diego is the 2nd most populated city in CA with 1.382 million people
- Ratio of charging stations to people is around 1:300
- Predicted that electric vehicles (EVs) will make up 40% of car sales by 2030 (S&P Global, 2023)
- Accessibility to public EV infrastructure is inequitable and exacerbated along racial and ethnic lines (Hsu, 2021)

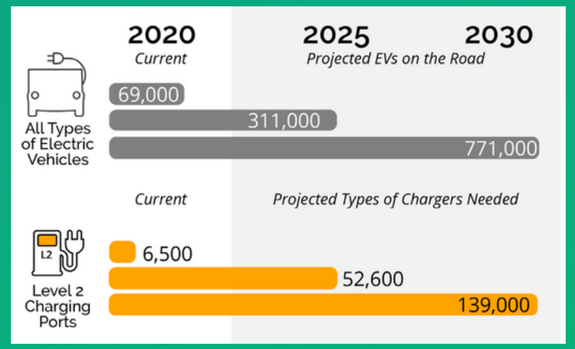

Figure 1: **The projected number of electric vehicles and the chargers needed (Black & Veatch, 2021)**

2 PROBLEM STATEMENT

San Diego currently suffers from a lack of charging infrastructure—especially within underserved communities—to match the growing number of EVs. This limits the transition from gas-powered to electric transportation which is necessary for improving air quality and slowing man-made climate change.

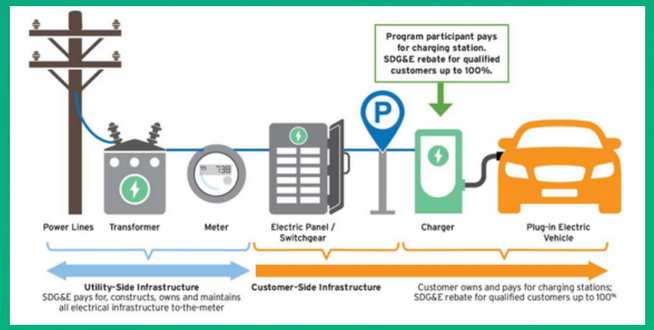

Figure 2: **Diagram of charger ownership; SDG&E pays for infrastructure costs up to the customer meter (Torres, 2023)**

3 SOLUTIONS

- Install 70,000 EV charging stations within multifamily housing units by 2030
- Partner with SDG&E to streamline the process
- Lower the total cost by gathering rebates from the San Diego County Incentive Project
- Incentivize property owners through a price markup for charging

FUNDING

- Grant of $840 million from SDCIP
- Rebates go up to $6,000 per port (AFDC)
- Price of installation and construction for one charger totals $18,000 (Torres, 2023)

4 APPROACH

- "Power Your Drive" model
- Chargers will be placed in multifamily housing units in underserved communities
  - Determined by free and reduced school lunch data
- Level 2 dual-port chargers are the most cost-effective and efficient
- EV owners are willing to pay a charging price markup of 25% (NMHC, 2022)
- Owners are incentivized through rebates and additional revenue from stations

INTERVIEW W/ JONATHAN TORRES

- Representative of SDG&E's Power Your Drive program
- Largest challenge is general apathy from the consumer
- Infrastructure facilitates EV adoption
- Most effective strategy is to approach property management directly and convince through word of mouth
  - We expand on this strategy by enlarging the scale of operations and by providing property owners with greater incentives

5 COST-BENEFIT ANALYSIS

Financial & Economic Effects on Residents

- Burden: increase in electricity costs; a particular challenge to lower-income communities
- Benefit: $1339.63 in annual savings to power EV vs fueling gas car; opportunity for job creation, employment & economic activity
- Metrics: financial impact, average wait time at a charging station, changes in employment & income

Qualitative Effects on Residents

- Benefit: increased availability and convenience of access for residents
- Primary benefit: progress toward sustainability & carbon reduction goals; savings of $1,469,255.91 in CO_2 emissions annually for San Diego
- Great uncertainty is present in considering the value of other climate projects
- Metrics: projected impact on reducing emissions, the total time to complete the project, the projected investment require

6 CONCLUSION

By addressing accessibility and access on a communal level, “Equal Access Charging” will alleviate issues with charging, improve general adoption rate of EVs, and would help push San Diego towards cleaner energy usage and transportation

CITATIONS

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