

DOCKETED

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CEC EV Infrastructure Merit Review Workshop



REDWOOD COAST
Energy Authority

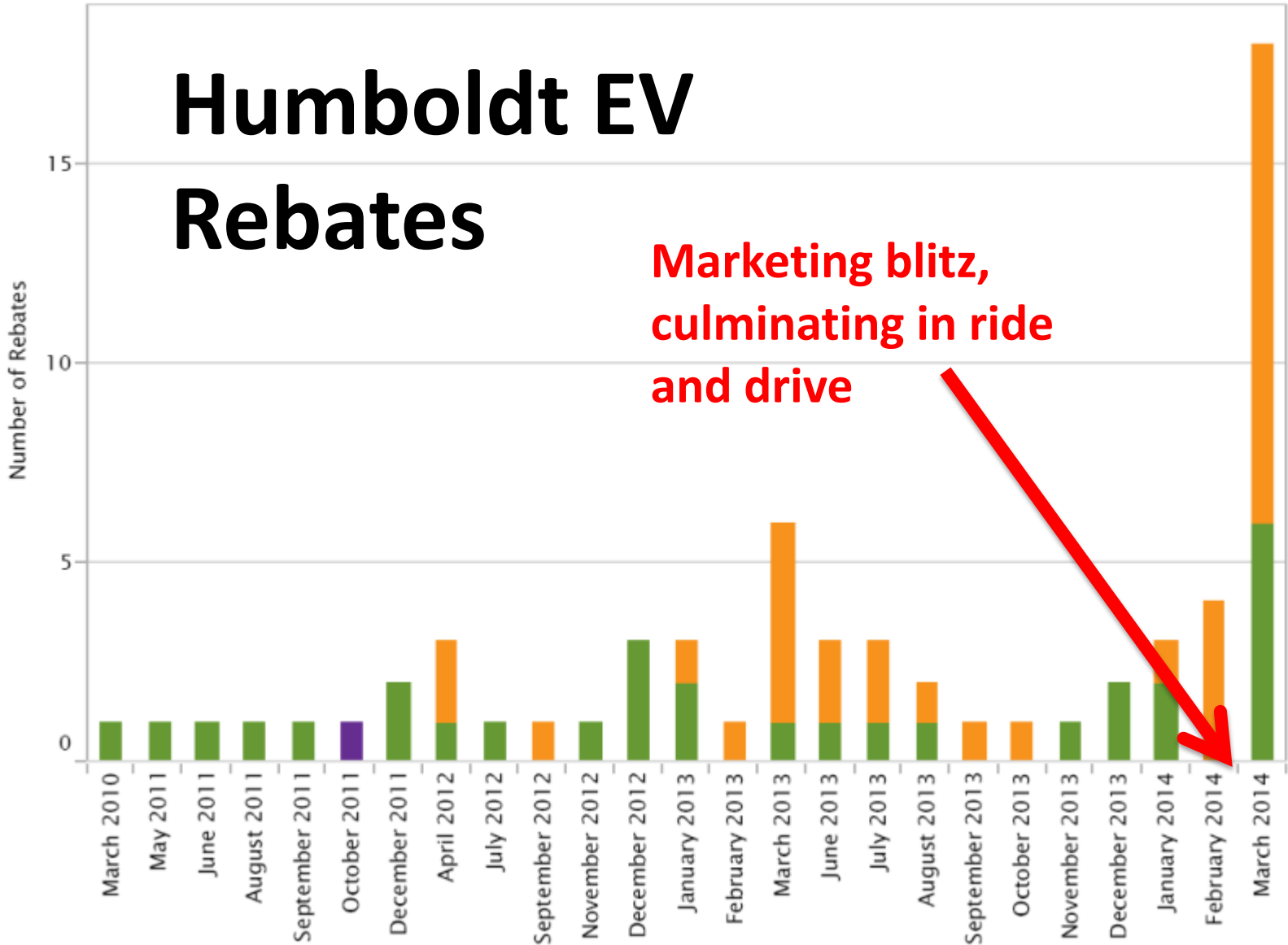
1. Progress so far
2. Key ingredients to success
3. Lessons learned
4. Continuing and replicating success



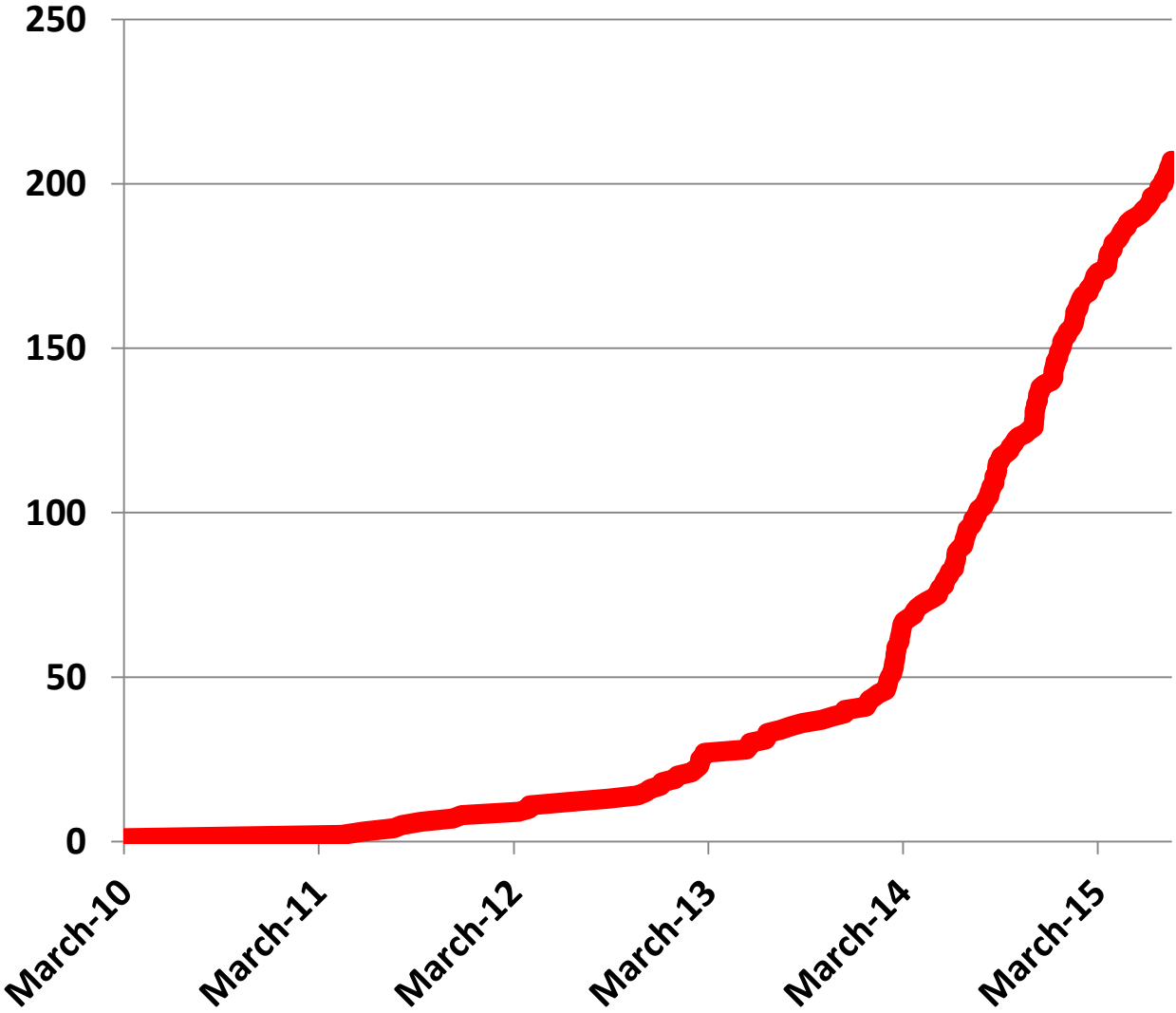
1. Progress So Far



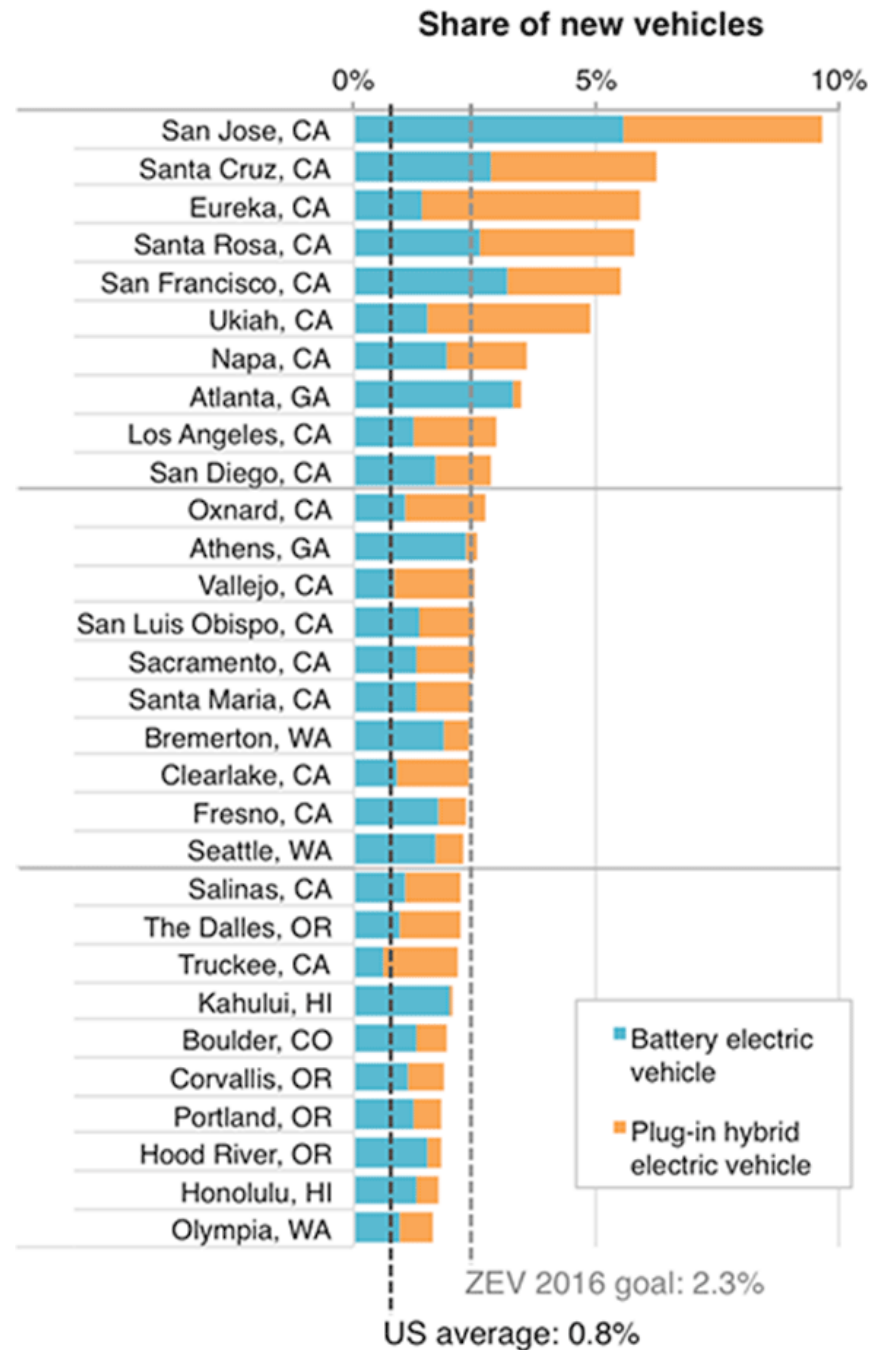
Humboldt EV Rebates



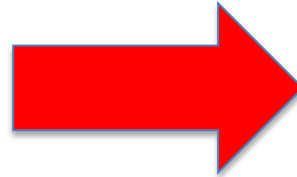
Humboldt County electric vehicle sales



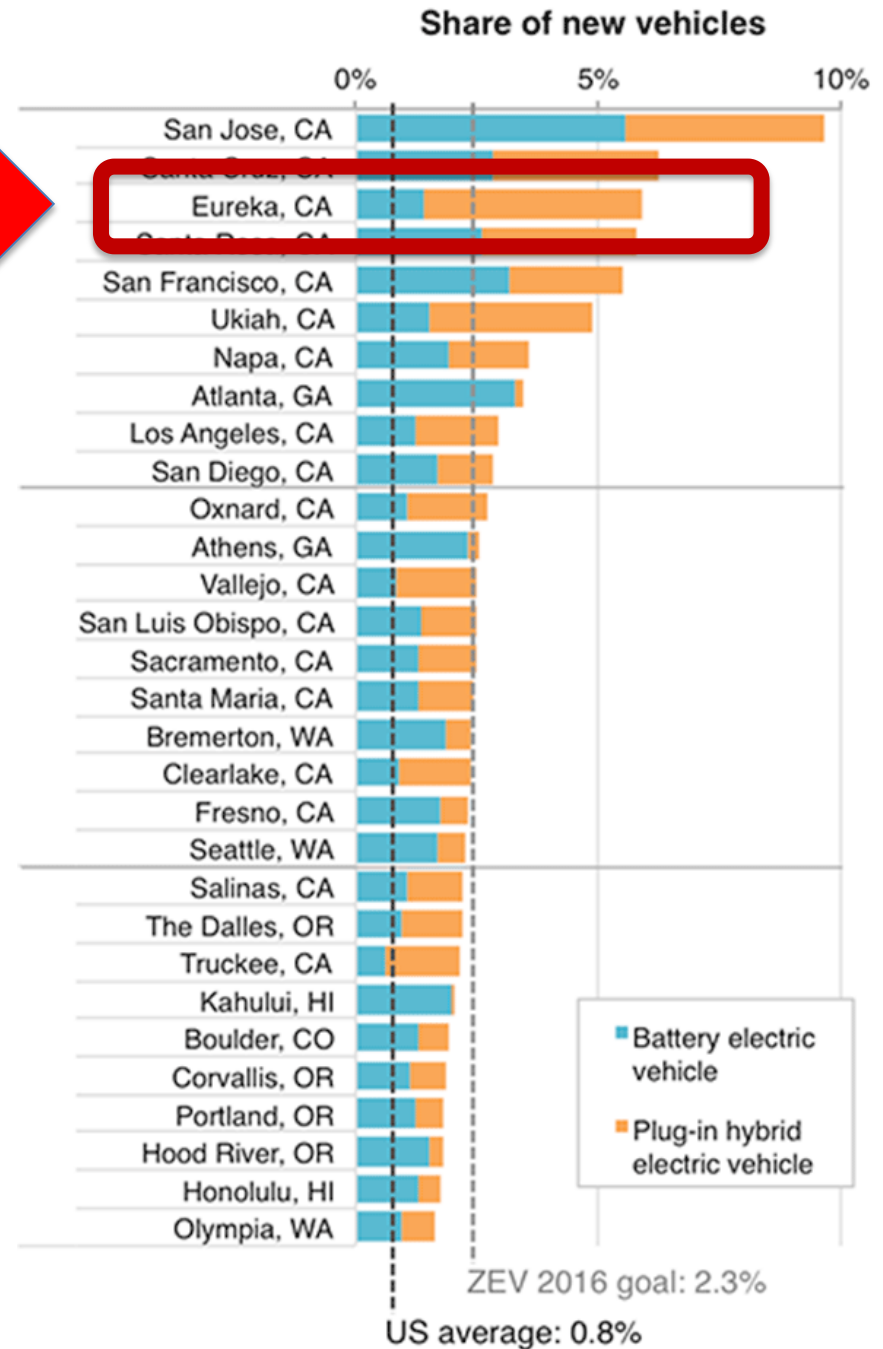
Share of new vehicle sales



Humboldt is #3 in the United States



Share of new vehicle sales



2. Keys to Success

- CEC funding (!!)
- Local leadership & capacity
- Robust planning effort....
...followed by comprehensive implementation
- Community values



Funding & Capacity



- Readiness planning grant
- Infrastructure deployment grant
- Readiness implementation grant

Core North Coast team (also with much support):



REDWOOD COAST
EnergyAuthority



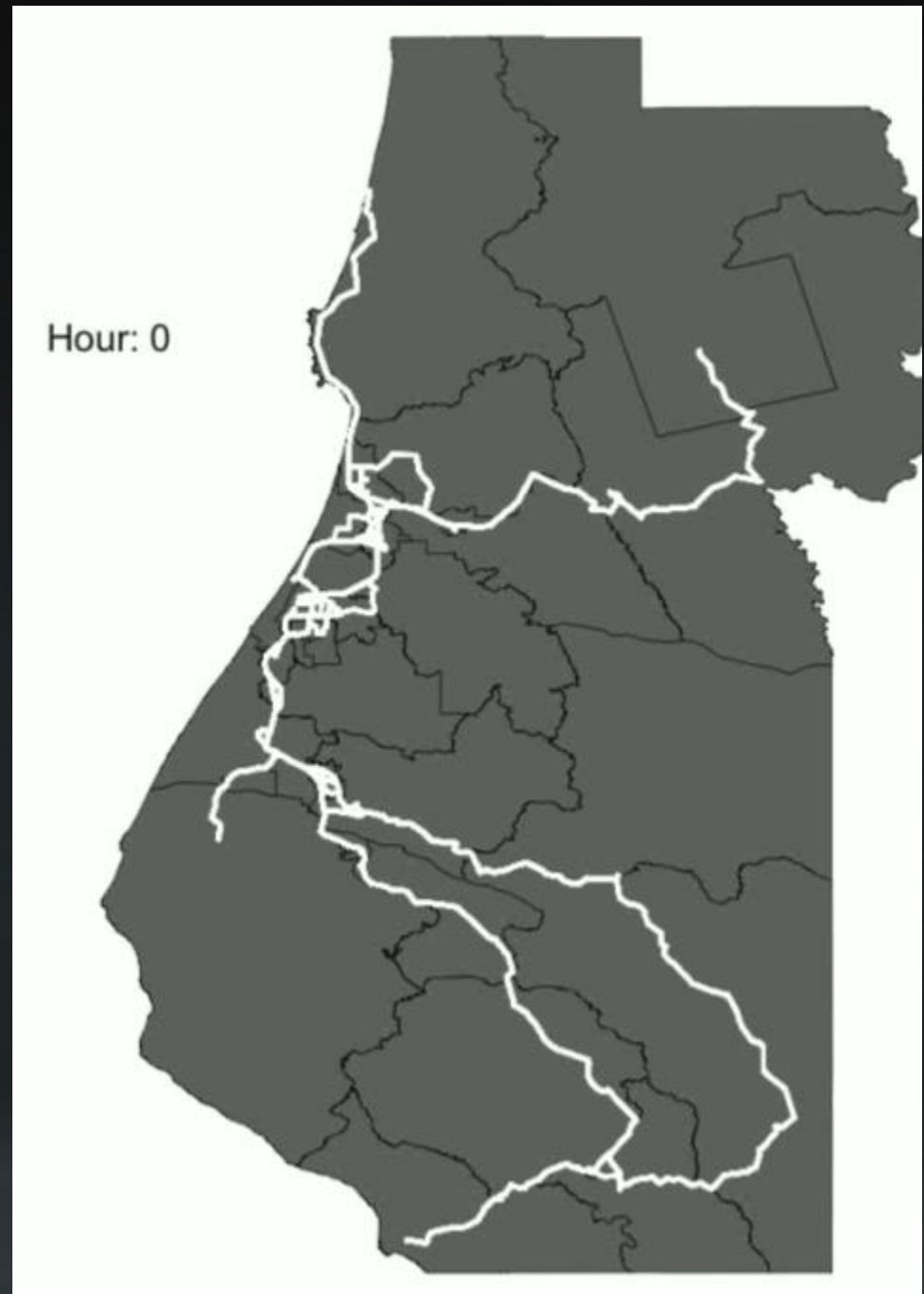
Schatz Energy Research Center

SERC

Charging Infrastructure Plan

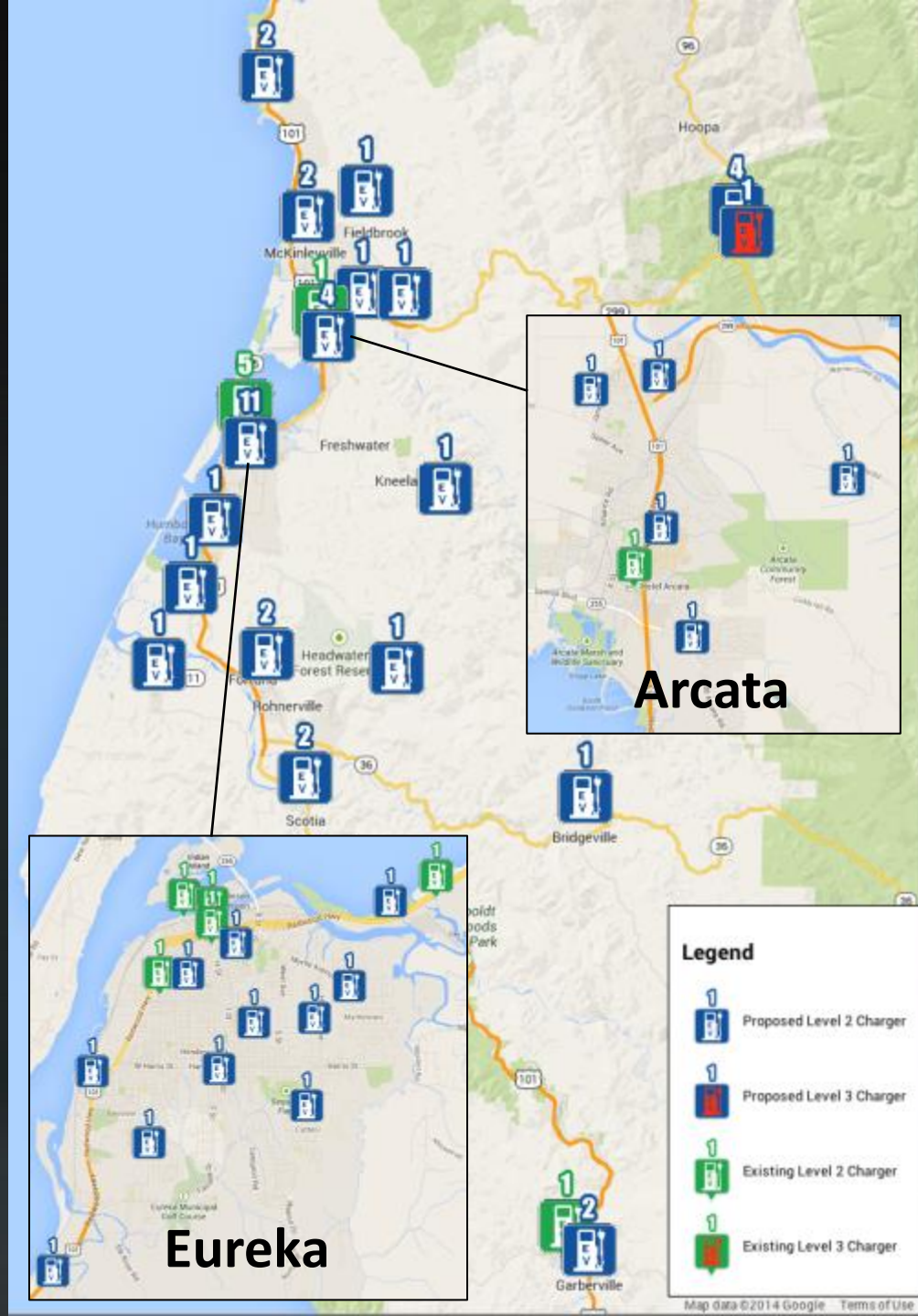
- Created agent-based simulation model
- Sited chargers to minimize delay of simulated drivers

- Public Charging Event
- Private Charging Event
- ◇ Driver Delay Due to Unavailable Charger

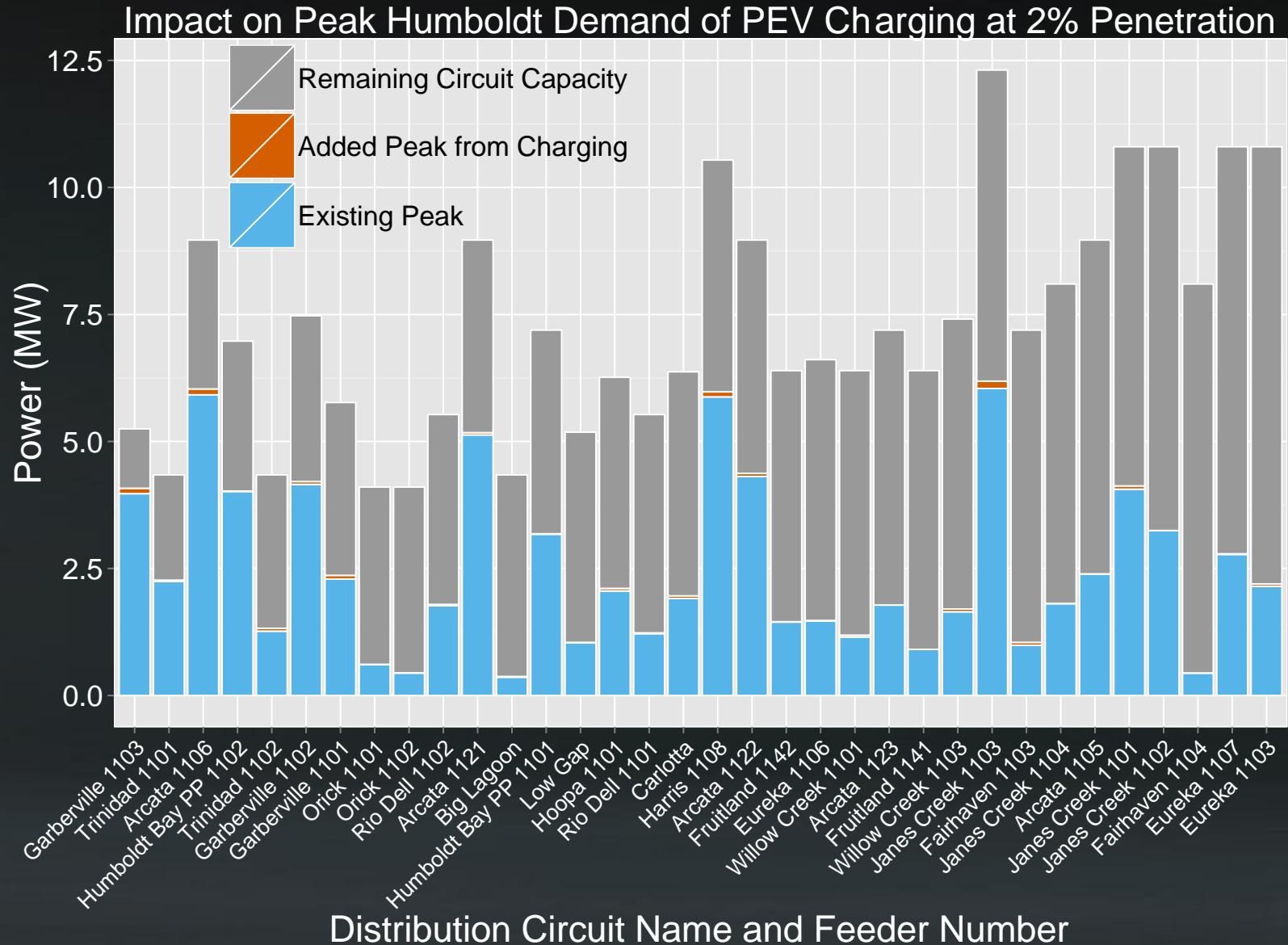


Charging Infrastructure Plan

~60 public chargers are sufficient to support ~3,000 drivers (2% penetration)



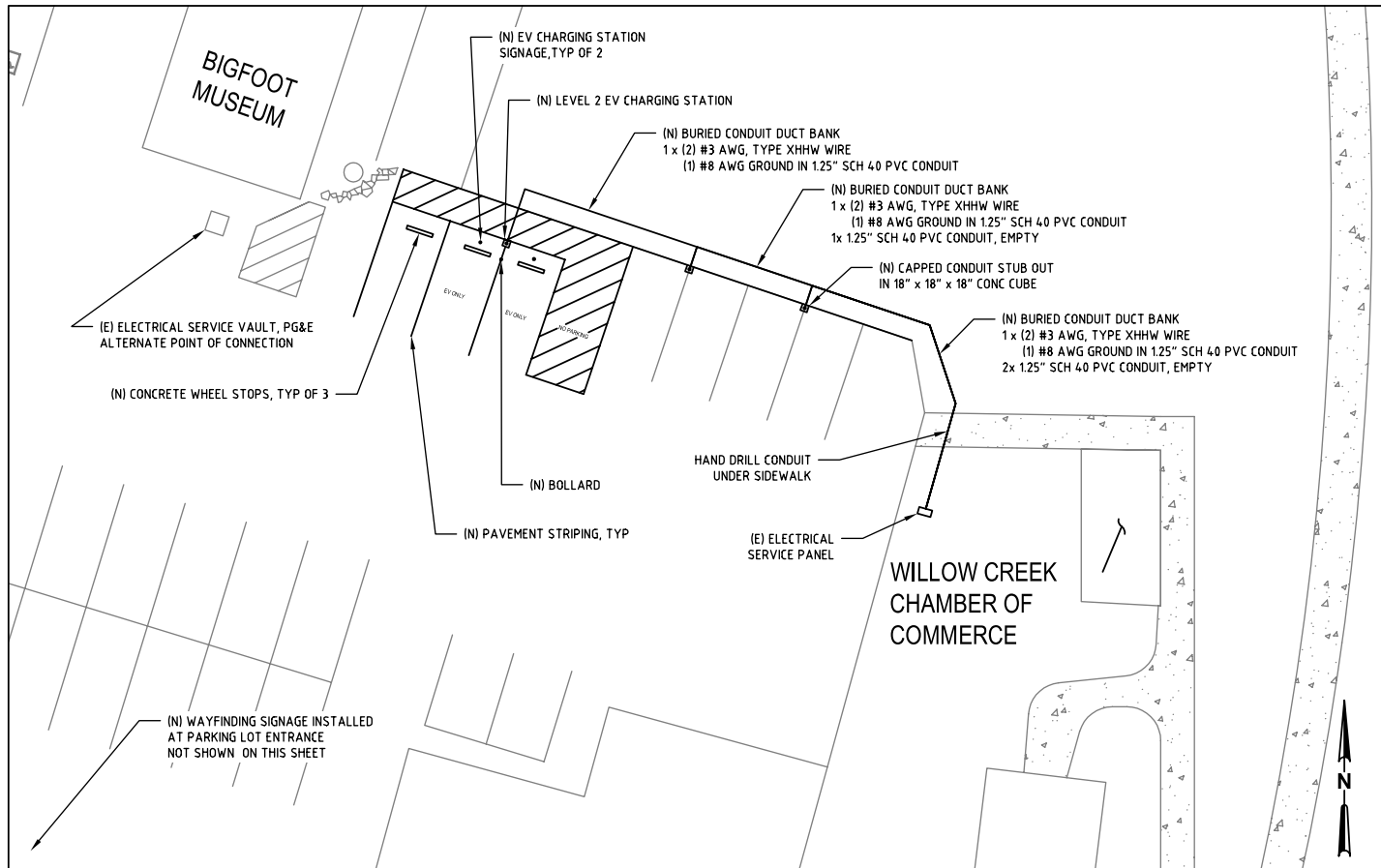
Distribution infrastructure assessment



Micro-siting Analysis



Preliminary plans for high-priority sites



WILLOW CREEK
BIGFOOT MUSEUM

NORTH COAST PEV CHARGING NETWORK
PHASE 1



Job Number
Revision 1
Date 01/28/2014

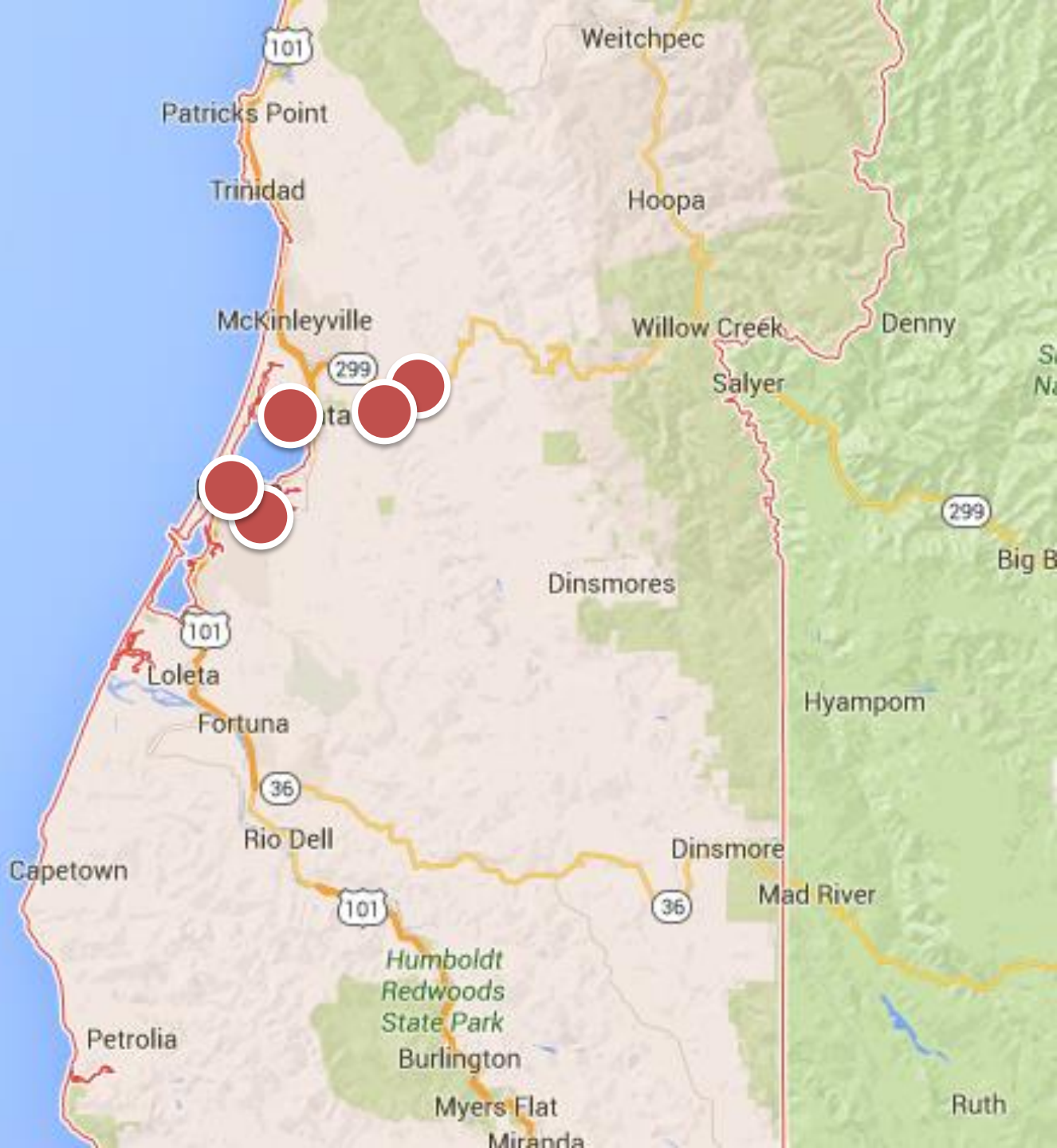
Figure 4

Publicly-owned Charging Network Business Model

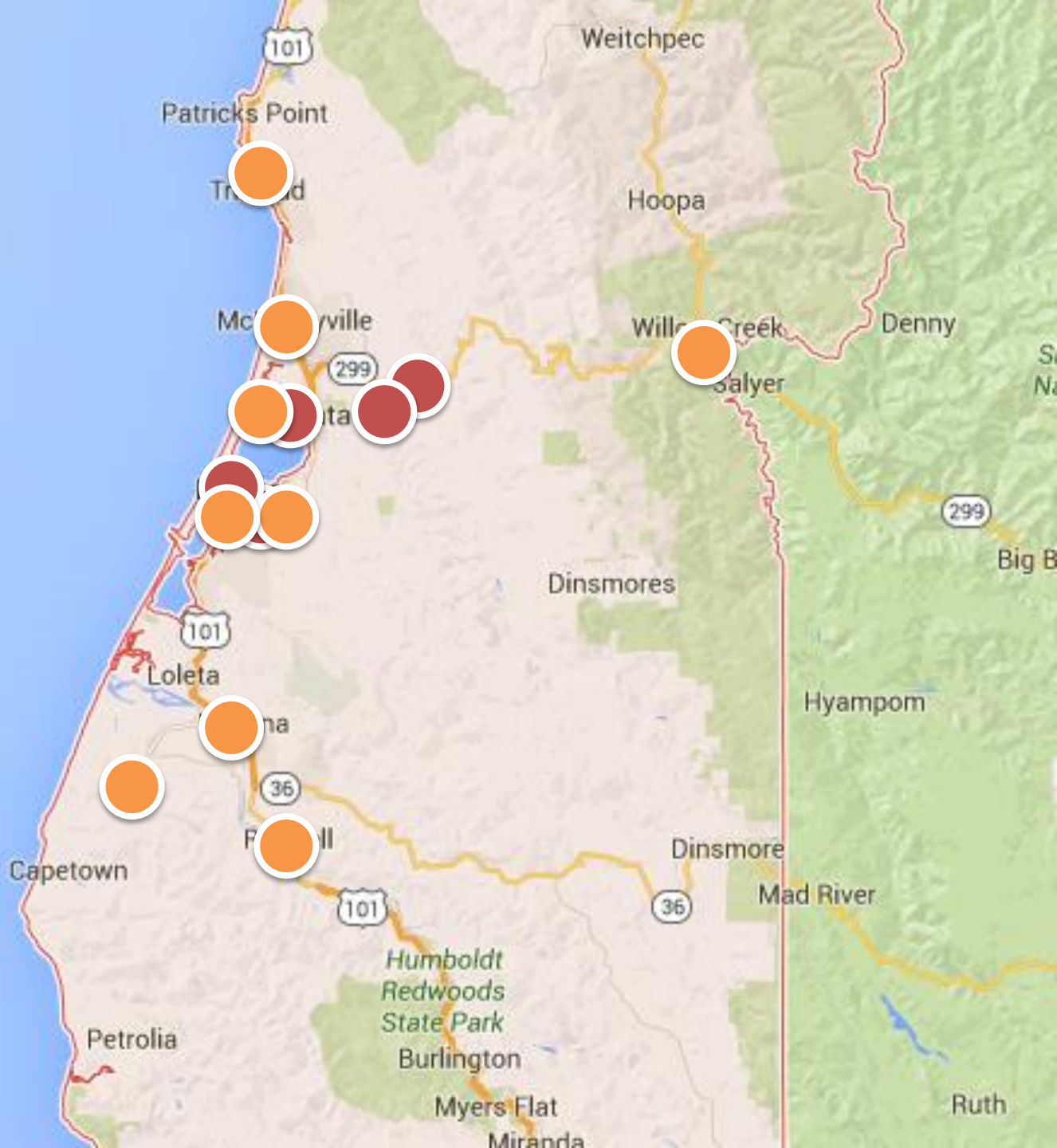
- RCEA owns and operate the charging network
- MOU's with site hosts
- Chargers sited to reduce range anxiety, not just generate revenues
- Economy of scale for operation, maintenance, and administrative costs



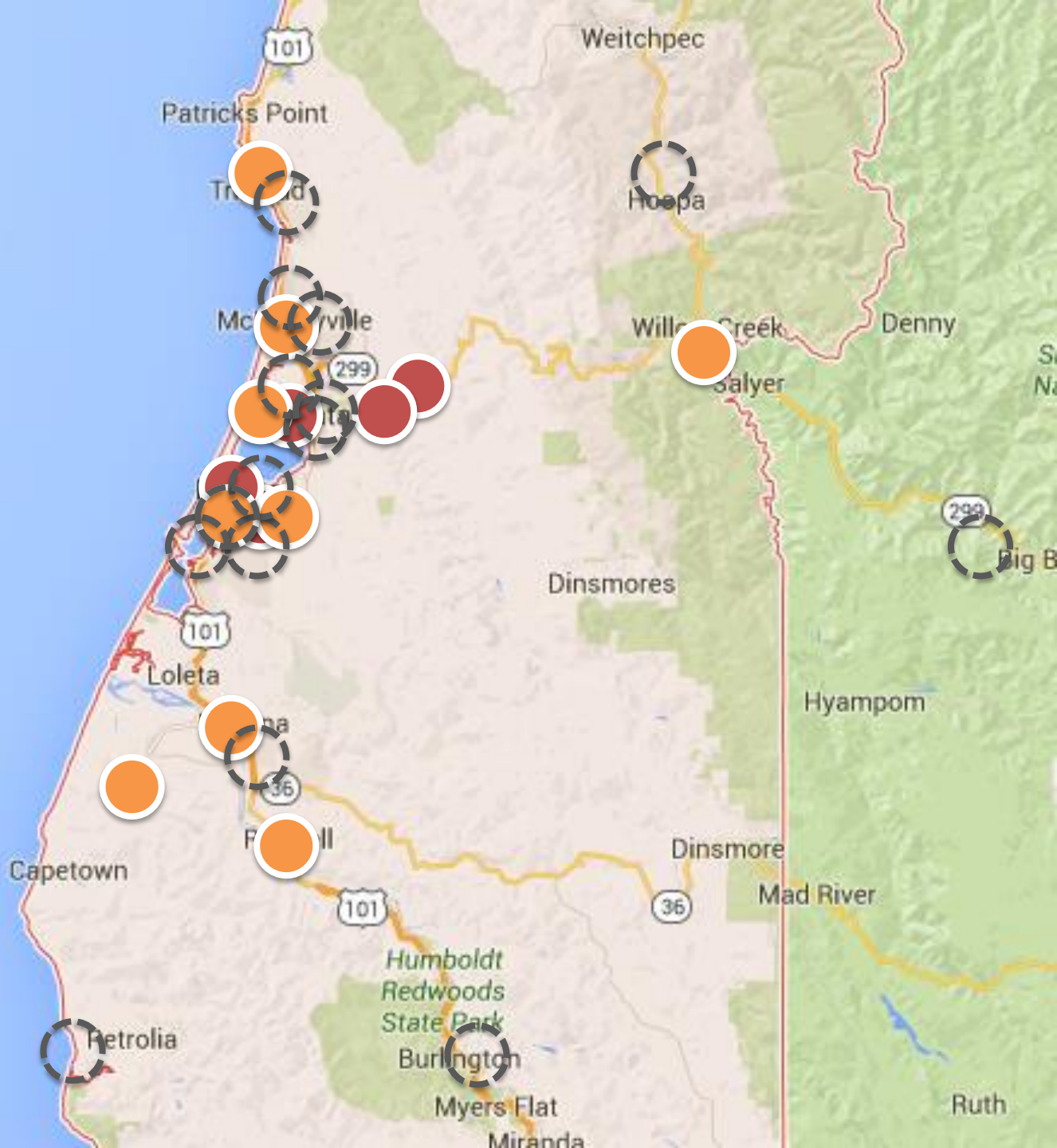
Redwood Coast Energy Authority Charging Network



Redwood Coast Energy Authority Charging Network



Redwood Coast Energy Authority Charging Network



3. Lessons Learned & Challenges

- Coverage-based build out in low-density area increases costs
- Rural infrastructure challenges
- High costs and lower usage -- early-stage business case is shaky





**Coverage-based build
out in low-density area
= higher per-port cost**

Accessible Electric Vehicle Charging Stations

This guide applies to Electric Vehicle Charging Stations (EVCS) that will be installed in existing parking lots.



Photo by the Town of Danville, California

EV drivers with disabilities need to have access to EVCS, but the best way to ensure this access is still evolving. Changes to the 2016 edition of the California Building Code include requirements for accessible EVCS.¹

As of January 2017, the requirements described in this fact sheet will represent California Building Code requirements regarding the installation of electric vehicle charging stations.

Design

If the EVCS will be available for use by the public, the first station needs to be accessible by EV drivers with disabilities. Code will require the first EVCS to be installed at a "van accessible" space. While this first space is designed to be van accessible, it is available for use by all EV drivers and not placarded for exclusive use by disabled EV drivers.² Installation of an EVCS at an existing ADA parking space will not satisfy this requirement.³

- Van accessible requirements as shown in

Figure 1:

- 216 inches long minimum
- 144 inches wide minimum
- Adjacent to an access aisle on the passenger's side.
- The access aisle is at least 60 inches wide.

- The access aisle for the EVCS space can be shared with another accessible parking space.

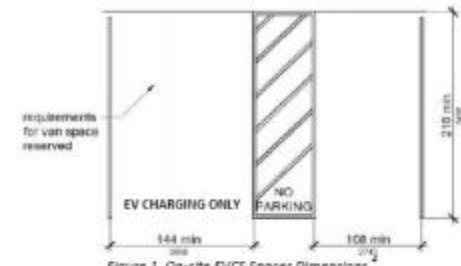


Figure 1. On-site EVCS Spaces Dimensions.

- Access aisles must be on the same level as the EVCS space with no more than a 1:48 slope in any direction.
- An accessible route needs to be provided between the EVCS space and the EV Service Equipment.⁴

¹ See the 2016 CBC proposed changes at: www.documents.dgs.ca.gov/dsa/access/2016-Pt2_Final-Express-Terms_12-22-15.pdf

² When less than five EVCS are installed. When five or more are installed, the van accessible space becomes ADA exclusive. 11B-S12.8.2 pg. 76 of the proposed changes to the 2016 CBC, found here: www.documents.dgs.ca.gov/dsa/access/2016-Pt2_Final-Express-Terms_12-22-15.pdf

³ This is DSA's interpretation of the proposed code as provided by Dennis Corelis, Deputy State Architect: California Department of General Services, Division of the State Architect. Personal email communication, February 4th, 2016.

⁴ PEVs: Universal Charging Access, Pg 9. www.opr.ca.gov/docs/PEV_Access_Guidelines.pdf

Cost-effectiveness
and accessibility
requirements for
small sites
challenging

Rural Infrastructure Challenges

- Outdated parking areas
- Copper theft
- Cellular network coverage
- Panel capacity on older structures



**High costs and lower usage
= early-stage business case is shaky
= CEC support is critical**



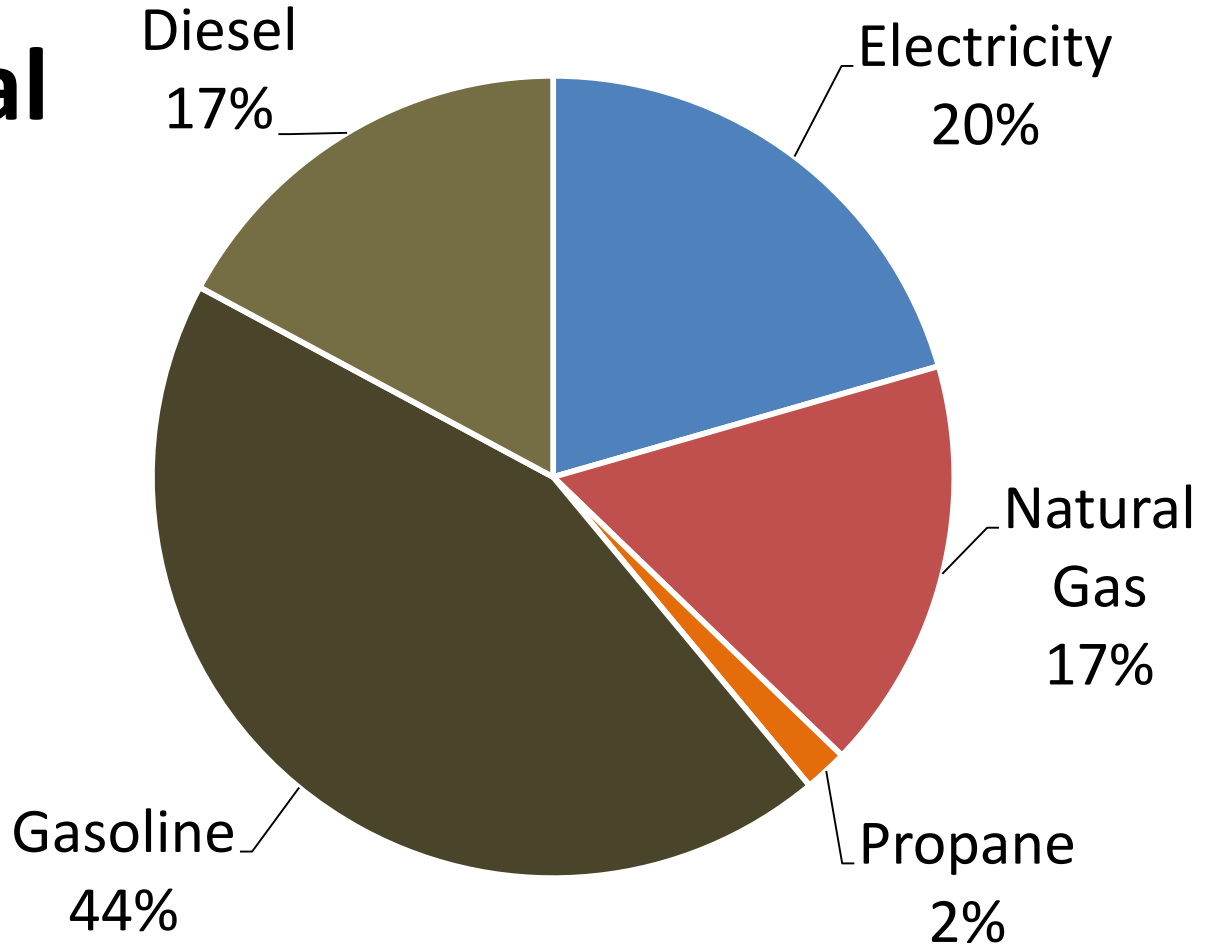
4. Continuing & Replicating Success

- EV are a key sustainable transportation strategy in rural communities
- The opportunity exists, it just needs to be catalyzed



Northern CA Regional GHG Emissions

**EVs are critical
for GHG
reduction in
rural
communities**





Thank You

