



**CALIFORNIA  
ENERGY COMMISSION**



California Energy Commission  
Clean Transportation Program

## **FINAL PROJECT REPORT**

# **North Coast Plug-In Electric Vehicle Readiness Plan Implementation: Phase 2**

**Prepared for: California Energy Commission**

**Prepared by: Redwood Coast Energy Authority**

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# California Energy Commission

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Project partners:

- City of Arcata
- City of Eureka
- City of Fortuna
- City of Rio Dell
- County of Humboldt
- Humboldt County Office of Education
- Humboldt State University

## PREFACE

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007) created the Clean Transportation Program. The statute authorizes the California Energy Commission (CEC) to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change policies. Assembly Bill 8 (Perea, Chapter 401, Statutes of 2013) reauthorizes the Clean Transportation Program through January 1, 2024, and specifies that the CEC allocate up to \$20 million per year (or up to 20 percent of each fiscal year's funds) in funding for hydrogen station development until at least 100 stations are operational.

The Clean Transportation Program has an annual budget of about \$100 million and provides financial support for projects that:

- Reduce California's use and dependence on petroleum transportation fuels and increase the use of alternative and renewable fuels and advanced vehicle technologies.
- Produce sustainable alternative and renewable low-carbon fuels in California.
- Expand alternative fueling infrastructure and fueling stations.
- Improve the efficiency, performance, and market viability of alternative light-, medium-, and heavy-duty vehicle technologies.
- Retrofit medium- and heavy-duty on-road and nonroad vehicle fleets to alternative technologies or fuel use.
- Expand the alternative fueling infrastructure available to existing fleets, public transit, and transportation corridors.
- Establish workforce-training programs and conduct public outreach on the benefits of alternative transportation fuels and vehicle technologies.

To be eligible for funding under the Clean Transportation Program, a project must be consistent with the CEC's annual Clean Transportation Program Investment Plan Update. The CEC issued GFO-16-601 to fund grant projects that support new and existing planning efforts for plug-in electric vehicles and fuel-cell electric vehicles. In response to ARV-16-012, the recipient submitted an application that was proposed for funding in the CEC's notice of proposed awards March 8, 2017, and the agreement was executed as ARV-16-021 on March 24, 2017.

# ABSTRACT

The *North Coast Plug-In Electric Vehicle (PEV) Readiness Plan Implementation Phase 2* carried out core elements of the North Coast Plug-In Electric Vehicle Readiness Plan in Humboldt, Del Norte, and Trinity Counties. Key tasks were to campaign for zero-emission vehicle awareness, engage with the County-Wide 2040 Climate Action Plan, develop a group buy program plan, consult for fleets and public officials, consult for fuel station site hosts, form and lead a Zero-Emission Vehicle Enthusiast Group, update the current Electric Vehicle Charger Selection Guide, and educate dealers about zero-emission vehicles.

The Redwood Coast Energy Authority project team successfully executed these key tasks. The team communicated the benefits of plug-in electric vehicles to a wide audience through a variety of outreach methods. Substantial contributions to the Humboldt County 2040 Climate Action Plan were made across a series of sectors, including low-carbon transportation. The project team conducted fleet analyses for a variety of stakeholders that were not previously engaged in Redwood Coast Energy Authorities' transportation program. The Redwood Coast Energy Authority provided technical assistance and shared best practices with local and state-wide entities on topics including Low Carbon Fuel Standard credits, electric vehicle charging station Americans with Disabilities Act code challenges and approaches, infrastructure siting, and more. Local entities showed increased interest in electric vehicle charging stations, and the Redwood Coast Energy Authority met with numerous potential stakeholders to summarize funding resources and conduct site walks. The team also formed and strengthened relationships with regional dealers through a dealer education seminar and dealership toolkits, an important step toward establishing and expanding the local zero-emission vehicle market.

**Keywords:** Plug-in electric vehicles, PEV Readiness Plan, zero emission vehicles, electric vehicle charging station, permitting, fleet vehicles, Ride-and-Drives, electric vehicle infrastructure

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# TABLE OF CONTENTS

	Page
Acknowledgements .....	i
Preface.....	ii
Abstract .....	iii
Table of Contents.....	v
List of Figures .....	vi
List of Tables .....	vi
Executive Summary.....	1
CHAPTER 1: Why Is This Paper Important.....	3
1.1 Problem Statement.....	3
1.2 Goals and Objectives .....	3
1.3 Project Team.....	4
1.4 Background.....	4
CHAPTER 2: Project Activities and Results .....	7
2.1 ZEV Awareness .....	7
2.1.1 Ride-&Drives, Expos, and Tabling .....	7
2.1.2 ZEV Seminars .....	12
2.1.3 Newsletters .....	15
2.1.4. Earned Media Coverage.....	16
2.1.5 Online Presence.....	16
2.1.6 Presentations.....	18
2.1.7 PEV Fleet Assistance .....	20
2.1.8 Green Fleet Policies and Climate Action Plans.....	22
2.1.9 National Association of Fleet Administrators Sustainable Fleet Training.....	23
2.1.10 Promotion of Local Green Fleet Activities .....	23
2.2 ZEV Ombudsman.....	25
2.2.1 Educate and Expand Public Access to Resources About ZEV Use and Infrastructure	25
2.2.2 Regional Collaboration.....	26
2.2.3 ZEV Group Buy .....	27
2.2.4 Infrastructure Match Funds .....	27
2.2.5 ZEV Enthusiast Group.....	28
2.2.6 Site Host Engagement and Support.....	29
2.2.7 Updated Electric Vehicle Charger Selection Guide .....	31
2.2.8 Alternative Fuel Vehicle Education.....	32
2.2.9 Local Government Assistance.....	34
2.2.10 Dealer Education.....	34
2.2.11 Clean Cities Coalition .....	35
CHAPTER 3: Conclusions and Recommendations.....	36
3.1 Assessment of Project Success .....	36

3.1.1 Promote ZEV adoption through profile-raising campaigns. ....	36
3.1.2 Create an Ombudsman position to support assistance and liaison activities .....	37
3.2 Conclusions and Lessons Learned .....	38
3.2.1 Community Outreach and Consultations .....	38
3.2.2 Fleet Collaboration and Analysis .....	40
3.2.3 Group Buy Program.....	40
3.2.4 Funding and Incentives .....	41
3.3 Recommendations .....	42
3.3.1 Of Special Note.....	42
Glossary .....	47

## **LIST OF FIGURES**

	Page
Figure 1: EV Ride and Drive at Turtle Bay, Redding 2017 .....	8
Figure 2: Eureka Natural Foods Earth Day 2018 EV Expo, Eureka 2018.....	9
Figure 3: Hybrid and Electric Races at Samoa Drag, Samoa 2017.....	10
Figure 4: Map of Community Events.....	11
Figure 5: Sustainable Futures Speaker Series Panel Discussion, Arcata 2018.....	14
Figure 6: Meet the Driver Seminar, Arcata 2019.....	15
Figure 7: Arcata Elementary Presentation, Arcata 2018 .....	20
Figure 8: Northern Humboldt Unified School District Renewable Diesel-Powered Bus.....	24
Figure 9: Renner Petroleum Sign in Front of Humboldt Unified School District Bus .....	24

## **LIST OF TABLES**

	Page
Table 1: Grant Objectives and Outcomes.....	3
Table 2: Locations of Community Events .....	12
Table 3: RCEA Transportation Webpage Hit Counts.....	16



## EXECUTIVE SUMMARY

The North Coast Plug-In Vehicle Readiness Plan Implementation Phase 2 project sought to support and promote the continued growth of zero-emission vehicle adoption in Del Norte, Humboldt, and Trinity Counties. The project did this by continuing zero-emission vehicle outreach and assistance implemented through Solicitation ARV-14-046 in the counties of Humboldt, Del Norte, and Trinity. Specifically, the objective to support and promote zero-emission vehicle adoption growth was facilitated by implementing key tasks called for in the North Coast PEV Readiness Plan:

- Promote zero-emission vehicle adoption through public and fleet operator outreach and education campaigns.
- Conduct zero-emission vehicle education and outreach were through a variety of engagement methods, including ride-and-drive events, zero-emission vehicle expos, presentations, and social media. Specific outreach to target fleet managers was also conducted, resulting in comprehensive fleet analyses for engaged participants. Seminars and presentations engaged a new array of stakeholders including state-level leaders, lower-income populations, students, professors, public officials, governing bodies, city staff, likely adopters, and vehicle dealers. Viewership of zero-emission vehicle newsletters increased, and Redwood Coast Energy Authority increased knowledge of zero emission vehicles through television, web, and newspaper media. (See Section 2.1.4.)
- Create an ombudsman position to support assistance and liaison activities. A group buy program plan was developed that may, if funded, accelerate zero-emission vehicle adoption. The scope of zero-emission vehicle engagement broadened to include fuel cell electric vehicles (FCEVs). A variety of private and public organizations were engaged to provide detailed guidance regarding purchasing a zero-emission vehicle and installing charging stations. The project team updated and used the electric vehicle charger selection guide during consultations. The formation of the zero-emission vehicle enthusiast group lead to the creation of a zero-emission vehicle “ambassador program,” which has proven to expand Redwood Coast Energy Authority’s bandwidth to conduct electric vehicle car shows and educate the public, thanks to the dedication of community volunteers. This ambassador program will be sustained beyond the ARV-16-012 grant. Dealerships were educated about zero-emission vehicles, which is particularly valuable in rural regions with limited access to vehicle inventory, financing, and other challenges for new vehicle adoption.



# CHAPTER 1: Why Is This Paper Important

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## 1.1 Problem Statement

In July 2014, the North Coast Plug-in Electric Vehicle Coordinating Council’s North Coast PEV Readiness Plan was completed, developed by the Redwood Coast Energy Authority (RCEA) in partnership with the Schatz Energy Research Center and other regional stakeholders. The plan calls for a variety of implementation measures to encourage uptake of zero-emission vehicles (ZEVs), such as to streamline permit and inspection processes for electric vehicle charging stations, site and install EV charging stations, and conduct public outreach and education campaigns. Through ARV-14-046, the California Energy Commission (CEC) funded RCEA to implement PEV readiness plan measures. To maintain momentum gained with ARV-14-046, bridge funding was needed to support ZEV adoption efforts until RCEA’s community choice aggregation program can provide sustained financial support. The CEC grant ARV-16-012 provided the continuity funds necessary to continue RCEA’s work in bringing ZEVs to the North Coast.

## 1.2 Goals and Objectives

This project sought to continue ZEV outreach and assistance implemented through ARV-14-046 in Humboldt, Del Norte, and Trinity Counties. As the lead agency for the North Coast Plug-In Electric Vehicle Coordinating Council, RCEA is ideally positioned to support ZEV adoption.

The project objectives are listed in the following table along with quantitative outcomes against which the success of the project can be measured.

**Table 1: Grant Objectives and Outcomes**

Objective	Measurable Outcome
Promote ZEV adoption through profile raising campaigns.	Conduct at least five ride-and-drive and ZEV expo events to promote the latest ZEVs on the market Table at six or more public events Develop and deliver at least four seminars on ZEV topics Publish at least six newsletter editions Achieve at least four media spots highlighting regional ZEV activities Make at least six presentations to community organizations or fleet operators or both

Objective	Measurable Outcome
<p>Create an ombudsman position to support assistance and liaison activities.</p>	<p>Design a “group buy” of ZEVs, offering a significant discount off the manufacturer suggested retail price (with approval from the Commission agreement manager [CAM], this was revised to “design” from “organize” because of funding and time constraints)</p> <p>Provide consultation for at least six fleet managers and public officials</p> <p>Provide consultation for at least six ZEV fuel station site hosts</p> <p>Coordinate and host at least four meetings of a “ZEV Enthusiasts” group</p> <p>Update the current version of the EV charging stations guide</p> <p>Develop at least two dealer sales resources toolkits for area dealerships</p>

Source: ARV-16-012 Grant Agreement

### 1.3 Project Team

The Redwood Coast Energy Authority formed in 2003 to develop and implement sustainable energy initiatives that reduce energy demand, increase energy efficiency, and advance the use of clean, efficient, and renewable resources available in the region.

RCEA is a local government joint powers agency representing the County of Humboldt, all incorporated cities in Humboldt County, and the Humboldt Bay Municipal Water District. In addition to projects related to energy and energy efficiency, RCEA has acted as the lead agency for six Clean Transportation Program grants. In May 2016, RCEA became the community choice aggregator (CCA) for Humboldt County and since then has provided local, clean electricity to its customers. Through the CCA, RCEA continues efforts to promote transportation electrification, demand-side management integration, vehicle-to-grid, and other low-carbon vehicle initiatives.

### 1.4 Background

The North Coast PEV Readiness Plan, completed in July 2014, contained a suite of actions necessary to support the successful introduction of PEVs and the strategic development of charging infrastructure in the region. The plan, funded by the California Energy Commission, included these key components:

- Create a plug-in electric vehicle coordinating council.
- Develop an infrastructure deployment plan.
- Assess local permitting and installation requirements for electric vehicle supply equipment and development of a plan to support streamlining those processes.

- Develop a plan to accelerate PEV adoption in vehicle fleets.
- Develop an education and outreach program to promote PEV adoption in the community.

In addition to the North Coast PEV Readiness Plan, RCEA received funding from the CEC through ARV-13-029 to install 10 EV charging stations across nine locations in Humboldt County. This installation represented the first phase of the charging network defined in the PEV readiness plan, which identified 41 charging sites as the minimum number required to accommodate an anticipated penetration of 3,000 PEVs by 2025.

RCEA continues to manage, maintain, and expand this network and has modified its siting approach since the completion of the PEV readiness plan in 2014. Currently, site host enthusiasm and available funding have emerged as leading motivators for site selection, beyond the initially considered factors of location along travel corridors, visibility to the public, and ability to support long-duration parking.

The North Coast PEV Readiness Plan Implementation Phase 1, completed in June 2017, contained a suite of actions necessary to implement the PEV readiness plan. The plan was also funded by the CEC and included these key components:

- Streamline processes for the permitting and inspection of residential, commercial, and public EV charging stations.
- Develop streamlined EV charging stations installation processes and conduct detailed regional siting assessments and engagement with potential site hosts.
- Promote ZEV adoption through profile-raising campaigns and installation of directional signage for existing EV charging stations.

To increase ZEV adoption and continue the implementation of core elements of the North Coast PEV Readiness Plan, RCEA responded to the CEC's Solicitation GFO-16-601. In January 2017, RCEA was awarded funding through ARV-16-012.

RCEA is an advocate for low-carbon transportation. In addition to the projects described above, the following projects have meaningfully contributed to the success of the Implementation Phase 2 project:

- The Northwest California Alternative Fuels Readiness Plan,<sup>1</sup> which was completed in 2016 in collaboration with Schatz Energy Research Center and other regional governments.
- The North Coast and Upstate Fuel Cell Electric Vehicle Readiness Plan,<sup>2</sup> which was completed in 2019 in collaboration with Schatz Energy Research Center.

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1 Biondini, Lori (Ed.). Redwood Coast Energy Authority. 2022. [Northwest California Alternative Fuels Readiness Project](https://www.energy.ca.gov/sites/default/files/2022-01/CEC-600-2022-007.pdf). California Energy Commission, Publication Number: CEC-600-2022-007, <https://www.energy.ca.gov/sites/default/files/2022-01/CEC-600-2022-007.pdf>.

2 Boudreau, Dana. Redwood Coast Energy Authority and Schatz Energy Research Center. 2022. [North Coast and Upstate Fuel Cell Vehicle Readiness Project: Final Report](https://www.energy.ca.gov/sites/default/files/2022-01/CEC-600-2022-049.pdf). California Energy Commission. Publication Number: CEC-600-2022-049. <https://www.energy.ca.gov/sites/default/files/2022-01/CEC-600-2022-049.pdf>.

- Comprehensive Action Plan for Energy<sup>3</sup> (CAPE)
- Municipal climate action plans.

Elements of the Alternative Fuels Readiness Plan and the Fuel Cell Electric Vehicle Readiness Plan were integrated into this project.

The following chapter outlines the activities and results across Implementation Phase 2 project efforts.

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3 "[Comprehensive Action Plan for Energy](https://redwoodenergy.org/services/planning/)," Planning, Redwood Coast Energy Authority, accessed October 2, 2019, <https://redwoodenergy.org/services/planning/>.

# CHAPTER 2:

## Project Activities and Results

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### 2.1 ZEV Awareness

This task sought to promote ZEV adoption through public and fleet operator outreach and engagement campaigns.

#### 2.1.1 Ride-and-Drives, Expos, and Tabling

The central components of RCEA's overall campaign strategy — expos and test drives — have been proven to accelerate ZEV sales.<sup>4</sup> Campaign activities also sought to address barriers to consumer interest in ZEVs such as range anxiety, charging infrastructure quality and availability, environmental costs associated with battery production, affordability, limited model varieties, and general lack of awareness of ZEVs.<sup>5</sup>

RCEA event attendees had the opportunity to sit in a ZEV, test drive a ZEV, explore the unique aspects, and inquire about the cost and technology. Most events had a car dealer or EV owner present to answer questions from the public. RCEA staff members were also onsite to educate consumers about vehicle range, charging station infrastructure, incentives, and the variety of available models. These hands-on experiences have been proven to address the listed barriers by showing that battery-electric vehicles can be more fun to drive than internal-combustion-engine vehicles while tackling environmental and societal costs.

RCEA exceeded the grant requirements by organizing one Ride-and-Drive and nine EV expo events; only five ride-and-drives and expos were required. All additional expos were funded by RCEA.

- Expo, 4th of July Festival, July 2017 (Eureka, Humboldt County)
- Ride and Drive, shown in Figure 1, Turtle Bay Exploration, August 2017 (Redding, Shasta County)
- Expo, Oyster Festival, June 2018 (Arcata, Humboldt County)
- Expo, Plant Green Sustainability, October 2018 (Arcata, Humboldt County)
- Expo, Eureka Natural Foods Earth Day, April 2018 (Eureka, Humboldt County)
- Expo, 4th of July Celebration, 2018 (Crescent City, Del Norte County)
- Expo, Humboldt State University Career and Volunteer Expo, February 2019 (Arcata, Humboldt County)
- Expo, Eureka Natural Foods Earth Day, shown in Figure 2, April 2019 (Eureka, Humboldt County)

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4 "VELOZ Best.Drive.EVer. 2017 Ride and Drive Series Final Report," Charge Across Town, VELOZ, accessed October 2, 2019, [https://www.veloz.org/wp-content/uploads/2018/03/BDE-2017-FINAL-REPORT\\_r1.pdf](https://www.veloz.org/wp-content/uploads/2018/03/BDE-2017-FINAL-REPORT_r1.pdf)

5 Kurani, Kenneth S., Nicolette Caperello, and Jennifer TyreeHageman. August 2016. "New Car Buyers' Valuation of Zero-Emission Vehicles: California." UC Davis Plug-In Hybrid & Electric Vehicle Center: 99. <https://escholarship.org/uc/item/28v320rq>.

- Expo, Bayside Community Hall Alternative Transportation Fair, April 2019 (Bayside, Unincorporated Humboldt County)
- Expo, Humboldt State University Freshman Orientation Alternative Transportation Fair, August 2019 (Arcata, Humboldt County)

**Figure 1: EV Ride and Drive at Turtle Bay, Redding 2017**



**Interested buyers learn about the features of a Fiat 500e from local dealer.**

Source: Redwood Coast Energy Authority



**Figure 2: Eureka Natural Foods Earth Day 2018 EV Expo, Eureka 2018**



Source: Redwood Coast Energy Authority

RCEA exceeded the grant requirements and contributed funding to participate in 11 community (“tabling”) events during the project; only six were required by the grant. By participating in a wide range of community events, the project team was able to educate a diverse cross-section of residents about the benefits of ZEVs. The team carefully chose events for this project to reach the widest possible demographic. Participation in events that did not have a sustainability focus, like Pony Express Days in McKinleyville, initiated beneficial conversations about ZEVs with residents that had never been exposed to ZEVs. The Crescent City 4th of July event was a similar experience. The transportation team had the opportunity to answer questions and hand out educational materials to an audience that lacked prior exposure to ZEVs. Although this outreach has limited near-term impact, it helps to set the stage for future stages of electric vehicle technology adoption.

- Pony Express Days, June 2017 (McKinleyville, Unincorporated Humboldt County)
- Hybrid and Electric Races at Samoa Drag shown in Figure 3, June 2017 (Samoa, Unincorporated Humboldt County)
- Oyster Festival, June 2017 (Arcata, Humboldt County)

- Fish Festival, June 2017 (Trinidad, Humboldt County)
- Samoa Social Club RCEA Open House, March 2018 (Samoa, Unincorporated Humboldt County)
- Plaza Grill View Room RCEA Open House, March 2018 (Arcata, Humboldt County)
- North Country Fair, September 2018 (Arcata, Humboldt County)
- Sequoia Park Zoo RCEA Sponsored Free Day, October 2018 (Eureka, Humboldt County)
- Unitarian Fellowship Climate Action Event, March 2019 (Bayside, Unincorporated Humboldt County)
- 4th of July Festival, July 2019 (Eureka, Humboldt County)
- North Country Fair, September 2019 (Arcata, Humboldt County)

The following materials were distributed:

- ZEV Incentives Sheet
- ZEV Cost Comparison Sheet
- Clean Cities Vehicle Buyer's Guide
- Map of public electric vehicle charging stations
- Map of upcoming DC Fast Charging Stations
- Recent versions of RCEA's ZEV newsletter
- Information on CEC-funded alternative fuels projects in the region
- RCEA promotional items, like pens and stickers
- *Electric Car Insider Buyer's Guide*

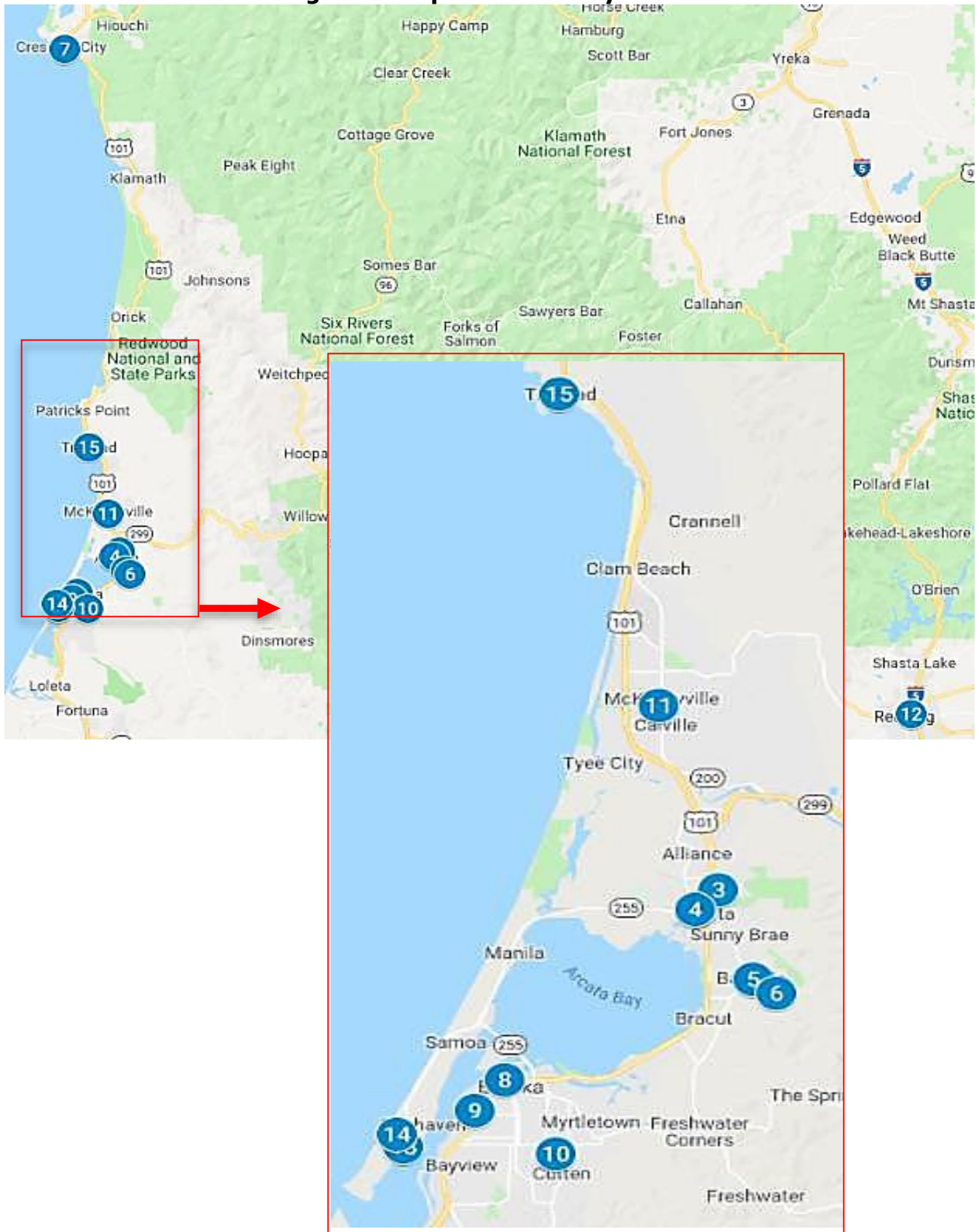
Upcoming community events are shown in the map depicted in Figure 4, as well as listed in Table 2.

**Figure 3: Hybrid and Electric Races at Samoa Drag, Samoa 2017**



Source: Redwood Coast Energy Authority

**Figure 4: Map of Community Events**



Source: Google Maps



**Table 2: Locations of Community Events**

Map Number	Location Name	# of Events
1	Arcata Main Street, Arcata	2
2	Arcata Plaza, Arcata	3
3	Humboldt State University, Arcata	2
4	Plaza Grill, Arcata	1
5	Bayside Community Hall, Bayside	1
6	Unitarian Fellowship, Bayside	1
7	Beachfront Park, Crescent City	1
8	2 <sup>nd</sup> Street, Eureka	2
9	Eureka Natural Foods, Eureka	2
10	Sequoia Park Zoo, Eureka	1
11	Central Ave, McKinleyville	1
12	Turtle Bay Exploration Park, Redding	1
13	Humboldt Bay Social Club, Samoa	1
14	Samoa Drag Strip, Samoa	1
15	Trinity Street, Trinidad	1

Source: Google Maps, adapted by the Redwood Coast Energy Authority

### 2.1.2 ZEV Seminars

The project team completed four seminars educating the local community on ZEV topics related to sustainability, economics, and career opportunities. The completed seminars were developed to encourage the adoption and acceptance of advanced vehicle technology.

Seminars included:

- Humboldt State University Career in Sciences Panel, February 2018 (Arcata)
  - RCEA staff educated college students about current ZEV technology and career options in the field.
  - ~50 attendees
- Humboldt State University Sustainable Future Speaker Series Panel, October 2018 (Arcata)
  - Along with several other experts, RCEA staff spoke to community members, students, and professors.
  - The Sustainable Future Speaker Series Panel consisted of six experts from the ZEV field and included representatives from ChargePoint, RCEA, Schatz Energy Research Center, California Fuel Partnership, California Air Resources Board, and the Humboldt Transit Authority.

- Each panelist shared their knowledge regarding local pathways to achieving 5 million zero emission vehicles in California by 2030. RCEA specifically spoke to ways that EVs can be feasible for lower-income drivers.
- ~60 attendees
- Dealer Education Seminar, September 2019 (Eureka)
  - Adapting resources from similar Sac EV presentations,<sup>6</sup> this seminar educated the sales staff of a local dealership about ZEV technology, the customer experience, the ZEV market, charging an EV, EV savings, EV batteries, giving successful test drives, and so forth.
  - As part of these dealer education efforts, dealer toolkits were created and delivered to local dealerships. These toolkits included:
    - Map of local charging stations published by the *Humboldt Insider*.
    - EV FAQ sheet with answers to common customer questions about EVs.
    - List of rebates and incentives for EV purchasers in Humboldt County.
    - Copies of forms required to apply for various incentives.
  - Six attendees at seminar, 7 dealerships given toolkits
- Meet-the-Driver Seminar, October 2019 (Arcata)
  - A featured event as part of October Energy Awareness Month, several ZEV Enthusiast Group members joined RCEA at the Pastels on the Plaza! community event in Arcata.
  - Enthusiasts answered community member questions and EV FAQ sheets were displayed at the table to help start conversation. Figure 6 depicts RCEA staff and EV drivers answering questions from community members. This seminar sought to give the public an opportunity to learn about EVs directly from drivers.
  - ~50 attendees

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6 "[EV Dealer Training PowerPoint,](https://drive.google.com/file/d/0B_ag0VmLvQBnY052REU5eIVIMzQ/view)" Electric Vehicle Consumer & Dealer Educational Videos, Sac EV, accessed October 23, 2019, [https://drive.google.com/file/d/0B\\_ag0VmLvQBnY052REU5eIVIMzQ/view](https://drive.google.com/file/d/0B_ag0VmLvQBnY052REU5eIVIMzQ/view).

**Figure 5: Sustainable Futures Speaker Series Panel Discussion, Arcata 2018**



Source: Redwood Coast Energy Authority

**Figure 6: Meet the Driver Seminar, Arcata 2019**



Source: Redwood Coast Energy Authority

### **2.1.3 Newsletters**

RCEA distributed six newsletters to the public using the email campaign management service Mailchimp®, posting information on the RCEA website, made available in the RCEA lobby, and handing out newsletters at ZEV promotion events. Email versions of the newsletters were sent to 937 subscribers and had an open rate of 22.4 percent. Email open rates were tracked using Mailchimp’s campaign management software. Across *Implementation Phase 1* and *Phase 2* grants, 12 newsletters were received by the community. Numerous topics were included in each newsletter, with the feature articles are listed below.

- Spotlight on Megan Tolbert, Local EV Owner
- Spotlight on Sarah Goodwin, Northern Humboldt Union High School District Transportation Director
- EV Road Trip Tips
- EV FAQs
- Electric Bikes Spotlight
- Electric Vehicle Charging Station Infrastructure Update and Tips

### 2.1.4. Earned Media Coverage

During the project period, four earned media placements were achieved:

- Bicoastal Media
  - An announcement for the fleet conference scholarship was aired in August 2018 on several radio stations owned by Bicoastal Media, a company based in Humboldt County.
- KIEM-TV Channel 3 news
  - RCEA hosted ZEV Expos at the annual Eureka Natural Foods Earth Day celebration in April 2018 and April 2019. In 2018, KIEM-TV Channel 3 news interviewed staff about the benefits of driving EVs and the feasibility of purchasing a ZEV.
- KHUM 104.7 FM Freeform Radio
  - At the same 2018 Earth Day event, RCEA staff were interviewed by local radio station KHUM. Staff answered interviewer questions pertaining to the benefits and specifications of plug-in electric hybrids.
- Access Humboldt
  - Access Humboldt is a nonprofit based in Humboldt County that shares public content via TV and radio. One Access Humboldt show, aired over radio and TV, is "Community Voices."
  - Staff member Aisha Cissna was featured in an interview in October 2018. During the interview, Aisha and the host discussed the growing network of charging stations in the state and the various types of ZEV technologies, along with the consumer benefits of purchasing a ZEV.

### 2.1.5 Online Presence

RCEA maintains and continuously updates the Advanced Fuels and Transportation webpage on the agency website.

The Advanced Fuels and Transportation page is designed to provide ZEV resources online, with a focus on localized knowledge. Featured sections include updates, owning an EV, EV FAQs, local charging stations, owning a charging station, and fuel cell electric vehicles.

A breakdown of hits for each page is covered below in Table 3. RCEA’s web platform has hit counts for a one-year period and a three-year period.

**Table 3: RCEA Transportation Webpage Hit Counts**

Web Page Title	August 2018 to August 2019	August 2016 to August 2019	
	1-year total	Annual average	3-year total
Landing Page (general info)	269	120	361
Local Charging Stations	403	157	470
Owning an EV	98	39	118



<b>Web Page Title</b>	<b>August 2018 to August 2019</b>	<b>August 2016 to August 2019</b>	
Fuel Cell EV Readiness	64	26	77
Owning a Charging Station	62	28	84
EV FAQ	43	14	43
Alerts and Updates	42	31	94
FCEV Resources for Emergency First Responders	32	19	58
ZEV Enthusiasts	31	10	31

Source: California Energy Commission

Web pages in general are observing significant readership gains in the most recent year. In 2017, the RCEA website merged with a website designed to support its new Community Choice Energy program, and this changeover may have influenced readership counts. This change makes comparisons to 2016 uncertain, but they are still included here because the overall upward trend is clear.

Promotional materials offered at outreach events are also available on the RCEA web page. The following information is featured on the website:

- Upcoming ZEV events
- Types of ZEVs
- Advanced fuel options
- Owning an EV
- Regional charging station maps
- Information about and user tutorials for local charging stations
- Transportation projects in the community
- ZEV Enthusiast and Ambassador program features
- Past and present newsletters
- EV Charger Selection Guide
- ZEV Incentives
- U.S. Department of Energy’s list of 2019 ZEV models
- Pacific Gas and Electric Company (PG&E) EV rates

RCEA also maintains an active social media presence covering a variety of electrified transportation topics. Past social media posts have highlighted relevant ZEV articles, community events, and other information to encourage public interest in and excitement about ZEV technology. Social media posts also promoted the regional EV charging stations network and ZEV efforts by RCEA's partners. RCEA provided updates on the direct current (DC) fast charger network being installed by ChargePoint and Recargo, advertised the DC fast charger network map on its web page and social media, and provided information about the construction process of the network.

RCEA also posted a Facebook Live Recording of the "Electric Vehicle Purchasing 101" presentation to its transportation web page. This recording is available on Facebook and the RCEA website. As of August 2019, the video has 487 views and eight shares.

### **2.1.6 Presentations**

The project team exceeded grant requirements and completed nine presentations to promote ZEV awareness and encourage adoption. Presentations were given at the following events in and outside the region:

- PG&E/Community Choice Aggregation EV Forum, August 2017 (San Francisco)
  - At this forum, RCEA staff presented information about EV readiness planning and implementation in the region, with a focus on actions PG&E could take to increase EV adoption through infrastructure and public access improvements.
- City of Arcata Planning Commission, November 2017 (Arcata)
  - A summary of EV ADA requirements and new California Building Code requirements for EV infrastructure was provided. An audience of more than 60 individuals were present.
- Arcata Elementary School, April 2018 (Arcata)
  - Students learned about EVs and the work RCEA is doing to promote them. RCEA CivicSpark staff members are shown in Figure 7 presenting information about EVs to elementary school students.
- California Energy Commission Staff Workshop: California PEV Infrastructure Projections, May 2018 (Sacramento)
  - RCEA staff presented the method and current approach to the agency's electric vehicle infrastructure macro- and micro-siting efforts. The presentation was one of several that covered various modelling approaches, with the main discussion centering around the CEC and National Renewable Energy Laboratory's (NREL) new EV Infrastructure Projection (EVI-Pro) Tool. RCEA's presentation was distinct from the others due to its focus on solutions to rural infrastructure challenges and needs.
- EV Purchasing 101, June 2019 (Eureka)
  - Three versions of this presentation were delivered to separate groups:
    - Eureka Old Town Rotary Club
    - Eureka Kiwanis Club
    - General public at the Eureka Chamber of Commerce

- The presentation provided a pragmatic guide to those interested in leasing or purchasing an EV in the near future. Topics included available incentives, dealer tips, vehicle specifications, infrastructure locations, and greenhouse gas comparisons.
- California Energy Commission workshop on the “Clean Transportation Program Benefits Report and Successes for *2019 Integrated Energy Policy Report (IEPR)*.”
- July 2019 (Sacramento), followed by written comments.<sup>7</sup>
  - RCEA staff participated as a panelist. The workshop “solicited public comments on the Clean Transportation Program Benefits Report findings, Benefits Report methodology, funding highlights, and success stories.”
  - RCEA covered best practices and lessons learned as its transportation program continues to achieve goals centered around planning, managing, and implementing infrastructure necessary to support ZEVs, and providing information, education, and incentives to encourage the adoption of low-carbon fuel vehicles by local residents, businesses, and public agencies.
  - Highlights included the development and administration of RCEA’s transportation program, and management of RCEA’s regional EV charging stations network.
- California Energy Commission workshop on “Electric Vehicle Charging Infrastructure Permitting Workshop,” August 2019 (Sacramento)
  - RCEA staff participated as a panelist, providing a rural perspective regarding ADA compliance impacts on EV charging stations installations.
  - Staff submitted written comments to provide feedback about readiness planning and implementation, practical realities of operating a not-for-profit charging network, and considerations for future grant design to better serve people with disabilities.<sup>8</sup>

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7 Boudreau, Dana, [“Redwood Coast Energy Authority – General Comments on Workshop Topics,”](https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-IEPR-04) CEC Docket 19-IEPR-04, TN# 229186, submitted July 31, 2019.  
<https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-IEPR-04>.

8 Boudreau, Dana. [“Redwood Coast Energy Authority – EV Permitting and ADA in Rural Settings,”](https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=17-EVI-01) CEC Docket 17-EVI-01, TN# 229767, submitted September 18, 2019.  
<https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=17-EVI-01>.

**Figure 7: Arcata Elementary Presentation, Arcata 2018**



Source: Redwood Coast Energy Authority

### **2.1.7 PEV Fleet Assistance**

Under the North Coast PEV Readiness Plan Implementation Phase 2, five analyses were completed. Through Implementation Phase 1, two analyses were completed. Phase 1 analyses are indicated in italics. The project team fell short of the Implementation Phase 2 goal of six fleet analyses due to lack of response from fleet managers, despite repeated attempts at contact and distribution of fleet analysis intake forms.

- Humboldt County Office of Education (HCOE)
- Redwood Energy, a local consulting firm
- City of Rio Dell
- City of Eureka
- City of Fortuna
- County of Humboldt
- City of Arcata

These analyses determined the potential cost savings and emission reductions achievable by replacing end-of-life conventional vehicles with battery-electric vehicles or plug-in hybrid electric vehicles. The County of Humboldt represents one of the largest fleets in the region, and overall, 50 fleet vehicles were analyzed as part of these eight projects. The fleet analysis for Redwood Energy consisted of an in-depth phone conversation, while the other fleet

managers did not have time for a call and instead submitted a fleet intake form and received an informational memo from RCEA.

To conduct these fleet analyses, the project team used an Excel tool developed by Schatz Energy Research Center as part of North Coast PEV Readiness Plan. This tool, called the PEV Fleet Evaluation Tool uses a set of inputs to calculate lifetime greenhouse gas abatement and payback time on various ZEV purchases. If the PEV replacement paid for itself within 10 years of purchase, it was proposed to the organization for consideration. The PEV Fleet Evaluation Tool can customize each of the following parameters to account for each organization's unique circumstances:

- Fuel economy
- Gasoline price
- Average trip distance
- Annual mileage
- Percentage city driving
- Organization's electricity rate, including time of use
- Percentage on/off peak charging
- Manufacturer suggested retail price of ZEV replacement option(s)
- Manufacturer suggested retail price of internal combustion engine replacement option(s)
- State contract pricing
- Used ZEV pricing
- Applicable rebates, tax credits, and other incentives
- Electric vehicle supply equipment, brand, model, and capabilities
- Number of electric vehicle supply equipment units purchased
- Electric vehicle supply equipment unit design, engineering, and installation costs
- Plug-in hybrid electric vehicles and battery-electric vehicle maintenance cost factors (as function of conventional maintenance costs)
- Real discount rate

The first step in the analysis was finding interested fleet partners. A list of fleets in the region was compiled, and the project team began making phone calls. RCEA has an agency goal of electrifying all municipal fleets by 2030. Thus, preference was given to participating local municipalities, but fleets with a large number of light-duty vehicles were also engaged.

Fleets received a summary of the results following the completion of their respective fleet analyses. In some cases, RCEA provided extra support by providing charging station infrastructure siting and vehicle procurement assistance. While more budget-intensive, this additional support has been shown to make the difference between a memo that sits on the shelf and the actual purchase of an EV charging station and EV.

As a result of this additional support, HCOE purchased a charging station for its fleet. Once installed, HCOE plans to purchase one of the EVs that was recommended via the fleet analysis. The City of Rio Dell intends to purchase an e-utility truck next fiscal year.

Funds associated with this grant are limited, but should additional funding arise, RCEA hopes to use these fleet analyses to increase fleet ZEV adoption. The PEV Fleet Evaluation Tool is also available upon request to any fleet managers in the area who are interested in performing their own in-house analysis.

## **2.1 8 Green Fleet Policies and Climate Action Plans**

RCEA is working with the County of Humboldt to complete the Humboldt County 2040 Climate Action Plan (CAP). RCEA has contributed several low-carbon transportation measures to the CAP, which is scheduled for completion in December 2019.

These measures include:

- Measures that directly promote transportation electrification:
  - Install public Level 2 charging stations.
  - Install public Level 3 charging stations.
  - Install hydrogen fueling stations.
  - Promote ZEV adoption.
  - Replace consumption of petrol-diesel with renewable diesel.
  - Promote e-bike adoption.
  - Increase transit service frequency/speed.
  - Require contractors of new developments to provide 1 free transit pass for each housing unit.
- Measures that indirectly benefit ZEV adoption:
  - Install bike parking infrastructure.
  - Integrate bike transport with public transit.
  - Expand regional bike trail network.
  - Require contractors of new residential, retail, office, industrial, and mixed-use projects to build within designated zones that increase density of development.
  - Implement commute trip reduction program
  - Establish telecommuting program.
  - Increase mixed-use development
  - Implement zoning code that has block length maximums for new development, which, in turn, leads to pedestrian- and bike-friendly city design.

In parallel with, and complementary to, CAP measure development, RCEA is also completing the Comprehensive Action Plan for Energy (CAPE). This is the primary strategic planning document for RCEA. RCEA is the leading authority on energy initiatives for Humboldt County, so the CAPE serves as an integral roadmap for achieving a decarbonized future for the region. The CAPE includes a low-carbon transportation section, including:

- Reducing vehicle miles traveled (VMT)
  - Strengthening broadband infrastructure.
  - Encouraging transportation-efficient land-use planning.
  - Facilitate multimodal transportation infrastructure.

- Increasing advanced fuel vehicle adoption and fuel efficiency.
  - Electrifying transportation (through local incentives).
  - Promoting advanced, low-carbon fuels (hydrogen, biodiesel, ethanol, renewable diesel).
  - Promoting efficient driving practices (idle-reduction technology, aerodynamic retrofits, low-rolling resistance tires, exploring barge and rail).
- Expanding fueling infrastructure.
  - Developing transportation electrification infrastructure (charging stations and incentives).
  - Streamline permitting for PEV charging infrastructure.
  - Promote vehicle-to-grid connection.

The CAPE will be completed in late 2019, at which point it will be available to the public on RCEA's website.

### **2.1.9 National Association of Fleet Administrators Sustainable Fleet Training**

In October 2018, the RCEA Transportation Specialist and two fleet operators from the County of Humboldt attended a fleet conference, the NorCal Clean Technology Forum & Expo, hosted by Clean Cities Sacramento, East Bay Clean Cities, the West Coast Collaborative, and the Green Transportation Summit & Expo.

Attendees learned about low-emission and zero-emission technologies for on- and off-road vehicles, renewable diesel fleet integration, community efforts to address air quality, funding opportunities, as well as insights from policy and regulatory leaders at the state and federal levels. The experience was a success and helped strengthen the relationship between RCEA and Humboldt County's largest fleet managers. The county fleet managers expressed great appreciation for the opportunity to attend and shared that they learned a lot.

### **2.1.10 Promotion of Local Green Fleet Activities**

The City of Arcata purchased a Chevy Volt in September 2017. RCEA publicized this on its Facebook page. RCEA also showcased the Northern Humboldt Unified School District in a newsletter article that highlighted its renewable diesel bus fleet. Sarah Goodwin, transportation director for the Northern Humboldt Unified School District, smiles for a photo by one of the fleet's 30+ school buses that are fueled by renewable diesel in Figure 8. Renner Petroleum is the renewable diesel supplier for Northern Humboldt Unified School District's school bus fleet, so it was represented by the photo in Figure 9 on the RCEA Facebook page.



**Figure 8: Northern Humboldt Unified School District Renewable Diesel-Powered Bus**



Source: Redwood Coast Energy Authority

**Figure 9: Renner Petroleum Sign in Front of Humboldt Unified School District Bus**



Source: Redwood Coast Energy Authority



## **2.2 ZEV Ombudsman**

### **2.2.1 Educate and Expand Public Access to Resources About ZEV Use and Infrastructure**

RCEA engages with the public and fleet owners in several capacities. In addition to the engagement activities described in the previous section, RCEA educates the public and fleet owners through office visits, phone calls, and emails. Since October 2017, the project team has responded to more than 200 customer calls, consultation requests, and EV charging station maintenance issues.

Frequent topics of discussion with customers include:

- Charging station locations.
- Ways to pay for charging stations (downloading apps, RFID cards, and so forth).
- Driving tips to maximize battery range.
- Local availability of ZEVs at dealerships.
- Ideal charging station stops for longer road trips within and outside the North Coast region.
- Information about available ZEV incentives and how to apply for them.

RCEA has developed a variety of print and digital resources to help educate the public about ZEVs. Two of the most popular documents are the incentives sheet and the EV FAQ sheet. The incentives sheet lists examples of incentives that can offset the upfront cost of electric vehicles. The EV FAQ sheet then provided answers to popular questions about EVs.

RCEA also shares information about local charging infrastructure, including a map of Level 2 charging stations and a map of planned Level 3 charging stations. The Level 3 charging station map was initially created as an answer to frequent customer calls inquiring about the status of DC fast charger installations in the region. RCEA is not directly installing any DC fast charger stations but assumed the role of a liaison. RCEA believes keeping the public informed about incoming fast-charging infrastructure will encourage more drivers to go electric.

ChargePoint reached out to RCEA to serve as a liaison for ChargePoint's CEC-funded DC fast charger project along U.S. Highway 101. As ChargePoint communicated updates on station locations and installation dates, RCEA updated the map featured on its website. As many of the projects in the funding pipeline are being installed, not just planned, this map is becoming obsolete.

In June 2019, RCEA issued a press release regarding upcoming DC fast stations in the region and worked with EV charger manufacturers to simplify site selection.

RCEA has reviewed charging station locators that are available via phone apps and websites so they can share these resources with customers on the RCEA website. This exercise sought to ensure the locations were included on all possible locators. Several locators that were found include only proprietary stations. Given the RCEA status as a public agency and interest in accessible charging for all drivers, it will focus on promoting the locators that include stations of all brands.

### **2.2.2 Regional Collaboration**

RCEA has a history of collaborating with other counties in the region through the Northwest California Alternative Fuels Readiness Project and the North Coast and Upstate Fuel Cell Vehicle Readiness Project.

Specifically, RCEA has relationships with the following counties (listed roughly north to south):

- Del Norte
- Siskiyou
- Shasta
- Trinity
- Tehama
- Glenn
- Lake
- Mendocino

Over the grant term, RCEA has met individually and collectively with these organizations to provide education about ZEVs (new models, pricing, government mandates, incentives, and so forth) and related infrastructure (current infrastructure, upcoming infrastructure, and funding opportunities). Initial meetings took place in late November 2017 and typically lasted for one hour.

These efforts include sharing information about the progress of new charging stations in the region, sharing best practices, and advocating for support for rural regions at the state and federal levels as RCEA implement ZEV planning. Furthermore, RCEA explored opportunities for regional collaboration and educated the project partners involved on ZEVs and associated infrastructure.

On February 22, 2018, a webinar titled “North Coast and Upstate: Hydrogen Readiness Project: Train-the-Trainer Webinar” was presented about fuel cell electric vehicles to these partners.

RCEA presented at the North State Super Region (NSSR) meeting in April 2018. The NSSR is made up of regional transportation agencies from 16 counties in Northern California.<sup>9</sup> The NSSR identifies common transportation, growth, and land-use issues and formulates unified strategies that can be advocated to implementing agencies and the public. RCEA’s presentation focused on the implementation of our PEV readiness plan.

Other collaboration efforts with regional entities:

- Attended the Mendocino County ZEV Advisory Group and shared best practices.
- Presented at several EV-focused California Energy Commission workshops. (See Section 2.1.6 above for details.)
- Provided best practices and charging station utilization data to the California Public Utilities Commission to inform its policy-making for California residents who do not own private charging.

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<sup>9</sup> [North State Super Region](http://www.superregion.org/), accessed October 18, 2019, <http://www.superregion.org/>.

- Informed the California Air Resources Board white paper regarding an assessment of light-duty ZEV regional readiness planning
- Shared best practices with other community choice aggregators (CCAs) for:
  - Low Carbon Fuel Standard reporting. This engagement initiated with Sonoma Clean Power, but as of October 2019, at least six community choice aggregators participate in a subcommittee to collaborate on Low Carbon Fuel Standard topics.
  - Infrastructure siting planning and approach — Sonoma Clean Power and Valley Clean Energy.
  - Transportation electrification: the same CCA Low Carbon Fuel Standard subcommittee also collaborates on other electrification topics including EV tariffs, incentive and rebate program design, and data access and analysis.

### **2.2.3 ZEV Group Buy**

As a community choice aggregator, RCEA can use ratepayer fees to design and implement programs to benefit the ratepayers of Humboldt County. The RCEA Board of Directors has voted to dedicate \$1 million in projected revenue to design new ratepayer programs through 2022. RCEA continues to evaluate a communitywide “group buy” program to bring a greater supply of ZEVs into Humboldt County and decrease the costs of these vehicles for community members.

Given the grant budget and time constraints, it was not feasible to implement the program during the grant term. However, RCEA received approval from the commission agreement manager to complete program design and planning for a group-buy that can be implemented in the future.

Peninsula Clean Energy and Sonoma Clean Power are two other CCAs that have designed and implemented group-buy programs. Both organizations were valuable resources as RCEA drafted the group-buy program design. Sonoma Clean Power’s CCA appears to be the most comprehensive and expansive. Sonoma Clean Power funded three cycles of a group-buy program, the first cycle serving as a pilot. Sonoma Clean Power discontinued the group-buy program in 2019 after the organization determined that the program objective of accelerating the EV market had been sufficiently satisfied and ratepayer funds would be best spent on installing more public charging infrastructure. Sonoma Clean Power hopes to collaborate with the CEC to initiate a California Electric Vehicle Infrastructure Project (CALeVIP) rebate program in its service territory in the near future. RCEA is reaching similar conclusions, although options were evaluated to make ZEVs more accessible for low-income communities. These options may include increasing local used vehicle supply, developing income-qualified incentives for used vehicles, or similar mechanisms.

Other group-buy lessons learned from CCA engagement can be found in Chapter 3.

### **2.2.4 Infrastructure Match Funds**

With allocated CCA funds for transportation-related public programs, RCEA tracked EV charging station infrastructure funding opportunities during the grant duration and engaged with two programs: PG&E EV Charge Network and CALeVIP.

The PG&E EV Charge Network was announced in fall 2017. RCEA staff conducted the following activities:

- Joined the Program Advisory Council to represent rural communities and bring knowledge of RCEA's not-for-profit charging network. Staff presented characteristics of a rural setting, the benefits that a utility can bring to locations otherwise underserved by providers, and encouraged PG&E to use its ubiquitous electrical distribution network to benefit hard-to-reach markets.
- Conducted local outreach to inform and serve as a liaison for potential site hosts. Staff worked to proactively develop the local market while program criteria were developed. Rural participation became infeasible mostly based on financially driven criteria, such as a 10-port minimum per location. As a result, RCEA was unable to identify any sites before the program was fully subscribed.

In fall 2018, RCEA staff shifted its attention to the CEC's CALeVIP program:

- RCEA hosted a regional CALeVIP workshop on behalf of the CEC and the Center for Sustainable Energy on October 1, 2018. Staff provided logistics for the workshop and conducted regional promotion to the RCEA's transportation network.
- In April 2019, RCEA management authorized redirecting match funds from the previous PG&E EV Network to CALeVIP.

At the CALeVIP regional project launch in May 2019, RCEA was able to submit applications requesting \$294,000 for 13 sites before program funds were fully subscribed within 24 hours. Most applications were targeted at aging stations within RCEA's charging network, along with several new key locations with site host participation. Starting in October 2019, staff began receiving fund reservations and will conduct implementation through July 2020. Staff is also supporting the Blue Lake Rancheria with its CALeVIP application, and, following successful completion of its project, RCEA plans to support the new charging stations in its existing not-for-profit regional public charging network.

### **2.2.5 ZEV Enthusiast Group**

RCEA hosted the inaugural ZEV Enthusiast Group meeting in spring 2018. The Enthusiast Group sought to foster community awareness about ZEVs, increase the adoption of ZEVs, and support the expansion of ZEV infrastructure. Group activities included participating at outreach events, providing feedback on RCEA's ZEV program, and sharing ZEV-related resources to other residents of Humboldt County.

During the program design phase of this task, RCEA hosted an intern from Cal Poly Humboldt who developed a project plan for the Enthusiast Group. The project plan featured those involved in the project, the project description, and the problem statement.

During the grant term, RCEA hosted four Enthusiast Group meetings. At the first meeting, RCEA shared the features of the transportation program, information about state policy, and the locations of current charging station infrastructure. After priming members with this information, the group brainstormed the types of activities they wanted to tackle during their meetings.

The list of possible activities included:

- Organizing seminars/roundtable meetings (for the public, dealerships, and so forth).
- Advocating locally for EV-friendly policies (comment on general plans, attend city council meetings, submit public comment).

- Advocating/facilitating the installation of new charging stations.
- Providing information about international technological developments and innovation (for example, car-share program electrification, solar/EV charging integration).

The second meeting focused on engagement with the City of Eureka 2040 General Plan and Zoning Code Update, with a discussion on comments that could be submitted to advocate for an EV-friendly community.

The key topic of the third meeting was initiating the ZEV Ambassador Program. The ZEV Ambassador Program is distinct from the ZEV Enthusiast Group because it focuses specifically on volunteer opportunities. All members of the public were invited to the ZEV Enthusiast Group meetings, but ambassadors underwent training to become versed in RCEA resources and tools so they could share them with the general public at outreach events. Ambassadors to date have also owned EVs and thus can inform the public about EVs at community events. While CEC funding is dwindling for outreach events, these volunteers greatly increase the capacity of RCEA to educate the community about EVs.

Examples of ambassador engagement include:

- Eureka Natural Foods Earth Day 2018: Ambassadors showed a Chevrolet Bolt.
- HSU Alternative Transportation Fair 2018: Ambassadors showed a Chevrolet Bolt.
- Crescent City 4th of July Celebration 2018: Ambassadors showed a Chevrolet Bolt and a Tesla Model S.
- Bayside Community Hall Alternative Transportation Fair 2019: Ambassadors showed an e-bike and a Tesla Model S.
- Eureka Natural Foods Earth Day 2019: Ambassadors showed an e-bike and a Tesla Model S.

Ambassadors have also been featured in newsletters and other educational materials.

During the final RCEA-funded ZEV Enthusiast Group meeting, members discussed the scope of the Enthusiast Group meetings going forward and their ongoing participation with the Ambassador Program. All the meeting attendees had been trained in the Ambassador Program and were enthusiastic about continuing to work with RCEA to promote ZEVs in the community. It was decided that the Enthusiast Group and the Ambassadors would continue as separate entities, with the Enthusiast Group meeting whenever its members decided to set a date, and the Ambassadors remaining on call for assisting with RCEA events.

### **2.2.6 Site Host Engagement and Support**

As the operator of a regional not-for-profit EV charging network, RCEA is well suited to provide new and ongoing site host relationships. RCEA provided charging station consultations to more than 10 community organizations, educational institutions, private businesses, healthcare facilities, municipalities, and state agencies who were interested in installing charging stations. Some consultations were preliminary conversations, while others were in-depth analyses.

Key consultations included:

- Bayside Grange.
- California State Polytechnic University, Humboldt (Cal Poly Humboldt).

- Harbor Lanes Bowling Alley.
- Fortuna Open Door Health Clinic.
- City of Arcata Community Center.
- Philippe Lapotre Architect Firm.
- Northwood Auto Plaza.
- Humboldt County Office of Education.
- North Coast Co-Op.
- Six Rivers National Forest Eureka Office.
- Humboldt County Airport.
- Blue Lake Rancheria.

The status and outcomes of these consultations are:

- Bayside Grange: Discussed potential of site to host an EV charging station and provided a copy of RCEA's ARV-13-029 final report.
- Cal Poly Humboldt: Provided data to assist with determining pricing structure and provided information to assist with hardware and network management services selection. Information regarding ownership structures were shared at the event as well.
- Harbor Lanes Bowling Alley: Site host was seeking funding for hardware. The RCEA does not have current funding but directed the site host to potential funding programs and shared rebate/incentive information for plug-in electric vehicles.
- Fortuna Open Door Health Clinic: RCEA assisted this site with charging station hardware and network provider selection. It shared the Electric Vehicle Charger Selection Guide and offered information regarding operation and maintenance services. As a result of this assistance, Fortuna Open Door installed seven EV charging ports that are jointly managed by RCEA and the clinic.
- City of Arcata Community Center: The project team conducted a site walk at the community center to conduct a load analysis to determine the proper siting for a charging station and determine the capability of this site to host numerous charging stations in the future. RCEA is also assisting the City of Arcata with station selection, various station ownership opportunities, and reserved match funds and has helped with purchasing.
- Philippe Lapotre Architect Firm: RCEA assisted this business by doing a site walk to determine whether a public charging station would be feasible. Specifically, the agency consulted on ADA considerations using an interim ADA fact sheet developed through ARV-14-046 and determined that the parking lot would not be feasible for public charging. RCEA also helped them review alternative charging station options and directed them to potential funding sources.
- Northwood Auto Plaza: This business received a preliminary consultation and was provided with information about ADA requirements and siting best practices, as well as the EV Charger Selection Guide.
- Humboldt County Office of Education: In conjunction with its fleet analysis, HCOE was provided with a consultation for charging station purchasing and installation. As a result

of the resources provided, it purchased a charging station that, once installed, will allow a future purchase of an EV.

- North Coast Co-Op: This business received a preliminary consultation and was provided with the link to RCEA's EV Charger Selection Guide.
- Six Rivers National Forest Eureka Office: This office received a preliminary consultation and was provided with the link to RCEA's EV Charger Selection Guide.
- Blue Lake Rancheria: As of October 2019, the Blue Lake Rancheria successfully reserved CALeVIP funds for five new dual-port EV charging stations. RCEA provides operations and maintenance at two existing EV charging stations on the reservation and is collaborating with the tribe to implement its CALeVIP project and add the new chargers into the agency's existing network.
- Humboldt County Airport: RCEA is partnering on a microgrid project at the regional airport, funded through the CEC's Electric Program Investment Charge. Part of this project will be to install EV charging stations that can support EV charging during power shutoffs as an integral part of onsite solar and storage equipment and test various demand response capabilities. RCEA's existing EV charging stations at the Blue Lake Rancheria have already provided a preliminary pilot site to evaluate demand response with existing hardware and network services and prepare testing protocols for the upcoming airport microgrid.

During the recent PG&E Public Safety Power Shutoff in October 2019, RCEA EV charging stations at the Blue Lake Rancheria stayed on-line as part of its microgrid and delivered 57 kWh to EVs during the outage. RCEA plans to continue promoting and testing these pioneering steps to accelerate and integrate grid resilience and transportation electrification.

### **2.2.7 Updated Electric Vehicle Charger Selection Guide**

The *Electric Vehicle Charger Selection Guide* was created to help site hosts and others learn about, evaluate, and compare the features of EV charging. This guide was updated first in Q4 2017. The guide was distributed to:

- Siskiyou County Economic Development Council Website.
- Regional Plug-in Electric Vehicle Coordinating Council list serve
- EV 101 Workshop attendees.
- Redwood Coast Energy Authority Website.
- Local Government Commission.
- Statewide Energy Efficiency Collaborative.
- CivicSpark.
- Alliance of Regional Collaboratives for Climate Adaptation.
- EECoordinator.info.
- Center for Sustainable Energy.
- Northern California Center for Alternative Transportation Fuels and Advanced Vehicle Technologies (NorthCAT).

RCEA's second set of updates to the guide were done in Q3 of 2019. These more comprehensive revisions consisted of updating the list of hardware manufacturers and network

vendors to include new vendors and the specifications for new products, modifying specifications for previously included products as needed, and creating a new section to summarize information about providers of turnkey services and network-only services. A summary chart was also created to help readers determine at a glance which vendors might best suit their needs based on the features they offer.

To broaden access, RCEA will continue engaging with the Clean Cities Coalition to include the material in its national network.

### **2.2.8 Alternative Fuel Vehicle Education**

As a follow-up to the *Northwest California Alternative Fuels Readiness Plan*, RCEA shared information about alternative (synonymously referred to as “advanced” throughout this document) fuels with the public. The RCEA website features a graphic explaining the various advanced fuels including biodiesel, renewable diesel, ethanol, natural gas, propane, electricity, and hydrogen. RCEA’s advanced fuel promotion efforts focused primarily on renewable diesel and hydrogen. Specifically, RCEA highlighted the application of renewable diesel in a local fleet in one of the ZEV newsletters and on Facebook. RCEA has also included renewable diesel integration as a Climate Action Plan measure.

In parallel with the Implementation Phase 2 project, RCEA managed the North Coast and Upstate Fuel Cell Vehicle Readiness Project. This project included an educational campaign to increase awareness of hydrogen fuel in nine rural counties. The public did not exhibit much interest in advanced fuels outside battery-electric technology, and the RCEA surmises this is due to limited public knowledge of low-carbon fuels and associated availability. The discussion of low-carbon fuels is particularly important when addressing qualms about the lack of market-ready heavy- and medium-duty EV options. Most Humboldt County transportation emissions come from single-passenger light-duty vehicles, and the average daily distance traveled is 40 miles. For this reason, electric vehicles are an ideal focus for advanced fuel promotion efforts with the public.

Renewable diesel promotion is a priority as it addresses consumer concerns regarding the feasibility of replacing heavy-duty vehicles and medium-duty vehicles with electric vehicles. Current all-electric sport utility vehicles are still expensive and limited in model variety, so they are not an immediate option for many drivers.

Renewable diesel doesn’t fuel all medium-duty vehicles and heavy-duty vehicles; however, due to the chemical similarity to conventional diesel, it is a relatively inexpensive drop-in fuel to reduce emissions from medium-duty vehicles and heavy-duty vehicles that aren’t readily replaced with an electric model.

There are no FCEVs or hydrogen fueling stations in the project region, so the technology is not immediately available to North Coast consumers. However, the State of California recognizes FCEVs as a promising zero-emission option for medium-duty vehicles and heavy-duty vehicle replacement. Through the *Fuel Cell Vehicle Readiness Project*, RCEA and Schatz Energy Research Center identified priority locations for station installations and educated stakeholders about the technology. However, work is still needed to show community members that hydrogen is a feasible alternative fuel choice. Fleet managers in particular have not been educated as to the benefits of low-carbon fleet vehicles. The California Air Resources Board added Eureka and Redding to its list of FCEV station installs targeted for 2024, and hopefully



this addition will improve awareness of alternative fuel options in the area. Generally, RCEA has not emphasized the promotion of biodiesel, ethanol, natural gas, or propane because of an organizational focus on decarbonization. The *Northwest California Alternative Fuels Readiness Plan*<sup>10</sup> identifies a fuel portfolio to achieve Low Carbon Fuel Standard compliance. Given the lowest marginal abatement cost, battery-electric vehicles remain the top priority in the near term.

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10 [Northwest California Alternative Fuels Readiness Plan](http://schatzcenter.org/docs/2016-NWCAAltFuelPlan.pdf). Redwood Coast Energy Authority, Schatz Energy Research Center, California Energy Commission, 2016. (ARV-13-012): 23. Found at <http://schatzcenter.org/docs/2016-NWCAAltFuelPlan.pdf>.

### **2.2.9 Local Government Assistance**

In January 2017, RCEA worked with the City of Arcata to finalize and distribute the City of Arcata Permitting Guide that provides instructions to residents regarding installing charging stations at their homes. This guide was initially drafted as part of ARV-14-046 but not finalized until *Implementation Phase 2*.

RCEA conducted regulatory research to determine Low Carbon Fuel Standard credit opportunities for community choice aggregators. RCEA is collaborating with other CCAs to identify regulatory and policy pathways to better align Low Carbon Fuel Standard benefits with those agencies directly involved with purchasing low-carbon electricity and promoting ZEVs in their communities.

While the City of Arcata Planning Commission was considering a project that features 12 electric charging stations, RCEA staff presented information specific to ADA compliance and promoted electric vehicle charging infrastructure as mentioned in Section 2.1.6.

RCEA assisted the City of Eureka and City of Arcata, specifically with ADA code considerations as the jurisdictions considered purchasing EV charging stations. RCEA helped with determining site suitability for new charging stations and provided price quotes for the charging stations and necessary electrical work to install these stations. The results of these efforts are two new dual-head charging stations — one in Arcata and one in Eureka. The project team is also planning to work with other local governments to install new charging stations and upgrade currently-operating stations approaching end of life.

The California Green Building Standards Code (CALGreen) make-ready code updates were provided to the City of Eureka planning department for inclusion in its building permit guide. Prepared memos on infrastructure siting strategy and fleet analyses to the City of Eureka Energy Committee were included as well.

RCEA staff is also serving on the PG&E EV Charge Network Program Advisory Council (PAC) to promote alignment and coordination between local government and investor-owned utility EV charging station infrastructure planning and deployment within the region. Examples of RCEA goals are to reduce duplication, improve overall distribution, promote equitable access to all community sectors, achieve planning goals, and maintain a consistent and reliable driver experience.

### **2.2.10 Dealer Education**

One barrier to electric vehicle adoption is a lack of knowledge and promotion of ZEVs by car dealerships.<sup>11</sup> Paired with low consumer knowledge about ZEVs, this barrier leads to slowed market growth.<sup>12</sup>

For this reason, RCEA hosted a dealer education seminar in September 2019 at a local dealership in Eureka and developed a toolkit with helpful resources for dealers. As of August 2019, there are 28 dealerships in Humboldt County; 17 of those dealerships sell used cars

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11 Zarazua de Rubens, Gerardo, Lance Noel, and Benjamin K. Sovacool. 2018. "[Dismissive and Deceptive Car Dealerships Create Barriers to Electric Vehicle Adoption at the Point Of Sale.](https://doi.org/10.1038/s41560-018-0152-x)" *Nature Energy* 3 (2018): 501-507. <https://doi.org/10.1038/s41560-018-0152-x>.

12 Kurani, "New Car Buyer's Valuation of ZEVs," 99.

exclusively. There are six dealerships in Del Norte and Trinity Counties, with no confirmed split between used and new vehicle offerings. Seven dealerships in Humboldt County that regularly carry new electric vehicles were called and visited to gauge interest in an RCEA seminar provided on-location to cover topics related to effectively selling EVs. These dealerships were then visited a second time and provided with toolkits and another invitation to learn about EVs from an RCEA seminar. Dealers had a favorable response to the toolkit materials, especially the charging station maps, although all but one ultimately declined the offer of an RCEA seminar. Several sales managers cited issues with gathering the sales staff in one room, given their duties and varied work schedules, while others stated they already trained their employees thoroughly on EVs and thus did not require any more information.

The presentation given at the dealership synthesized resources from Plug-In America, Sonoma Clean Power, and Sac EV to discuss ZEV technology, the customer experience, the ZEV market, charging an EV, EV savings, EV batteries, and giving successful test drives, among other topics.

For dealers who declined the seminar, toolkits were delivered in-person to sales managers. The toolkit materials included:

- A large poster featuring a map of charging stations in the region.
- A list of available EV incentives and applications for said incentives.
- An EV FAQ document to assist with answering customer questions.

As EV charging station locations continue to expand, RCEA plans to update location maps roughly every six months. Distributing these posters will provide an opportunity to engage dealers periodically.

### **2.2.11 Clean Cities Coalition**

The Northwest California Alternative Fuels Readiness Project identified participation in the U.S. Department of Energy's Clean Cities Program to advance alternative fuels vehicle integration in the project region. The Clean Cities Coalition Program website states that it provides a framework for businesses and governments to work together as a coalition to enhance markets, coordinate activities, identify mutual interests, develop regional economic opportunities, and improve air quality.

On meeting with the Clean Cities Coordinator for California, it was determined that achieving Clean Cities designation is currently infeasible for the region. To successfully apply for the designation, a local coalition needs to offset at least 250,000 gallons of gas annually. RCEA staff could potentially collaborate with Caltrans and other large fleets in the region, but these collaborations will take time to develop. Initial contact was made by engaging with Caltrans during development of the Fuel Cell EV Readiness Plan, but further attempts to build a relationship by providing the local Caltrans fleet with a fleet analysis have stalled. RCEA collaborated with the Siskiyou Economic Development Council to write the *Northern California Clean Cities Coalition 2017-2020 3-year Program Plan: Application for Designation as a Clean Cities Program*.

RCEA will provide Clean Cities Coalition with the updated version of the *Electric Vehicle Charger Selection Guide* with the goal of national distribution through its network.

# CHAPTER 3:

## Conclusions and Recommendations

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### 3.1 Assessment of Project Success

The set of bullet points that follow evaluate project success based on the set of objectives and measurable outcomes described in Table 2, Section 1.2 of this report.

#### 3.1.1 Promote ZEV Adoption Through Profile-Raising Campaigns

- **Conduct at least five ride-and-drive and ZEV Expo events to promote the latest ZEVs on the market.** RCEA exceeded the grant requirements by organizing one Ride-and-Drive and nine EV Expo events. By attending such a wide array of events, the project team was able to educate a diverse cross-section of residents about the benefits of ZEVs and answer questions from community members who lacked prior exposure to ZEVs, thus increasing local interest.
- **Develop and deliver at least four seminars on ZEV topics.** The project team developed four seminars intended to encourage ZEV adoption and educate the community on ZEV-related topics. The two seminars at Cal Poly Humboldt provided students with opportunities to learn about current ZEV technology and career options in the field, as well as gain a broader understanding of California’s goals for EV adoption and pathways to achieve these goals, particularly by engaging lower-income drivers. The Meet-the-Driver seminar allowed community members to interact directly with EV drivers, asking questions to learn about the real-world benefits and costs of owning an EV. Finally, the project team conducted a “dealer education” seminar at local car dealerships, providing sales staff with information to help them better understand how EVs differ from conventional cars, improve the EV buying experience for customers, and encourage buyers to purchase electric vehicles.
- **Table at six or more public events.** As mentioned above, the project team conducted nine EV Expos, all of which included tabling at major community events, handing out information such as a ZEV incentives sheet, ZEV cost comparison sheet, Clean Cities Vehicle Buyer’s Guide, RCEA ZEV newsletters, and a map of public electric vehicle charging stations, among others.
- **Publish at least six newsletter editions.** RCEA distributed six newsletters to the public electronically through Mailchimp and on the RCEA website, as well as in hard copy at ZEV promotional events. About 937 subscribers received the email version of the newsletter. Newsletters spotlighted a local EV owner and a school district official involved in transportation, provided ZEV road trip tips and information about electric bikes, answered frequently asked questions about ZEVs, and provided a summary of the Electric Vehicle Charger Selection Guide.
- **Achieve at least four media spots highlighting regional ZEV activities.** The project team achieved four earned media placements with local news organizations including interviews with KIEM-TV Channel 3 News, local radio station KHUM, and AccessHumboldt, and an announcement on BiCoastal Media’s radio stations in the area.

- **Make at least six presentations to community organizations or fleet operators or both.** The project team exceeded grant requirements and completed nine presentations to promote ZEVs and encourage adoption. Presentations were given to students at Arcata Elementary School, community members at the City of Arcata Planning Commission meeting, Eureka Old Town Rotary Club members, Eureka Kiwanis Club members, and the public at the Eureka Chamber of Commerce. Presentations were also given at three CEC workshops, as well as at a PG&E community forum focusing on EV readiness planning and implementation in the region. These presentations served to highlight RCEA’s transportation programs and educate on EV infrastructure planning, EV purchasing, and general benefits of EVs.

### **3.1.2 Create an Ombudsman Position to Support Assistance and Liaison Activities**

- **Design a “group buy” of ZEVs, offering a significant discount off the manufacturer suggested retail price.** The RCEA Board of Directors has voted to dedicate \$1 million in revenue to design new ratepayer programs through 2022, and the project team designed a communitywide “group buy” program that could be implemented in the future using these funds. The “group buy” will bring a greater supply of ZEVs into Humboldt County and bring down prices for local community members. Given grant time and budget constraints, the “group buy” program could not be implemented, but having the program fully developed should make it easier for a “group buy” to take place in the future.
- **Provide consultation for at least six fleet managers and public officials.** RCEA completed five fleet analyses to assist fleet managers and public officials from the Humboldt County Office of Education, Redwood Energy (a local consulting firm), the City of Rio Dell, the City of Eureka, and the City of Fortuna. RCEA also provided extra support by providing charging station infrastructure siting and vehicle procurement assistance to increase the effect of the analyses. As a result of these fleet analyses and extra assistance, HCOE has purchased a charging station for its fleet and intends to purchase a recommended EV once the EV charging station is installed. The City of Rio Dell also intends to purchase an e-utility truck next fiscal year. The sixth fleet analysis was unable to be completed because of insufficient response from fleet managers.
- **Provide consultation for at least six ZEV fuel station site hosts.** RCEA provided more than 10 charging station consultations to agencies and businesses, including Cal Poly Humboldt, Harbor Lanes Bowling Alley, Fortuna Open Door Health Clinic, Bayside Grange, the City of Arcata Community Center, Philippe Lapotre Architect Firm, Northwood Auto Plaza, Humboldt County Office of Education, North Coast Co-Op, Six Rivers National Forest Eureka Office, and the Humboldt County Airport. These consultations varied in depth of study, some involving preliminary conversations and others resulting in in-depth analyses.
- **Coordinate and host at least four meetings of a “ZEV Enthusiasts” group.** The ZEV Enthusiasts group was launched in spring 2018 and since then has had four meetings focusing on fostering community awareness of ZEVs, increasing the adoption of ZEVs, and supporting the expansion of ZEV infrastructure. Group activities included participating at outreach events, providing feedback on RCEA’s ZEV program, and sharing ZEV-related resources to other Humboldt County residents. Some of the ZEV

Enthusiast group members were formally trained as ZEV Ambassadors and became well-versed in RCEA resources and tools regarding ZEVs, thereby becoming prepared to share information with the general public at outreach events. Once grant funding has ended, the ZEV Enthusiasts group will continue as an independent entity, while the ZEV Ambassadors will continue to be supported by RCEA staff and will assist with RCEA outreach at events.

- **Update the current version of the *EV Charger Selection Guide*.** The *EV Charger Selection Guide* was updated to reflect changes in vendors as well as increased availability of DC Fast Chargers from companies that had previously sold only Level 1 or Level 2 chargers. Sections were added to help customers find vendors that provide turnkey services, including permitting, electrician assistance, and charger installation. These updates allow interested EV owners to choose a charger and a vendor that work best for them and business owners to decide what type of charger will best suit their needs and the needs of their customers and staff. The charging guide now also provides updated information about network options for those interested in connecting their charging stations to various software modules to allow tracking, payment, and other features. A summary table was also created and added to the guide to allow readers to determine at a glance what vendors might work well for them based on the features they desire from their chargers.
- **Develop at least two dealer sales resources toolkits for area dealerships.** A dealer seminar took place at a local dealership and provided salespeople with information about the benefits of EVs, why customers like EVs, and how to encourage EV sales. As part of these seminars, dealer sales resources toolkits were developed and delivered to the dealership where the seminar took place and to six other local dealerships that carry EVs. These toolkits included a large map of local charging stations and several handouts generated by the project team including a list of incentives, both national and local, for ZEV drivers and an FAQ sheet listing answers to questions commonly asked about EVs by community members.

## 3.2 Conclusions and Lessons Learned

The *North Coast PEV Readiness Plan Implementation Phase 2 Project* successfully increased community awareness of ZEVs and provided community members, businesses, local governments, and other facilities with information to help them with EV purchasing as well as infrastructure development. While several projects will require continued funding and time to achieve full implementation, they created momentum for future ZEV adoption in the community.

Below is a summary of some lessons learned during the project.

### 3.2.1 Community Outreach and Consultations

- The community responded positively to ZEV Expo and Meet-the-Driver events where local EV owners could directly answer questions, address concerns, and demonstrate features of their vehicles. Local residents appreciated the opportunity to speak with people who had a comprehensive understanding of community-specific, state, and federal EV promotion programs, as well as the ways those programs interact and how they can be navigated to arrive at the most economical EV purchase.

- Attending events outside of the tri-city Humboldt Bay region, particularly events that did not have a sustainability focus, allowed for beneficial conversations with residents that had otherwise never had exposure to ZEVs. Particularly in rural communities, it's important to find venues for engaging with community members that may skip events related to ZEVs but are interested in learning about them when presented with the information in a neutral setting.
- CEC funding was vital in enabling a strong social media presence for RCEA to showcase ZEVs. Social media presence allows greater community engagement by providing customers with another opportunity to view materials without requiring them to visit the RCEA website or obtain hard copies of informational flyers in-office.
- Charging station consultations proved to be a vital service RCEA could offer to the community. By the end of the grant term, requests for consultations had almost outpaced questions about ZEV rebate programs. RCEA fills an important niche in this charging station space: RCEA staff has knowledge of most EV charging station resources that exist and can provide information about choosing stations, siting, permitting, and installation. Customer service centers for state or network programs are typically highly specific, and so customers look to RCEA to provide a comprehensive approach.
- RCEA's ADA fact sheet was passed before final regulations were adopted, although it was reviewed afterwards and found consistent with the new regulations. Two ADA specialists reviewed the fact sheet: one found it sufficient, while the other believed it needed to be more thorough. Due to the potential legal implications, and the fact that building code interpretation is legally delegated to the authority having jurisdiction (AHJ) in the place where the charging station is installed, RCEA has decided to direct those with inquiries about the code to the original text. Because the AHJ ultimately having liability for enforcement (or lack thereof) of the ADA EV charging stations code, RCEA will not give advice on code interpretation. The permitting guide published by the Governor's Office of Business and Economic Development<sup>13</sup> will be shared going forward with those wishing to gain further clarity on ADA requirements.
- In October 2019, the North Coast was affected by the largest public safety power shutoff in PG&E history. One positive outcome was the continued availability of EV charging stations operating within the Blue Lake Rancheria microgrid. This situation provided a real-world demonstration of how integrating EV charging stations into a microgrid can improve resilience with a robust low-carbon renewable energy fueling infrastructure, and how ZEVs can serve as mobile power supplies within the surrounding community. The upcoming Redwood Coast Airport Renewable Energy Microgrid project will further underscore this concept, particularly for sites that support essential community services.

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13 Eckerle, Tyson and Gia Brazil Vacin. July 2019. [Electric Vehicle Charging Station Permitting Guidebook](http://businessportal.ca.gov/wp-content/uploads/2019/07/GoBIZ-EVCharging-Guidebook.pdf). California Governor's Office of Business and Economic Development, <http://businessportal.ca.gov/wp-content/uploads/2019/07/GoBIZ-EVCharging-Guidebook.pdf>.

### **3.2.2 Fleet Collaboration and Analysis**

- Fleet analyses are a good first step for local governments interested in purchasing ZEVs, but further follow-up is required to push those purchases forward. Most small governments don't have the staff required to champion EV purchases, so having outside groups assist with charging station infrastructure siting and vehicle procurement is vital in bridging the gap between analyses and fleet vehicle replacement.
- Attempts were made to provide fleet analyses to several school districts, including Eureka City Schools and Northern Humboldt Unified School District. However, many of these rural districts rely solely on medium-duty vehicles, particularly vans, for transporting goods and food. If longer trips are necessary, light-duty vehicles are rented rather than purchased and maintained. Since there aren't any medium-duty electric vehicles that can economically be substituted for school district vans, this limits the number of local fleets that can be easily electrified in the coming years. There may be opportunities to work with auto rental agencies to support ZEV rentals in selected markets.
- The project team considered incorporating alternative fuel vehicles into the PEV Fleet tool use for fleet analyses, but, when attempted, the payback periods for such vehicles were not feasible. RCEA will continue working to bring alternative low-carbon fuels to Humboldt County, but in the short term the emphasis is to focus on vehicle electrification.
- Small fleet operators have limited time to evaluate new technologies. ZEV uptake may be accelerated by providing services such as charging station infrastructure siting, onsite electrical analysis, and vehicle procurement assistance.
- Even though several local fleets were offered the opportunity to attend the National Association of Fleet Administrators' Sustainable Fleet Training fully funded by RCEA, it was difficult to get a response from most fleet managers. It seems likely that unless there is support from senior staff or administration, fleet managers are uninterested in taking time away from their schedules to attend trainings. Developing relationships with leadership at different companies and organizations can be difficult but ultimately results in higher uptake. Board- and council-level initiatives such as a climate action plan may help motivate change within risk-averse departments or disciplines. Realistic appraisal of staff workloads and targeted funding may also be needed to avoid unfunded mandates and help teams reach beyond existing tasks.

### **3.2.3 Group Buy Program**

- For group buy programs, automobile manufacturing inventory practices may be a major barrier to accelerating ZEV adoption. Manufacturers allocate monthly vehicles through complex dealership relationships that are difficult to adjust.
- Emerging EV manufacturers, specifically Tesla, may employ disruptive sales models that threaten traditional sales channels. These sales models can cause resistance among legacy distribution networks.
- After speaking with representatives from organizations like the Electric Auto Association that have helped simplify group buy programs or short-term deep discounts for ZEVs, it appears that a group buy program might not be the most cost-effective way to bring electric vehicles to Humboldt County. Even in more highly populated counties in



California, group buys proved to only marginally increase the number of ZEVs purchased. So the high overhead costs associated with pursuing them might prevent a group buy from being a good option for a more rural area like Humboldt.

- In an economically poor region, used vehicles represent a large market share. Since electric vehicles are still in the early adoption phase, this large market share limits available inventory. One dealership in southern Oregon chose to specialize in used EVs and built up inventory from a national pool. These vehicles sold well into northern California to price-sensitive but informed buyers, and interregional shipping costs were easily offset by a high depreciation rate observed with older EVs. However, sensitivity is necessary to balance interests of local dealers with out-of-area vehicle suppliers.

### 3.2.4 Funding and Incentives

- Continuity funds are vital for ensuring that ZEV adoption efforts do not diminish in rural areas that lack the community drive found in urban centers. For example, without ongoing funding, the North Coast PEV Coordinating Council that developed the *North Coast PEV Readiness Plan* ceased operation, and although RCEA continued to coordinate with several previously involved decision-makers and stakeholders, efforts were impeded by the inability to continue council meetings.
- Local champions greatly improve program success in isolated communities. Based in Humboldt County, RCEA gained a substantial advantage in the neighboring communities of Crescent City and Trinity when community-based stakeholders were willing and available to participate. However, rural stakeholders are scarce, chronically overtasked, and often available only as consultants hired to address state-mandated activities. A “plug-in electric vehicle coordinating council” may provide a mechanism to establish and sustain an advanced transportation communication and decision network, particularly if stipends are available for underfunded agencies to engage in state-level initiatives.
- Existing incentive program design causes barriers to entry for some rural regions:
  - Communities deserve heightened funding to address environmental justice. However, it shouldn’t come at the expense of low-income communities that meet clean air attainment targets. This situation can be addressed by continuing efforts to support disadvantaged and low-income communities.
  - RCEA’s experience with the PG&E EV Charge Network program reinforces the notion that investor-driven programs emphasize profitability. This favors locations and business relationships with the highest potential rate of return. An unintentional consequence is that this increases the infrastructure gap between urban and rural settings, and large versus small businesses. A solution is to channel state-level funding into sectors most likely to be bypassed by private enterprise. This is happening to some degree through income criteria, but more could be done around population density, ADA populations, site host size, and so on.
- Traveling technical specialists, such as seen historically for municipal energy audits and pump testing, could boost technical expertise for regions lacking enough ongoing business to support local specialists.
- Numerous disruptions are forecasted in the automotive industry. A 2016 McKinsey and Company report describes four: diverse mobility, autonomous driving, electrification,

and connectivity.<sup>14</sup> The report also concludes that “sales penetration will be slower in small towns and rural areas with lower levels of charging infrastructure and higher dependency on driving range.” Historically, outdated vehicles migrate toward economically poor regions. These factors suggest that as EVs gain popularity in affluent areas with robust charging infrastructure, outdated internal combustion inventory will migrate into poor rural regions. A program similar to the 2009 Car Allowance Rebate System<sup>15</sup> may be one mechanism that counters potential economic inequity and removes high-carbon vehicle from vehicle supplies. The incentive design could tackle economic inequity issues with tiered-income qualifiers and fund enabling technology such as residential charging.

- Multiple enabling policies can indirectly accelerate ZEV vehicle and infrastructure adoption and, in some cases, may be more effective than focusing directly on ZEV concepts. For example, climate action plans and low-carbon initiatives can include measures such as infill development, multimodal transportation, bicycle corridors, safe street initiatives, and so on. These initiatives improve the overall ecosystem where electrified transportation can emerge and thrive in a community and become a preferred mode of travel.

### **3.3 Recommendations**

The following recommendations are made based on the results of this project to increase regional ZEV adoption and infrastructure development.

#### **3.3.1 Of Special Note**

During the PG&E Public Safety Power Shutoffs in fall 2019, RCEA EV charging stations at the Blue Lake Rancheria remained on-line as part of a solar plus storage microgrid and charged EVs during the outages. EV drivers quickly realized the opportunity to use the EVs as mobile power sources to assist people with critical electric requirements in their community, with the ability to indefinitely recharge at the nearby microgrid. RCEA sees this as a compelling model to combine goals of low-carbon transportation electrification, microgrids, and community resilience. To accelerate this and similar concepts, RCEA encourages the CEC to coordinate with other state agencies to develop programs that buffer communities most at risk to grid instability. For example, create a dedicated program to fund EV charging stations in all new microgrids with public access. Another option is to develop a critical-facility microgrid initiative with EV charging capacity for emergency response vehicles and community members who could be certified via a process similar to the one modeled by the Community Emergency Response Team program run by the Department of Homeland Security.<sup>16</sup>

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14 [“Automotive Revolution – Perspective Towards 2030,”](https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/disruptive-trends-that-will-transform-the-auto-industry/de-DE) McKinsey & Company, last modified January 2016, <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/disruptive-trends-that-will-transform-the-auto-industry/de-DE>.

15 Romer, Christina and Christopher Carroll. [“Did ‘Cash-for-Clunkers’ Work as Intended?”](https://obamawhitehouse.archives.gov/blog/2010/04/05/did-cash-clunkers-work-intended) Obama White House Archives, last modified April 5, 2010, <https://obamawhitehouse.archives.gov/blog/2010/04/05/did-cash-clunkers-work-intended>.

16 [“Community Emergency Response Team,”](https://www.ready.gov/cert) Get Involved, Ready.gov, accessed October 29, 2019, <https://www.ready.gov/cert>.

- Continue enhancing or promoting the allocation of community choice aggregation program funds toward ZEV-related programs such as rebates for EVs or EV charging stations, e-bike rebates, ancillary costs such as electric panel upgrades and ADA compliance, and so on. CCAs are likely to continue striving toward transportation electrification, and state programs will find this a valuable source of ongoing local match funds. Recent CALeVIP regional programs are a good demonstration of distributing state funds and securing match dollars through CCAs. Small CCAs may not have the staff or discretionary funds to engage at scale but can still reach key community decision-makers and target audiences.
- Consider a group buy program based on the plan detailed in Section 2.2.3, considering the limitations discussed in Section 3.2. The next step will be to arrange meetings with original equipment manufacturers to discuss the viability of entering into a group buy agreement for Humboldt County dealerships. In parallel, assess other opportunities in the used vehicle market to determine if these are more cost-effective avenues for rural communities.
- Encourage the organization of more ZEV expos and the inclusion of ZEV information at RCEA outreach events to continue to educate the community. As RCEA moves further into the technology adoption curve, larger volumes of less-informed consumers will need support to make the transition to ZEVs.
- Continue to support volunteer groups, such as the RCEA ZEV Ambassadors, on upcoming outreach events and invite them to attend and leverage their personal experience when it comes to owning and operating an electric vehicle to answer community questions. The ZEV Ambassadors can bridge the gap between RCEA and the public when RCEA staff time and funds are limited.
- Maintain relationships with local fleet managers and cultivate new ones as funding allows. The most effective technique for recruiting fleet partners is by phone, either cold calling or scheduling a time to speak at greater lengths. Other communication techniques are proving less successful since emails tend to get lost and people are less available for in-person visits.
- Continue to assist and engage with local municipal fleets for ZEV adoption.
- Continue to review and update documents including the EV Incentives sheet, the EV FAQ sheet, the EV Charger Selection Guide, and the Humboldt County EV Charging Stations Map to ensure that they are still current.
- Support EV charging stations installation at suitable sites through site consultations and by making resources accessible on the RCEA website for those interested in installing charging stations.
- Continue work aimed at streamlining EV charging stations permitting and improving local jurisdictions' understanding of EV charging stations-related code. Energy Commission grant ARV-14-046 focused heavily on permitting for electric vehicle charging stations, and so the work for this project placed less emphasis on that area. But in the future, it is important that the permitting and code-related efforts of both the

046 and 012 projects continue. Part of this work will involve referring interested parties to the *Electric Vehicle Charging Station Permitting Guidebook*.<sup>17</sup>

- Support continued research into the impact of EV charging stations accessibility requirements on rural EV charging stations development. RCEA recently submitted comments<sup>18</sup> to the CEC providing insight into permitting challenges for EV charging stations in rural settings, and such findings need to be developed and acted upon.
- Complete review of all-inclusive EV charging station location portals and determine which have phone applications as well as websites that can be recommended by RCEA.
- Increase public education campaigns focusing on nonelectric ZEVs as funding allows. Hydrogen, for example, has increasingly become a focus of the California state government as an alternative for natural gas-powered light-duty vehicles, but there is still strong public mistrust and misunderstanding of hydrogen-powered vehicles and hydrogen infrastructure.
- Support programming targeted specifically at youth, as they are the next generation of car consumers and providing them with opportunities to learn about ZEVs will encourage them to see ZEVs as a viable option for future purchases. Local school vocational curriculum can be an excellent avenue to inform students and establish a trained workforce.
- Consider partnering with CarMax (nearest dealership located in Santa Rosa, Sonoma County) to bring an alternative source of electric vehicles to Humboldt County. There could be some dealer pushback to bringing a competitor into the area, but it would also stimulate more dealerships to offer used electric vehicles to interested customers.
- Continue to work toward achieving Clean Cities Designation by partnering with large fleets in the area and growing RCEA's Community Choice Energy program to offset larger amounts of gas annually.
- Consider designating funds to assist small businesses with the proportionately higher overhead to meet ADA compliance requirements. For example, establish incentive tiers based on parking space count or lot size.
- Continue to identify and standardize generic processes and tools for rebates, approvals, permitting, and implementation. Focus first on government-imposed requirements. For example, certify technology through the California General Services Administration, or have suppliers offer bulk discounts on specified configurations to gain economy of scale.
- Explicitly fund new technology risk through government channels. An example of this lesson is the initial biodiesel rollout, where storage facilities bore the cost of expensive tank leakage and repairs resulting from fuel distribution practices and cross-contamination. Selected fuel distribution and storage participants are now averse to other state initiatives. This early adoption risk can be partially addressed through information clearinghouses, certification, and standards.

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17 Eckerle, Tyson. [Permitting Guidebook](https://businessportal.ca.gov/wp-content/uploads/2019/07/GoBIZ-EVCharging-Guidebook.pdf). Found at <https://businessportal.ca.gov/wp-content/uploads/2019/07/GoBIZ-EVCharging-Guidebook.pdf>.

18 Boudreau, "EV permitting and ADA."

- RCEA’s goal is to emphasize persistent, reliable locations to support a confident, active community of EV drivers. Without maintenance funds, heightened levels of attrition and driver frustration are foreseeable, so reliable operating funds are important. An initiative like the Department of Energy’s SunShot program, which sought to reduce solar installation costs, could be designed to help drive down not only installation, but routine operation and maintenance costs.
- CALeVIP looks to be a promising mechanism to accelerate regional funding deployment, but care must be taken so that state-level funding doesn’t get siloed into specific sectors, such as hotels, where electric vehicle supply equipment may become more of an amenity rather than a public asset. One potential solution is to explicitly designate funds for public-sector projects.
- To reach disadvantaged communities in clean environments, continue to support low-income qualifiers along with CalEnviroScreen.
- Design state EV charging stations funding models so that communities with the highest ADA populations receive a proportionate share of funds. The National Institute on Disability, Independent Living, and Rehabilitation Research provides county-level disability statistics.<sup>19</sup> An August 2019 Humboldt County report<sup>20</sup> indicates that 70 percent of people can’t afford median-priced houses in Humboldt County. By correlation, people with disabilities will have a higher need for public, multifamily, and workplace charging given limited access to home charging.
- Support access to a state data clearinghouse, particularly for vehicle registration and vehicle miles traveled, to lower program evaluation and monitoring costs and allow more universal regional tracking. More granular data will better improve targeted activities to influence and place stations where they best mirror EV ownership patterns.
- Credit card payment systems, while ubiquitous, come with layers of recurring fees. Look for opportunities to support emerging digital mobility payment systems that can reduce payment transaction costs.
- Encourage EV charging station manufactures to develop mechanical designs with fewer moving parts to reduce maintenance, repairs, and downtime. In parallel, improve network management and dashboards, robust electronic diagnostics, accurate error codes, and remote reset capability to minimize field visits and station downtime. These actions are particularly important for site hosts with limited availability and technical knowledge.
- To prequalify EV charging station siting, consider a tool similar to PG&E’s Solar Photovoltaic and Renewable Auction Mechanism (PVRAM) tool<sup>21</sup> to identify potential

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19 Rehabilitation Research and Training Center on Disability Statistics and Demographics (StatsRRTC). [2015 California Report for County-Level Data: Prevalence](#). Institute on Disability, University of New Hampshire, accessed October 29, 2019, <https://disabilitycompendium.org/compendium/overall-prevalence-report/CA>.

20 Mukherjee, Shomik, ["Housing Report: 70% of Unincorporated Humboldt County residents can’t afford median-priced houses,"](#) *Times Standard*, August 21, 2019, <https://www.times-standard.com/2019/08/20/housing-report-70-of-unincorporated-humboldt-county-residents-cant-afford-median-priced-houses/>.

21 ["Distribution Resource Planning Data Portal,"](#) Distribution Resource Planning, Pacific Gas and Electric Company, accessed October 29, 2019, [https://www.pge.com/en\\_US/for-our-business-partners/distribution-resource-planning/distribution-resource-planning-data-portal.page](https://www.pge.com/en_US/for-our-business-partners/distribution-resource-planning/distribution-resource-planning-data-portal.page).

grid congestion before engaging with potential site hosts. This is particularly valuable for larger projects with substantial new electrical load and increased probability for onsite electrical upgrades including utility distribution equipment.

- Following the lead of various planning associations,<sup>22</sup> assess potential consequences of emerging technologies, such as the sharing economy and autonomous vehicles, on near-term ZEV usage patterns and probable impact on parking and roadway infrastructure projects.

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<sup>22</sup> "[Autonomous Vehicles](https://www.planning.org/knowledgebase/autonomousvehicles/)," Research KnowledgeBase, American Planning Association, accessed October 29, 2019, <https://www.planning.org/knowledgebase/autonomousvehicles/>.

## GLOSSARY

AMERICANS WITH DISABILITY ACT (ADA) — A federal civil rights law that prohibits discrimination based on disability.

BATTERY-ELECTRIC VEHICLE (BEV) — A type of electrical vehicle that uses energy stored in rechargeable battery packs to power an electric motor.

CALIFORNIA ELECTRIC VEHICLE INFRASTRUCTURE PROJECT (CALeVIP) — A California Energy Commission project that offers incentives for the purchase and installation of electric vehicle charging infrastructure at publicly accessible sites throughout California.<sup>23</sup>

COMMUNITY CHOICE AGGREGATOR (CCA) — Also known as municipal aggregation, CCAs allow communities to determine their electricity generation sources by collecting the community load and purchasing electricity from an alternative suppliers while still receiving transmission and distribution service from their existing provider. Currently authorized in California, Illinois, Ohio, Massachusetts, New Jersey, and Rhode Island, as enabled by state legislation.<sup>24</sup>

DIRECT CURRENT (DC) — A charge of electricity that flows in one direction and is the type of power that comes from a battery.

ELECTRIC VEHICLE (EV) — A vehicle that uses one or more electric motors for propulsion. Synonymous with “zero emission vehicle” or “plug-in electric vehicle” in this document.

FUEL CELL ELECTRIC VEHICLE (FCEV) — A type of electric vehicle that uses a fuel cell, instead of a battery or in combination with a battery or supercapacitor to power the onboard electric motor.

PACIFIC GAS AND ELECTRIC (PG&E) — An American investor-owned utility with publicly traded stock that is headquartered in San Francisco and provides natural gas and electric service to nearly 16 million people in a 70,000-square-mile service area in Northern and Central California.

PLUG-IN ELECTRIC VEHICLE (PEV)—A general term for any car that runs at least partially on battery power and is recharged from the electricity grid. There are two different types of PEVs to choose from—pure battery electric and plug-in hybrid vehicles.

REDWOOD COAST ENERGY AUTHORITY (RCEA)—Redwood Coast Energy Authority (RCEA) administers Humboldt County’s Community Choice Energy program. It is designed by the city councils and county supervisors to offer you lower rates on electricity and to keep the benefits and control right here in the County.<sup>25</sup>

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23 “[CALeVIP Homepage](https://calevip.org/)” Found at <https://calevip.org/>.

24 EPA “[Terms and Acronyms](https://sor.epa.gov/sor_internet/registry/termreg/searchandretrieve/termsandacronyms/search.do?search=&term=CCA&matchCriteria=Direct&checkedAcronym=true&checkedTerm=true&hasDefinitions=false)” Found at [https://sor.epa.gov/sor\\_internet/registry/termreg/searchandretrieve/termsandacronyms/search.do?search=&term=CCA&matchCriteria=Direct&checkedAcronym=true&checkedTerm=true&hasDefinitions=false](https://sor.epa.gov/sor_internet/registry/termreg/searchandretrieve/termsandacronyms/search.do?search=&term=CCA&matchCriteria=Direct&checkedAcronym=true&checkedTerm=true&hasDefinitions=false).

25 [Redwood Coast Energy Authority – Home of Community Choice Energy and Energy Efficiency programs in Humboldt County. \(redwoodenergy.org\)](https://redwoodenergy.org/) Found at <https://redwoodenergy.org/>.

ZERO-EMISSION VEHICLE (ZEV) — A vehicle that emits no exhaust gas from the onboard source of power. Synonymous with “plug-in electric vehicle” or “PEV” in this document.



