



# Humboldt's Electric Future

## 2023 Final Report

How the Redwood Coast  
Energy Authority  
Is Buying and Building  
Renewable and Local  
Power Resources



REDWOOD COAST  
**Energy Authority**



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## I. Executive Summary

Humboldt's Electric Future is an internal integrated resource planning process that Redwood Coast Energy Authority (RCEA) launched with the intended purpose of obtaining community feedback for incorporation into RCEA's Integrated Resource Plan (IRP) filing with the California Public Utilities Commission (CPUC). To prime this process, RCEA published an initial Humboldt's Electric Future report in April 2023 that aimed to educate the community about the power procurement landscape RCEA operates within in advance of engagement via public workshops. That initial report is meant to be a companion document to this final report and is included as Appendix A.

This final report has been reviewed by RCEA's Community Advisory Committee (CAC). Comments and suggestions from the CAC have been incorporated into the report.

RCEA strives to reduce greenhouse gas emissions associated with its power portfolio, source as much of that portfolio as possible from local renewables, deliver bill savings and programs to its customers, and build its financial reserves. The outcomes of the Humboldt's Electric Future project are 1) a set of opinions from participating constituents on how to prioritize spending among these priorities, and 2) ranked portfolio options in terms of participant preference that RCEA can use to advise its long-term resource planning and power procurement decision making. This feedback was gathered primarily via two public workshops. The public engagement process and workshop outcomes are described in Section VI, and a full transcript of the feedback received during the workshops is provided in Appendix C.

## II. Policies & Goals

This section lays out the existing policies and goals that were not discussed in the initial report, to fill out the picture of all the guidance RCEA follows when making procurement decisions.

### a. Board-Adopted Targets

As described in Appendix A, RCEA's Board of Directors has adopted two goals that currently guide RCEA's procurement targets: to procure 100% clean and renewable energy by 2025 and 100% local renewable energy by 2030. These goals are for procurement of energy on an annual basis, not time-coincident with hourly load, meaning the total generation in a year adds up to RCEA's retail electricity sales that year, regardless of whether the generation and load match up hour by hour or how much generation was lost in transmission of the electricity. The interim annual procurement targets leading up to the 2025 and 2030 goals are displayed graphically in Figure 6 of Appendix A. RCEA's Board of Directors may adjust these renewable and carbon-free energy targets up or down on an ad hoc basis depending on market conditions and status of contracted projects.

Prior to launching RCEA's Community Choice Energy (CCE) Program in 2017, the Board adopted Guidelines for RCEA's CCE Launch Period Strategies and Targets, which lays out the overarching goal of maximizing the use of local renewable energy while providing competitive rates to customers, in addition to the following relevant targets over the first five years of the program<sup>1</sup>:

#### 1. Financial Targets

- Annual customer rate savings of at least \$2 million per year or \$10 million cumulatively.
- Financial reserves of \$35 million for rate stabilization and contingencies.
- Money retained or redirected back in Humboldt County of \$100 million.

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<sup>1</sup> The Launch Period Strategies and Targets also include customer program goals, which are not enumerated here.

## 2. Power Objectives

- 5% more renewable energy than PG&E.
- 5% lower greenhouse gas emissions than PG&E.
- Maximize use of local renewables to the extent technically and economically feasible.

## 3. Generation Portfolio Targets

- Around 20 MW of local biomass, contingent on price and market conditions.
- About 2 MW of existing small hydropower.
- 6 MW feed-in tariff program for small scale renewables.
- 15 MW of new utility scale solar, 5 MW of which is local.
- 50 MW of local onshore wind.
- Evaluate options for new, local small hydropower.
- Engage in offshore wind development.
- Explore wave development opportunities.

### b. Risk Management

RCEA's Energy Risk Management Policy<sup>2</sup> governs day-to-day procurement and risk mitigation activities. The policy, reviewed and once a year and updated as needed, lays out transaction authorization limits, prohibited generation sources, and procurement schedules to mitigate price volatility exposure, among other stipulations. Per the policy, RCEA is prohibited from directly procuring power from any coal, nuclear and Klamath River hydroelectric facilities. The policy also contains an energy risk hedging strategy, which governs short-term procurement performed on RCEA's behalf by energy traders, in conjunction with the long-term contracting managed by staff. The hedging strategy lays out schedules that dictate minimum and maximum boundaries on what percentage of RCEA's needed energy is to be secured under fixed price contracts on a three-year forward basis.

Each month RCEA and its traders review RCEA's current portfolio of resources relative to annual procurement targets and the energy risk hedging schedules, to decide how much additional energy should be procured as short-term purchases during the following month, typically to be delivered in time increments ranging from one month to one year in duration. Similarly, RCEA reviews its resource adequacy and environmental attribute holdings each month and directs the traders to procure more of these resources as needed to complement the amounts of these resources built into RCEA's long-term contracts, in order to meet state requirements as well as RCEA's own Board-adopted renewable energy procurement goals that go beyond the state targets.

### c. Regulatory Mandates

In addition to the Renewable Portfolio Standards and Senate Bill 350 procurement requirements described in Appendix A, RCEA is subject to several other regulatory mandates as an LSE that affect our power procurement. Namely, the three mandates for new capacity that the CPUC has issued in the procurement track of the IRP proceeding, to ensure sufficient resources are brought online in the current decade for California to retire its once-through-cooling natural gas and nuclear power plants. Table 1 summarizes RCEA's capacity procurement obligations coming out of these mandates. The term period shows the years by which the capacity obligation must be operational, with specific tranches of capacity by set deadlines within each period not shown.

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<sup>2</sup> See Policies > Energy Risk Management Policy at <https://redwoodenergy.org/key-documents/>

Table 1. RCEA’s IRP Procurement Track Obligations

| CPUC Decision | Term Period | Capacity Obligation |
|---------------|-------------|---------------------|
| D.19-11-016   | 2021-2023   | 10.7 MW             |
| D.21-06-035   | 2023-2026   | 39 MW               |
| D.23-02-040   | 2026-2028   | 14 MW               |

These capacity obligations must be met with contracts of ten or more years in duration or through owned resources. The capacity must also come from resources that are deemed deliverable by the California Independent System Operator (CAISO), enabling them to sell resource adequacy (i.e., capacity) and be dispatched by CAISO for grid reliability purposes. RCEA has issued several solicitations and executed several contracts specifically to meet these procurement requirements, and expects to conduct more of this procurement in the coming years.

### III. Current Resource Portfolio

#### a. Energy Portfolio

RCEA’s currently contracted, long-term energy portfolio is laid out in Table 1 of Appendix A and includes local biomass, solar and battery storage, and non-local small hydropower, solar and geothermal resources. Figure 1 below shows how these resources contribute to RCEA’s portfolio on the basis of expected generation over time, as the projects currently under development become operational. Several of these contracts expire shortly after 2030, leaving roughly 60% of RCEA’s load uncontracted by 2035.

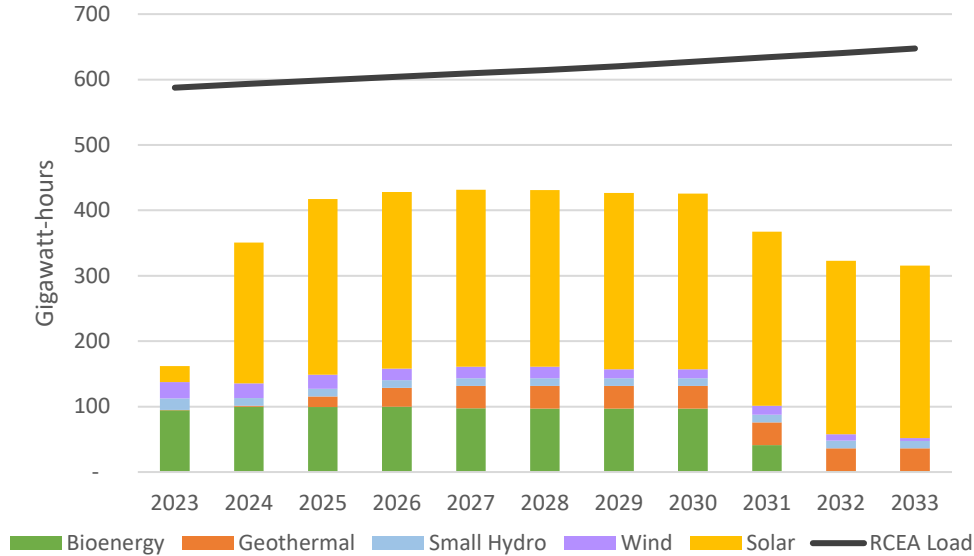
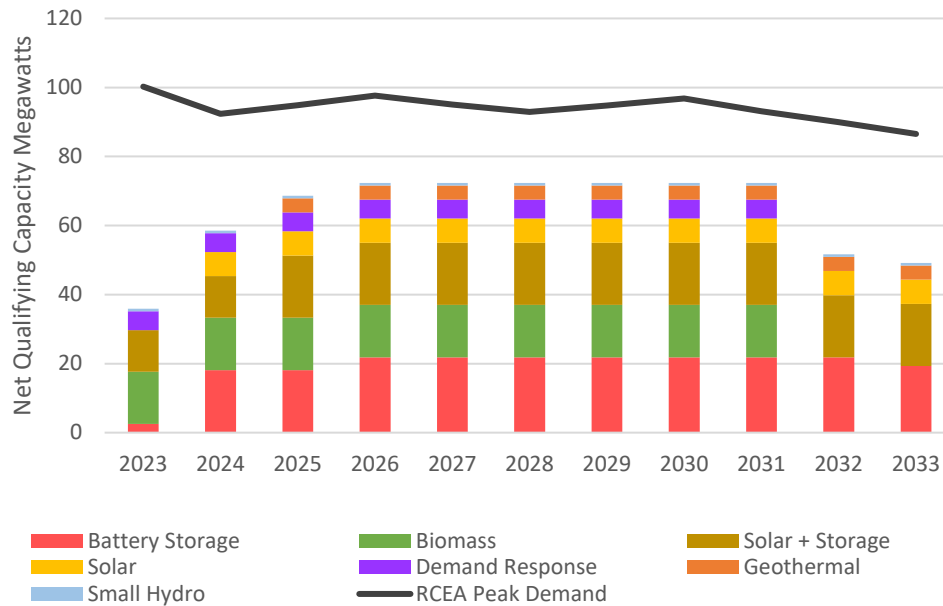


Figure 1. RCEA’s Current Energy Generation Portfolio

#### b. Reliability Capacity Portfolio

While resource adequacy (RA) capacity is a product RCEA is required to procure pursuant to the state’s reliability program, planning for sufficient capacity to meet instantaneous demand is a prudent practice of any utility. RCEA operates within an organized market of the CAISO, which is tasked with balancing the grid in real time to ensure sufficient generating capacity is always available to serve instantaneous

demand. RCEA’s RA portfolio supplies capacity that CAISO can dispatch for that purpose. RCEA’s currently contracted, long-term RA portfolio is summarized in Table 2 of Appendix A and includes an array of local and non-local resources. Figure 2 below shows how net qualifying capacity (NQC) of each technology contributes to the portfolio over time. The annual average NQC of each resource in the portfolio is estimated using the CPUC’s resource valuation methodology under California’s current RA program as of 2023. RCEA is still determining how this portfolio will be valued under the restructured slice-of-day RA program that is slated for testing and implementation in 2024 and 2025, in which resources are valued on a more granular hourly basis.



**Figure 2. RCEA’s Current Resource Adequacy Capacity Portfolio**

## IV. Resource Needs

### a. Load & Peak Demand Forecast

Two important pieces of information to assess RCEA’s future resource needs are the amount of energy its customers will use over a year (annual load) and the maximum instantaneous power its customers will draw at any given time (peak demand). These advise how much energy generation needs to be acquired to serve annual load and how much capacity is needed to meet peak demand each year, plus the state’s planning reserve margin. RCEA’s hourly load in the charts in what types of resources best fit the uncontracted position, since availability of some renewables and storage varies hourly and seasonally. Figures 1 and 2 show RCEA’s long-term load and peak demand forecasts that advise energy and capacity needs.

### b. Resource Diversity

RCEA strives for a diverse energy portfolio that is more resilient in the face of adverse conditions than a portfolio with one or few technology types, projects and project owners. However, the size of RCEA’s load in comparison to typical sizes of utility-scale power projects is more conducive to a blocky portfolio comprised of one or two large projects and several very small projects, as displayed in Figure 2 of

Appendix A. This poses risk to RCEA if one of the large projects is delayed in its development, fails to perform once operational, or is owned by a company that defaults on their credit or goes bankrupt.

California is transitioning away from reliance on natural gas and nuclear power, to run its grid largely from renewables, large hydropower and energy storage. Most natural gas fired generation is dispatchable, meaning it can be powered on or off and ramped up or down as needed because the fuel is able to be stored and utilized at will. Nuclear and some natural gas generation is considered baseload because they can operate around the clock, regardless of time of day or year, but they can't be turned on and off frequently since they take a long time to ramp up to full operating level. As the state transitions off these resources, there is a need for new dispatchable and baseload resources to replace them, so the grid can be operated reliably. Thus, RCEA strives for a diverse resource portfolio to support reliability while also reducing reliance on net-GHG emitting and nuclear resources. These make their way into RCEA's portfolio via unspecified system power, which is what the grid operator dispatches whenever RCEA's contracted resources aren't generating.

Solar and wind energy are not considered dispatchable or baseload because the fuel is available only during certain times of day, and it can be difficult to forecast and plan around the quantity and timing of their availability. If these renewables are paired with energy storage they can be dispatchable for a limited duration, typically four to eight hours from when the generation is stored, but these projects cost more than standalone solar or wind. Two categories of renewable energy that are considered baseload power are geothermal and bioenergy. Bioenergy is an umbrella term that includes biomass (solid fuel) and biomethane (gaseous fuel). All these aforementioned technologies together, paired with energy storage and large hydropower, will be needed to fully transition the grid away from non-renewable sources.

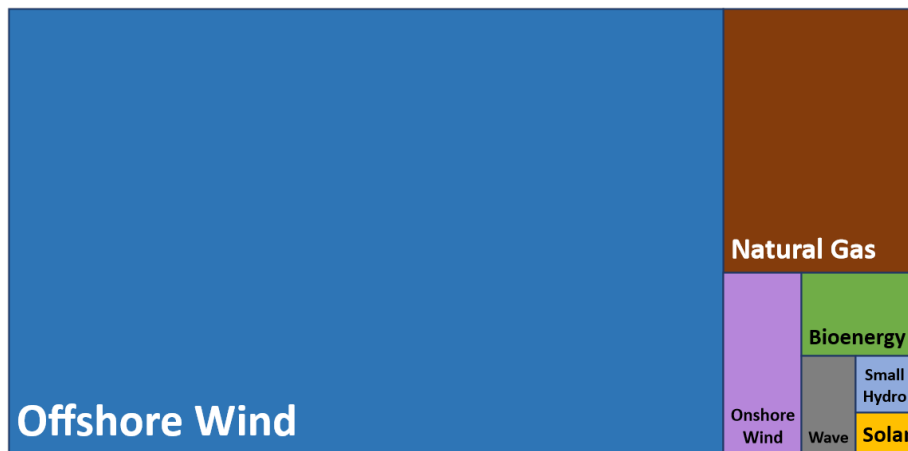
### c. Local Development Potential

In interpreting the Board's 100% local renewable goal, RCEA staff define "local" as any power plant electrically connected within the Humboldt Local Reliability Area (LRA), which includes Humboldt County as well as some western Trinity County substations and hydro plants. The Humboldt LRA is defined by CAISO as one of the transmission constrained zones in the state, meaning there isn't enough generation within the area to serve the local load all the time, so power must be regularly imported across the transmission lines from other parts of the region. Figure 3 shows the approximate scale of existing, planned and potentially developable renewable and non-renewable resources within the Humboldt LRA, on the basis of average potential annual energy generation. This figure is based on analysis conducted by the Schatz Energy Research Center (SERC) for RCEA's 2013 RePower Strategic Plan<sup>3</sup>, which was updated by RCEA staff to account for current assumptions about certain resources, such as offshore wind and solar.

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<sup>3</sup> See Organization & Foundation > RePower Humboldt/CAPE 2019 Plan Update at <https://redwoodenergy.org/key-documents/>





**Figure 3. Local Resource Development Potential**

The following assumptions regarding existing and potentially developable capacity are embedded into Figure 3, along with average capacity factors for each technology type:

- 1.8 GW of offshore wind – there are higher estimates of north coast offshore wind potential but this size was used by SERC as the full development scale for their 2020 offshore wind studies<sup>4</sup>.
- 163 MW of natural gas – the existing Humboldt Bay Generating Station.
- 100 MW of onshore wind – although two proposed projects in the only viable onshore wind location in Humboldt have failed, this resource remains technically viable.
- 35 MW of bioenergy – includes new biogas and biomass capacity in addition to the existing Humboldt Redwood Cogeneration plant in Scotia.
- 50 MW of wave energy – this technology using energy from wind-driven ocean waves is still in the commercial demonstration phase but was included in the RePower study.
- 30 MW of small hydro – includes new capacity supported by RCEA’s hydropower feasibility work and existing hydro capacity in the Humboldt LRA.
- 30 MW of solar – includes expected capacity from RCEA’s feed-in tariff program and future microgrids in addition to RCEA’s Redwood Coast Airport Microgrid and other local solar projects currently under development.

#### d. Procurement Challenges

All of RCEA’s projects that are currently under development, local and non-local alike, are delayed for one reason or another. These reasons include federal tariff regulations, legacy COVID-era supply chain issues, inflation, labor shortages, interconnection queue backup, permitting delay, and inclement weather. On top of that, decarbonization goals of utilities and state and local governments, coupled with the IRP procurement mandates discussed in Section II, have dramatically increased demand for new projects. The result is a shortage of viable projects, high prices, and unfavorable contract terms that buyers would normally not agree to.

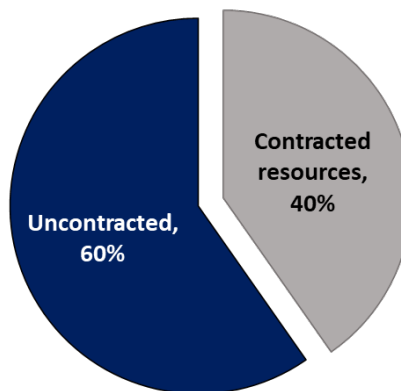
In addition to these macro-level challenges plaguing the energy industry today, several factors have also challenged RCEA in its efforts to contract and develop local projects. These factors include the following:

<sup>4</sup> <http://schatzcenter.org/pubs/2020-OSW-R1.pdf>

- Resource constraints – other than offshore wind, renewable development potential in Humboldt is smaller scale than other parts of the state and western interconnect, due to topography, grid constraints and resource viability.
- High price –projects sited on the North Coast typically carry a price premium on top of the already high costs in the current market, due to costs of shipping to this isolated location and the limited local workforce.
- Infrastructure limitations – the Humboldt LRA is connected to the regional grid mainly via two 115 kV transmission lines across rugged, wildfire-prone landscape, and its corresponding distribution system also faces constraints
- Environmental impacts – Humboldt is home to diverse plants and wildlife, Tribal cultural sites, and prime agricultural land, impacts to which must be avoided or mitigated in project development.
- Community acceptance – As was demonstrated with respect to onshore wind in 2019, community stakeholders have high standards and are willing to say no to projects that do not meet their expectations.
- Limited developer interest – as a result of many of the constraints above, there are not many developers interested in building utility scale renewables in Humboldt, given the higher risks and lower returns.

## V. Future Resource Portfolio Options

By 2035, about 40% of RCEA’s energy needs will be met with currently contracted resources. Through the Humboldt’s Electric Future workshops, RCEA sought feedback from community participants on how to fill the uncontracted 60%, as shown in Figure 4.



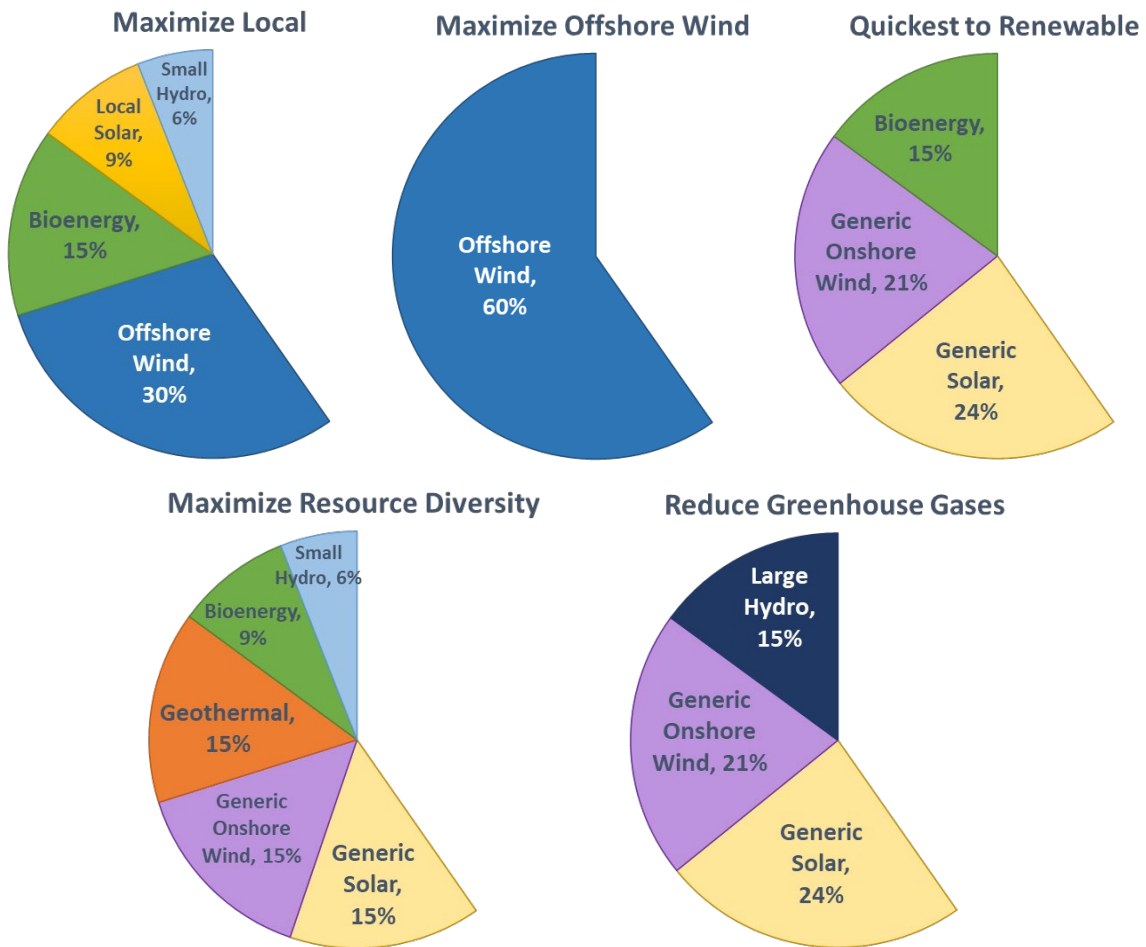
**Figure 4. 2035 Contracted and Uncontracted Positions**

Table 2 shows a summary of the five incremental portfolio options, differentiated by their resource makeup, what goals they achieve and their net present value to RCEA. These portfolios were presented to the attendees at the Humboldt’s Electric Future public workshops to guide their feedback in a preferred energy portfolio exercise. A discussion of the portfolio development and valuation methodology is included in Appendix B. Emissions were not explicitly quantified as part of the Humboldt’s Electric Future project but are quantified in each IRP.

**Table 2. Incremental Power Portfolio Options Summary**

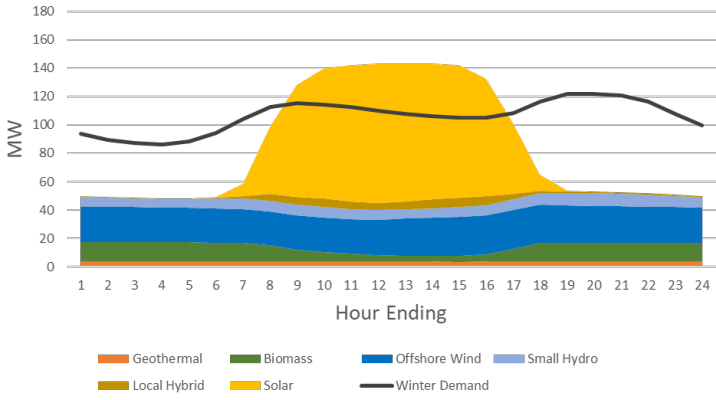
| Portfolio Name                  | Annual Net Revenue | Description   |
|---------------------------------|--------------------|---|
| Maximize Local                  | \$5M               | Resources potentially developable in the Humboldt LRA |
| Maximize Offshore Wind          | \$7M               | Only Humboldt offshore wind                           |
| Maximize Resource Diversity     | \$14M              | The most different technology types                   |
| Quickest to Renewable           | \$15M              | Primarily existing renewable resources                |
| Reduce Greenhouse Gas Emissions | \$18M              | Renewable and carbon-free resources                   |

Figure 5 shows the five portfolios broken down by resource type as a percent of RCEA’s power mix on the basis of annual energy generation. Figure 6 shows how each of the portfolios, including incremental and contracted resources compare against RCEA’s load on an hourly seasonal basis.

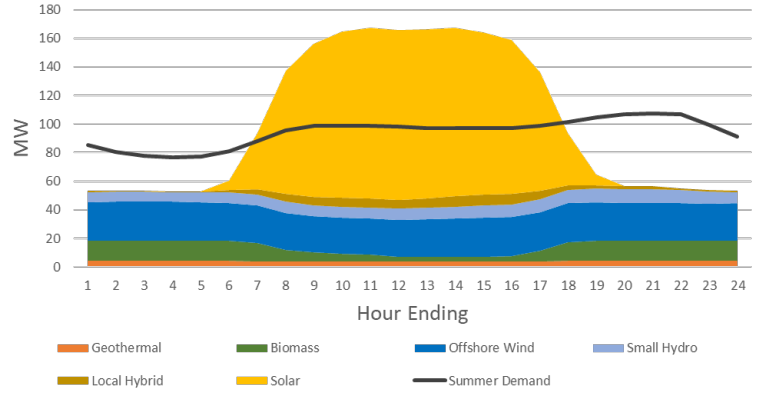


**Figure 5. Resource Mix of Incremental Power Portfolio Options**

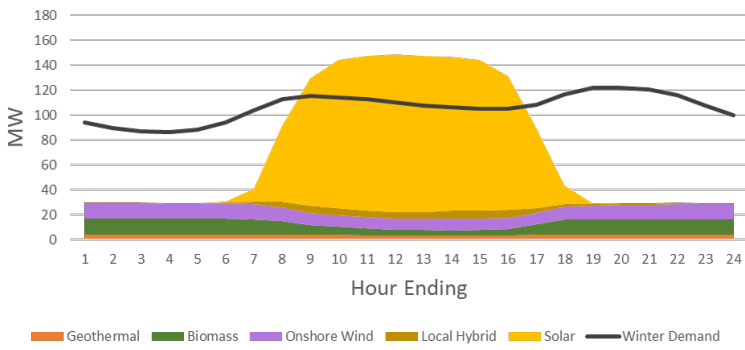
Max Local, Winter



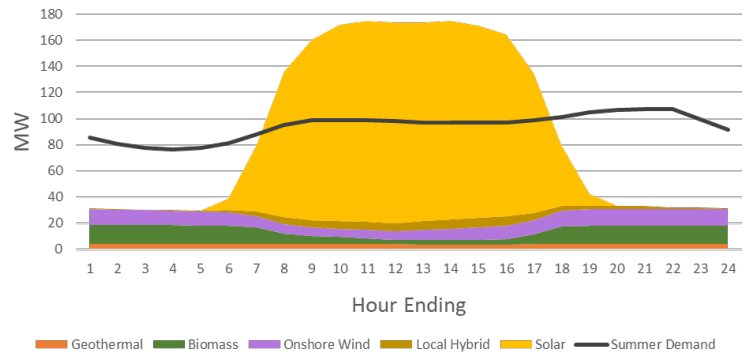
Max Local, Summer



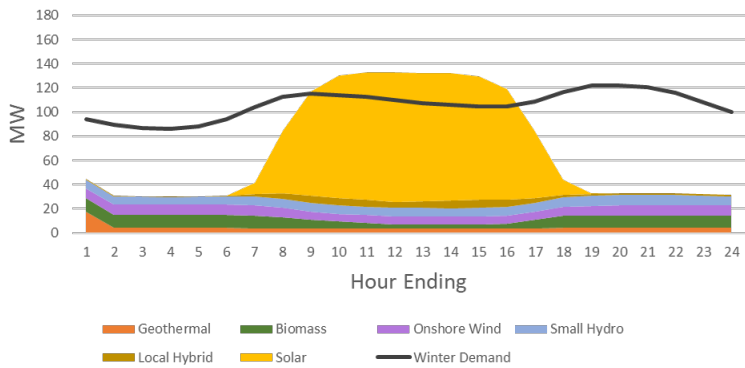
Quick to Renewable, Winter



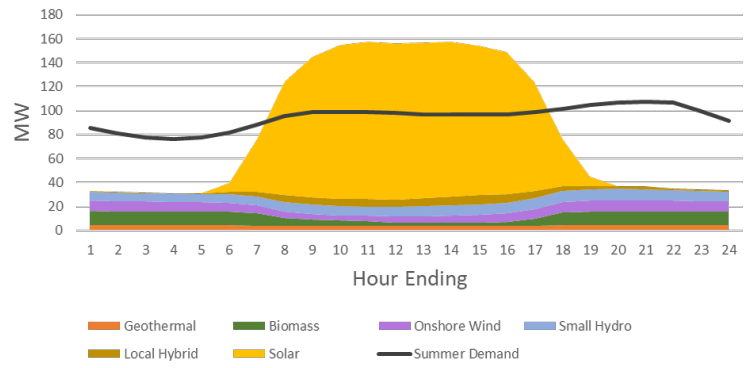
Quick to Renewable, Summer

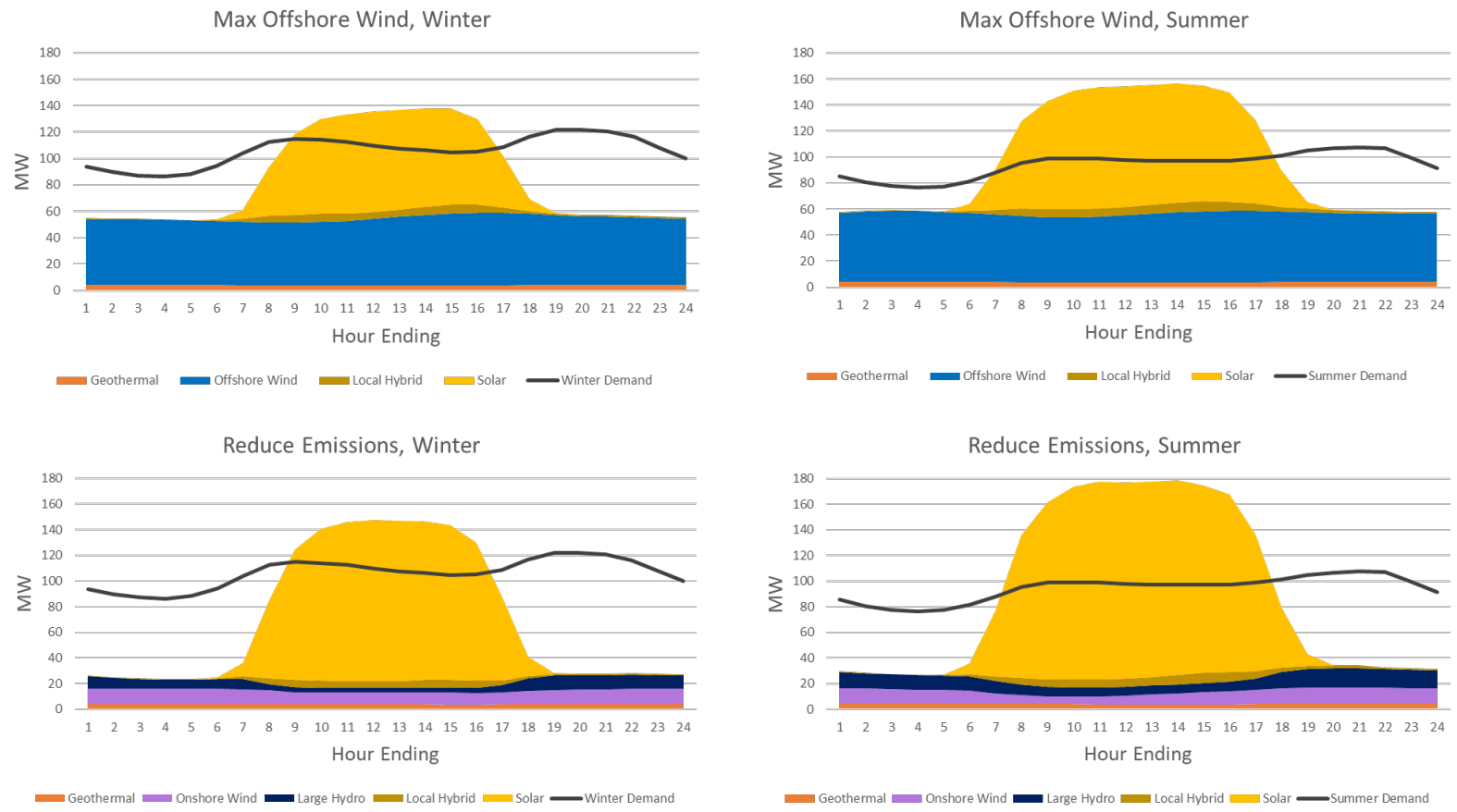


Max Diversity, Winter



Max Diversity, Summer





**Figure 6. Average Seasonal Profiles of Power Portfolio Options**

In all portfolio options, the large amount of solar production in the middle of the day is attributed mainly to currently contracted resources. For RCEA to match these portfolios to its hourly load, large amounts of energy storage would need to be contracted to store the excess solar energy during the day and discharge it at night.

One CAC member who reviewed this report noted that RCEA could have avoided making a long-term commitment to biomass in 2021 for SB 350 compliance by instead procuring an equivalent amount of solar energy. The figures above illustrate that additional solar procurement would have further exacerbated RCEA’s future mid-day energy glut and require RCEA to invest in additional storage in order to match supply to load hour-by-hour.

## VI. Public Engagement

### a. Initial Groundwork

#### Planning and Outreach

An interdepartmental team of RCEA staff, composed of staff members from Power Resources, Community Strategies, and Demand Side Management, began meeting in March of 2023 to plan and coordinate the public engagement strategy. The team met to decide on the timeline of events,

determine the specific types of feedback to solicit from the community, and contract a third-party facilitator to assist in planning and conducting the workshops.

RCEA staff worked with the facilitator to craft the workshop exercises, and maintain an accountable and clear process to objectively solicit input from the participants. In addition, several volunteers from RCEA's Community Advisory Committee (CAC) participated as co-facilitators for the workshops, to bolster the stakeholder involvement outside of RCEA staff.

Two separate workshops were held, an in-person event and an online webinar. At the in-person workshop, food was provided for participants and childcare was offered by RSVP, in an effort to boost participation by community members who wouldn't otherwise be able to attend.

RCEA staff publicized the events through social media, and created a web page on RCEA's website with information for the events at <https://redwoodenergy.org/humboldts-electric-future/>. On the web page, community members could sign up for notifications, RSVP for the events, and view and download the Humboldt's Electric Future Initial Report. RCEA also created a dedicated e-mail address and mailing list to communicate with community members about Humboldt's Electric Future, at [humboldts-electric-future@redwoodenergy.org](mailto:humboldts-electric-future@redwoodenergy.org). The meetings were included on local calendars like the Lost Coast Outpost and NCJ. A newsletter was sent to our subscribers and the targeted stakeholder list, as well as NorCAN list serve. There were no paid advertisements, but a TV interview and two radio interviews were conducted.

### Initial Report

Prior to the workshops, RCEA staff prepared the Humboldt's Electric Future Initial Report. The purpose of the initial report was to explain, "how we get our electricity today, what goals our Board of Directors has set, and what we need to do to comply with state regulations on power procurement", to give participants background information on the kinds of decisions, and the constraints upon them, for which RCEA would be seeking community input. The initial report was emailed to individuals who signed up for the Humboldt's Electric Future mailing list, and is included in this report as Appendix A.

### b. Public Workshops

The June 5, 2023 in-person workshop was attended by 24 members of the public, while 26 people attended the June 8, 2023 online workshop. During the in-person and online public workshops, participants engaged in several exercises to elicit their values and preferences on different matters related to RCEA's allocation of resources and future planning. The main question areas were: (1) financial resource allocation, (2) the value of locally produced energy, (3) the challenges in meeting energy needs equitably, affordably, and locally, and (4) preferences around specific energy resource portfolios.

### Financial Resource Allocation

RCEA operates as a not-for-profit local government joint powers authority, so all Community Choice Energy revenues are reinvested in the community. Participants were invited to share their preferences on how that revenue is allocated across options from rate discounts, customer programs, building financial reserves, development of local generation projects, and any other option they considered important. In addition to discussing these topics in small groups, attendees participated in a resource allocation activity in which they spent ten tokens among each of the aforementioned categories, which enabled RCEA staff to quantify the participants' preferences regarding financial resource allocation.

## The Value of Locally Produced Energy

Since locally produced energy often comes at a higher price than energy from projects outside of Humboldt, participants were invited to weigh in on how much value they place on a local power portfolio versus other competing values, such as affordability, rapid decarbonization, and other goals.

## Challenges of Meeting Energy Needs Equitably, Affordably, and Locally

Tying many of these themes together in an open-ended question, participants were asked to give their thoughts on what the challenges are in providing affordable and equitable energy to all Humboldt residents, while still prioritizing local generation development.

## Selecting a Preferred Energy Resource Portfolio

Finally, participants were asked to rank a sample of five different resource mixes, allowing them to indicate their preferences on how RCEA can fill the roughly half of the portfolio not already under contract within the timeline under consideration. Each portfolio mix presented the proportion of each type of resource, and the amount of annual net revenue (i.e. revenues minus costs) each scenario would provide for RCEA to reinvest in the community. The five portfolio mixes were: Maximize Local, Quickest to 100% Renewable, Maximize Resource Diversity, Maximize Offshore Wind, and Reduce Greenhouse Gas Emissions. The generation profiles of each of these portfolios against RCEA's forecasted load profile are displayed graphically in Section V.

## Workshop Outcomes

In both the in-person and online workshops, feedback from the attendees was gathered via three activities: small group discussions, a resource allocation exercise, and a preferred energy portfolio exercise. In the resource allocation exercise, participants were asked to use a token rating system to indicate their preference for each of the following five priorities: lower electricity rates for all, lower electricity rates for low-income households, local energy development, customer programs, and financial reserves. In both the in-person workshop and the online webinar, the majority of participants weighed local renewable energy development as their top priority over the other options. Small group discussions also yielded other noteworthy priorities for resource allocation, such as more rebates and incentives for electrifying buildings, emission reduction and energy conservation programs, building local microgrids and RCEA owned resources, improving local infrastructure, electric vehicle charging stations, and community education programs.

When considering the value of locally produced energy, workshop participants felt strongly about wanting to see investment in local development, but generally agreed that reducing greenhouse gas emissions quickly was more important than a 100% locally produced renewable portfolio. Participants felt that producing more energy locally would incentivize job creation, provide community resilience and localized ownership of resources, however there were concerns of scalability, affordability, and carbon neutrality.

Workshop participants were asked their opinions on what they believe are the challenges of meeting our energy needs with local resources, and many agreed on a few key points. The use of biomass as a renewable energy source concerned many people due to greenhouse gas and criteria pollutant emissions. When considering different resource portfolios, many were apprehensive about including biomass at all in long-term procurement plans. Other concerns were the portfolio diversity and reliability during peak hours, scalability, infrastructure challenges to importing and exporting energy, as

well as access to the capital required to build local renewable energy projects. Many also voiced strong concerns about overall affordability if RCEA was to adopt a 100% local power portfolio.

In the preferred energy portfolio exercise, participants were asked to rank the five portfolio options described in Section V on a scale from 1-5, with 1 being the least preferable, and 5 being the most. Staff explained that the portfolio options were not meant to represent RCEA's entire power mix, only the marginal portion not already under contract. There was a strong preference in both workshops for reducing greenhouse gas emissions over any other option. Community members were concerned about the generation sources in the local portfolio option and were also disapproving of the portfolio that maximized offshore wind. While neither was the most popular option, both getting to 100% renewable power mix as soon as possible and maximizing resource diversity were seen as favorable in both workshops.

## VII. Action Plan

### a. Near-Term Planning & Procurement

RCEA aims to procure much of the energy products it requires, including energy, resource adequacy, and environmental attributes (associated with renewable energy and carbon-free energy) through long-term contracts. This helps to manage financial risk by ensuring known cost for future energy procurement, and is also necessary for regulatory compliance reasons, as described in Section II. RCEA will continue to seek long-term contracts for new, renewable and local resources that meet Board and State planning targets and goals through its various power procurement processes. Additionally, RCEA will continue to procure short-term products pursuant to its energy risk hedging strategy to fill in the gaps while the majority of the portfolio is secured via long-term contracts. Beyond these, RCEA plans to take the following actions:

- Continue to express a preference for local projects in power solicitations, but don't procure local at the expense of other priorities.
- Plan for a portfolio that reduces emissions and maximizes value to RCEA and its customers.
- Assess cost and feasibility of achieving 24/7 around-the-clock renewables. Some CAC members expressed support for making around-the-clock renewables an explicit RCEA goal.
- Seek alternative local renewable power sources to biomass that have no emissions after the current contract expires.
- Plan to procure a modest amount of offshore wind depending on price and viability, but not to fill the entire open position with it.
- Provide more education to the community regarding RCEA's procurement and resource planning.

### b. 2024 Integrated Resource Plan

The input collected from the public through Humboldt's Electric Future is intended to inform RCEA's Community Advisory Committee and Board of Directors, who in turn will give direction to RCEA staff as they prepare RCEA's IRP for submission to the CPUC. Timing of the 2024 IRP is at the discretion of the CPUC but each IRP typically falls due in the third or fourth quarter of each even-numbered calendar year. LSEs including RCEA are required to submit an IRP to the CPUC every two years, so the next Humboldt's Electric Future process in 2025 will inform the 2026 IRP. More information about RCEA's IRP process is on page 16 of Appendix A.



RCEA has utilized a top-down approach to selecting new resources for its IRP, driven by the local Board and community's stated goals and values, as well as market availability and new resource opportunities. RCEA's relatively small load and significant contractual commitments to date, in combination with the constraints the portfolio is subject to supports utilization of this approach over a bottom-up analysis, starting from production cost modeling that serves RCEA's load at the least cost with any technology, while meeting state regulatory compliance. This top-down approach allows RCEA to choose specifically what resources with which to fill most of its open position over the IRP planning horizon.

In each IRP process, RCEA typically analyzes multiple candidate portfolio options before selecting one for recommendation to the Board. The 2024 IRP candidate portfolios will refine and build off the portfolios developed for the Humboldt's Electric Future workshops, described in Section V, within the constraints of the CPUC's IRP process in 2024.

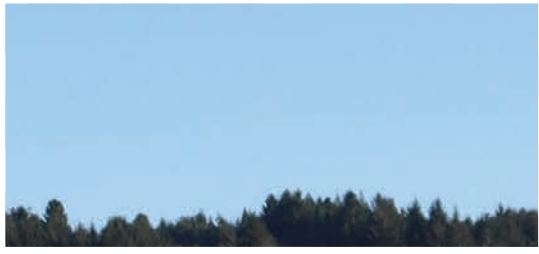
### c. 2025 Humboldt's Electric Future Process

RCEA will continue to engage the public in future Integrated Resource Plan development cycles. The public engagement methods used by RCEA in 2024 via in-person and online workshops and solicitation of emailed comments produced an enthusiastic response. However, we recognize that we are only hearing from a relatively small and self-selected portion of RCEA's customer base participated, who may not be representative of opinion in the broader community in terms of opinions and preferences on energy policy. RCEA has begun to explore alternative approaches that might be used in 2025 to more fully capture input from a broad range of community stakeholders.

Earlier this year, staff from the Humboldt Area Foundation connected RCEA staff with two Cal Poly Humboldt faculty from the Department of Psychology and Department of Politics. They presented the concept of a Citizens' Assembly and Lottery-Selected Panels, deliberative tools promoted by the Oregon-based organization Healthy Democracy. This approach was recently used with Healthy Democracy's support to facilitate community discussion and decision-making on future uses for the Sonoma-Marín Fairgrounds in Petaluma.

The approach involves doing mass mailings to recruit panelists from across the community, selecting a set of interested candidates who represent community demographics. Panelists are provided with a stipend and asked to participate in several hours of in-depth topic orientation, information gathering, deliberation, and development of recommendations, somewhat akin to how a grand jury operates. RCEA staff have met and corresponded with Healthy Democracy's program co-director to learn more about how such an approach could be deployed at a scale that would be effective and affordable for RCEA's needs. Staff will continue to research alternative public engagement methods and will bring the CAC and Board recommendations to consider in time for use in 2025.

Appendix A: Humboldt's Electric Future Initial Report

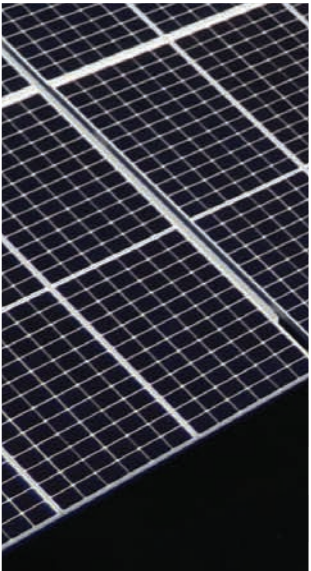


# Humboldt's **Electric Future**

April 2023



Initial Report



How the Redwood Coast  
Energy Authority is  
Buying and Building Local,  
Renewable Power Resources  
...and How You Can Participate



## Preface

Dear Community Member:

Redwood Coast Energy Authority is the public power provider for approximately 92% of Humboldt County's eligible homes and businesses. We are striving to provide 100% clean and renewable power by 2025, and get as much as possible of that power from local sources by 2030. We are looking for community input on how to get there.

During 2023 we are engaging the community in a process we call Humboldt's Electric Future. This report explains how we get our electricity today, what goals our Board of Directors has set, and what we need to do to comply with state regulations on power procurement. Within this framework, there is still ample opportunity for community members to have their voices heard on important decisions such as:

- Which clean and renewable resources should we maximize in our power portfolio?
- What criteria should we use in siting local renewable energy projects?
- How should we balance the community's priorities, such as clean energy, local economic development, and low utility rates?

We will be doing community engagement later this year to collect input on these and other questions. Please visit <https://www.redwoodenergy.org/humboldts-electric-future> to sign up for event notifications and learn more about how you can participate in Humboldt's Electric Future.

Sincerely,

A handwritten signature in blue ink that reads "Matthew Marshall". The signature is written in a cursive style with a long, sweeping flourish at the end.

Matthew Marshall

Executive Director

## RCEA as Humboldt County's Clean Energy Leader

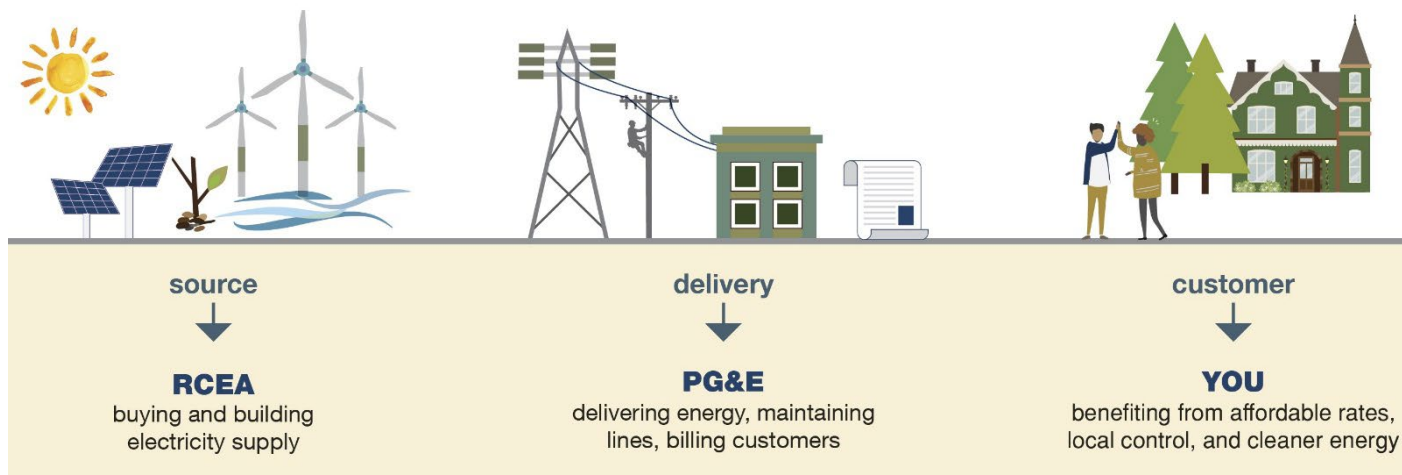
Redwood Coast Energy Authority (RCEA) is a local government Joint Powers Agency whose members include the County of Humboldt; the Yurok Tribe; the Cities of Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, and Trinidad; and the Humboldt Bay Municipal Water District. RCEA's mission is to develop 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 for the benefit of the member agencies and their constituents.

Beginning in May 2017, Humboldt County customers were automatically enrolled into RCEA's new Community Choice Energy (CCE) program and served by RCEA's default electricity service, REpower. RCEA customers interested in receiving electricity service with a higher renewable energy content can "opt up" into RCEA's 100% renewable electricity service option, REpower+, costing an additional \$0.01 per kilowatt-hour (kWh).

RCEA works in partnership with the local utility company, Pacific Gas & Electric (PG&E). While RCEA assumes responsibility for procuring and developing power (the "generation" component of the PG&E bill) on behalf of participating customers, PG&E continues to deliver your electricity, maintain the power lines and electrical grid, and handle customer billing, including the charges for the generation procured by RCEA.

## Abbreviations

|      |  |
|------|--|
| CCE  | Community Choice Energy                |
| CEC  | California Energy Commission           |
| CPUC | California Public Utilities Commission |
| GHG  | Greenhouse Gas                         |
| IRP  | Integrated Resource Plan               |
| kWh  | Kilowatt-hour                          |
| MWh  | Megawatt-hour (=1,000 kWh)             |
| PG&E | Pacific Gas & Electric                 |
| RA   | Resource Adequacy                      |
| RCAM | Redwood Coast Airport Microgrid        |
| RCEA | Redwood Coast Energy Authority         |
| REC  | Renewable Energy Certificate           |
| RPS  | Renewables Portfolio Standard          |



## **RCEA's Strategic Plan and Community Choice Energy start-up procurement guidelines**

*RePower Humboldt*, RCEA's Comprehensive Action Plan for Energy<sup>1</sup> (Strategic Plan), is intended to support achieving RCEA's mission through various strategies and initiatives. The Strategic Plan was last updated in 2019 and includes the following areas of emphasis:

**Regional Energy Planning & Coordination:** RCEA will take a leadership role to develop and advance strategic regional energy goals through economic development, funding, planning efforts, and education. This work will be done in coordination with RCEA's member governments, other local public agencies, local tribes, and other public and private stakeholders.

**Integrated Demand Side Management:** RCEA will use an Integrated Demand Side Management approach to develop distributed energy resources and reduce energy consumption in the residential, commercial, industrial, agricultural, and government sectors and to align customer energy use with variable clean and renewable energy supplies. RCEA will prioritize efforts that enhance local energy resiliency and independence.

**Low-Carbon Transportation:** RCEA will decarbonize regional transportation through efforts to reduce vehicle miles travelled, increase advanced fuel vehicles adoption and fuel efficiency, and expand advanced fuel infrastructure.

**Energy Generation & Utility Services:** RCEA will address Humboldt County's supply-side energy needs through our existing CCE program and development of new programs and initiatives.

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<sup>1</sup> See Organization & Foundation > RePower Humboldt/CAPE 2019 Plan Update at <https://redwoodenergy.org/key-documents/>



### How does RCEA buy power for our customers?

RCEA buys power through a mix of short- and long-term contracts. However, we are moving toward having more of our procurement under long-term contracts as a means of managing risk. In a typical multi-year contract between RCEA and an owner/operator of an energy generator, the energy is sold to the buyer at a fixed or market-indexed price, along with any other power products the project is eligible to sell, such as renewable certificates that document the value of putting clean energy onto the grid, or capacity products such as resource adequacy (see next page).

### What is the Renewables Portfolio Standard?

The Renewables Portfolio Standard (RPS) is one of California's key programs for renewable energy advancement throughout the State. The program sets continuously escalating renewable energy procurement requirements for retail sellers of electricity, such as RCEA. The California Public Utilities Commission (CPUC) enforces the RPS program, while the California Energy Commission (CEC) is responsible for the certification of renewable generation facilities. Figure 1 shows what percentage of an electricity seller's portfolio must be made up of eligible renewable energy sources each year, which is demonstrated using Renewable Energy Certificates (RECs).

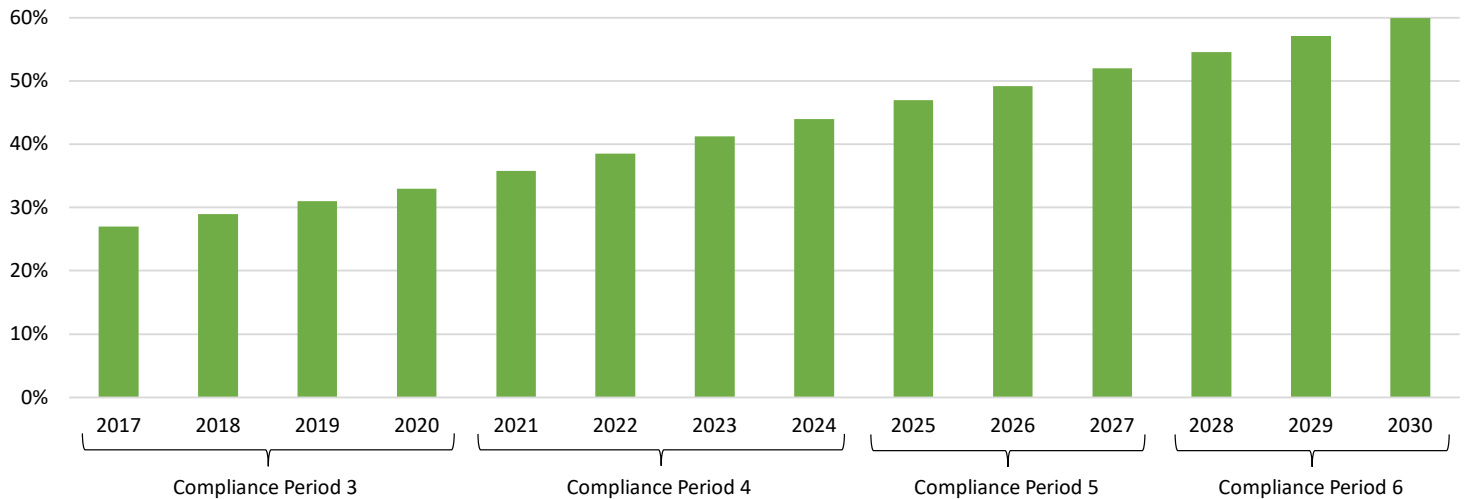


Figure 1. California's Renewables Portfolio Standard (RPS) Requirement Timeline

## What is Resource Adequacy?

Resource Adequacy (RA) is a compliance product that represents a power plant's ability to be turned on when needed for grid reliability. Procurement of RA is required by the CPUC to ensure that electricity providers across California have collectively acquired sufficient generating capacity to meet forecasted electricity demand plus a buffer for unpredictable circumstances. RCEA is obligated to purchase its proportional share of RA capacity to ensure the California Independent System Operator has sufficient capacity to maintain reliable grid operations at all times.

The amount of RA that can be sold by a generator – such as a solar or wind farm – is determined by the amount of power the generator can provide at times when the grid is most constrained. This is less than the generator's nameplate capacity, or the maximum amount of power a resource can produce. In the case of intermittently available resources such as wind and solar, this downgrading of the generator's RA value is substantial. RCEA purchases RA through many of our energy contracts, but also through other long- and short-term contracts that are exclusively for RA capacity.

## RCEA's Electric Portfolio

RCEA is committed to providing power that has more renewable energy and lower greenhouse gas (GHG) emissions than what local energy users would otherwise receive. RCEA has set out to provide our customers with 100% renewable and carbon-free energy by 2025 and 100% local renewable energy by 2030. Specifically, our Strategic Plan states that “By 2030 Humboldt County will be a net exporter of renewable electricity and RCEA's power mix will consist of 100% local, net-zero-carbon-emission renewable sources.” In this context, RCEA defines “local” as resources located within the Humboldt Local Reliability Area, an area that roughly corresponds to Humboldt County, with some allowance for substations and hydropower plants that serve loads on both sides of the county line.

When our CCE program was first established, RCEA entered into a contract with Humboldt Sawmill Company to provide local biomass power generated by burning wood waste at its Humboldt Redwood plant in Scotia. The rest of our power initially came from short-term contracts for renewable and non-renewable resources across the western states. RCEA has issued at least one solicitation each year since 2019 targeted at procuring long-term renewable contracts to help meet RCEA's procurement requirements and the clean energy goals noted above. Table 1 is a breakdown of all the renewable energy projects RCEA currently has in our power portfolio, including operational projects and projects in varying stages of development.



**Table 1. RCEA’s Long-Term Contracted and Owned Generation Resources**

| Project Name                     | Resource Type       | Project Location     | Delivery Start | Contract Length | Capacity (MW) | Annual Energy (MWh) |
|----------------------------------|---------------------|----------------------|----------------|-----------------|---------------|---------------------|
| Humboldt Redwood*                | Biomass             | Scotia, CA           | 2017           | 14 Years        | 18.0          | 125,000             |
| Cove Hydroelectric               | Small Hydro         | Montgomery Creek, CA | 2020           | 15 Years        | 5.5           | 14,800              |
| Redwood Coast Airport Microgrid* | Hybrid <sup>2</sup> | McKinleyville, CA    | 2021           | N/A             | 1.8           | 5,600               |
| North Coast Highway Solar 1*     | Solar               | Hydesville, CA       | 2024           | 20 Years        | 0.99          | 2,100               |
| North Coast Highway Solar 2*     | Solar               | Hydesville, CA       | 2024           | 20 Years        | 0.99          | 2,100               |
| Sandrini Solar                   | Solar               | Bakersfield, CA      | 2023           | 15 Years        | 100           | 307,500             |
| Foster Clean Power A*            | Hybrid              | Arcata, CA           | 2023           | 20 Years        | 3.0           | 6,100               |
| Fish Lake                        | Geothermal          | Dyer, NV             | 2024           | 20 Years        | 0.4           | 3,000               |
| Ormat Portfolio                  | Geothermal          | CA & NV              | 2025           | 20 Years        | 4.0           | TBD                 |

\*local resource

RCEA also has agreements with PG&E to receive energy from two pools of resources, one comprised of hydroelectric plants and the other a mix of renewable energy sources. These resources are no longer needed by PG&E since a large portion of their former load is now served by RCEA and other community choice energy programs.

**Carbon-Free:** Since 2020, RCEA has been receiving carbon-free energy from PG&E’s portfolio of large hydroelectric facilities. The contract is executed on an annual basis at RCEA’s discretion. The amount of energy RCEA receives varies year to year depending on the hydrologic conditions throughout California, but in 2021 we received approximately 33,700 MWh of carbon-free energy.

**Renewable Energy:** Since 2023, RCEA has been receiving renewable energy from a variety of PG&E’s eligible renewable sources, including biomass, digester gas, landfill gas, geothermal, small hydro, solar, and wind technologies. RCEA expects to receive approximately 51,300 MWh in 2023, with the amount gradually declining every year as resources retire until the contract expires in 2045.

<sup>2</sup> Hybrid resources are a combination of energy generators and energy storage systems. In RCEA’s case, all of our hybrid resources utilize solar as the energy generation.

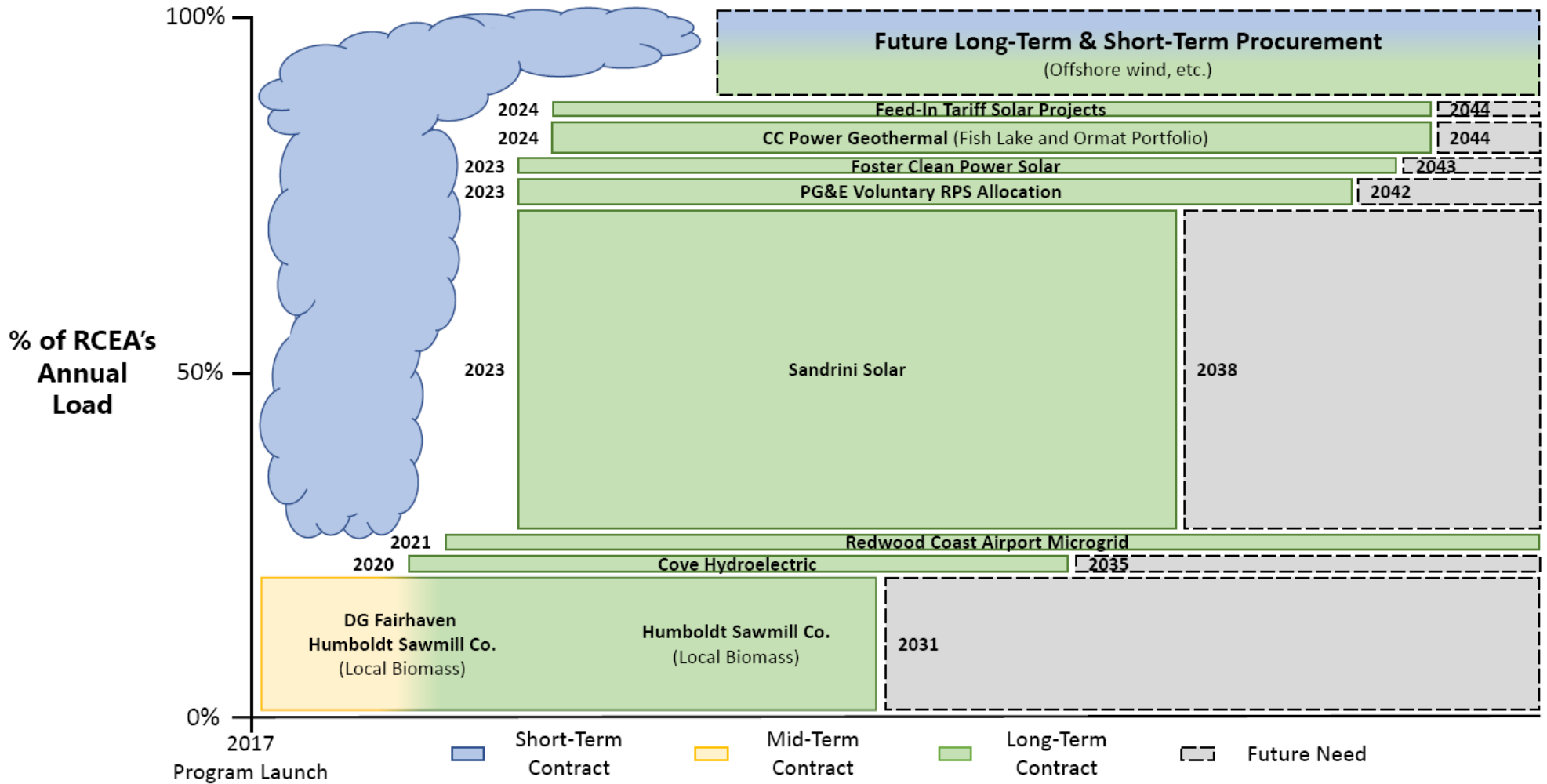
In addition to our renewable energy contracts, RCEA has also entered into a number of contracts for aggregated customer demand response and standalone battery energy storage as shown in Table 2. While these do not generate additional energy, they provide RCEA with some of our required resource adequacy and allow us to strategically balance the above generation resources with customer demand in real time, helping ensure grid reliability as we transition to using more intermittently available renewable energy resources such as wind and solar.

**Table 2. RCEA's Long-Term Resource Adequacy Agreements**

| Project Name                | Resource Type       | Project Location | Initial Operation Date | Contract Length | Capacity (MW) |
|-----------------------------|---------------------|------------------|------------------------|-----------------|---------------|
| Leapfrog                    | Demand Response     | CA statewide     | 2021                   | 10 Years        | 5.5           |
| Tierra Buena Energy Storage | Lithium Ion Battery | Tierra Buena, CA | 2022                   | 10 Years        | 2.5           |
| Fairhaven Energy Storage*   | Lithium Ion Battery | Fairhaven, CA    | 2024                   | 10 Years        | 17.25         |
| Goal Line Energy Storage    | Lithium Ion Battery | Escondido, CA    | 2025                   | 15 Years        | 2.0           |
| Tumbleweed Energy Storage   | Lithium Ion Battery | Rosamond, CA     | 2026                   | 15 Years        | 2.72          |

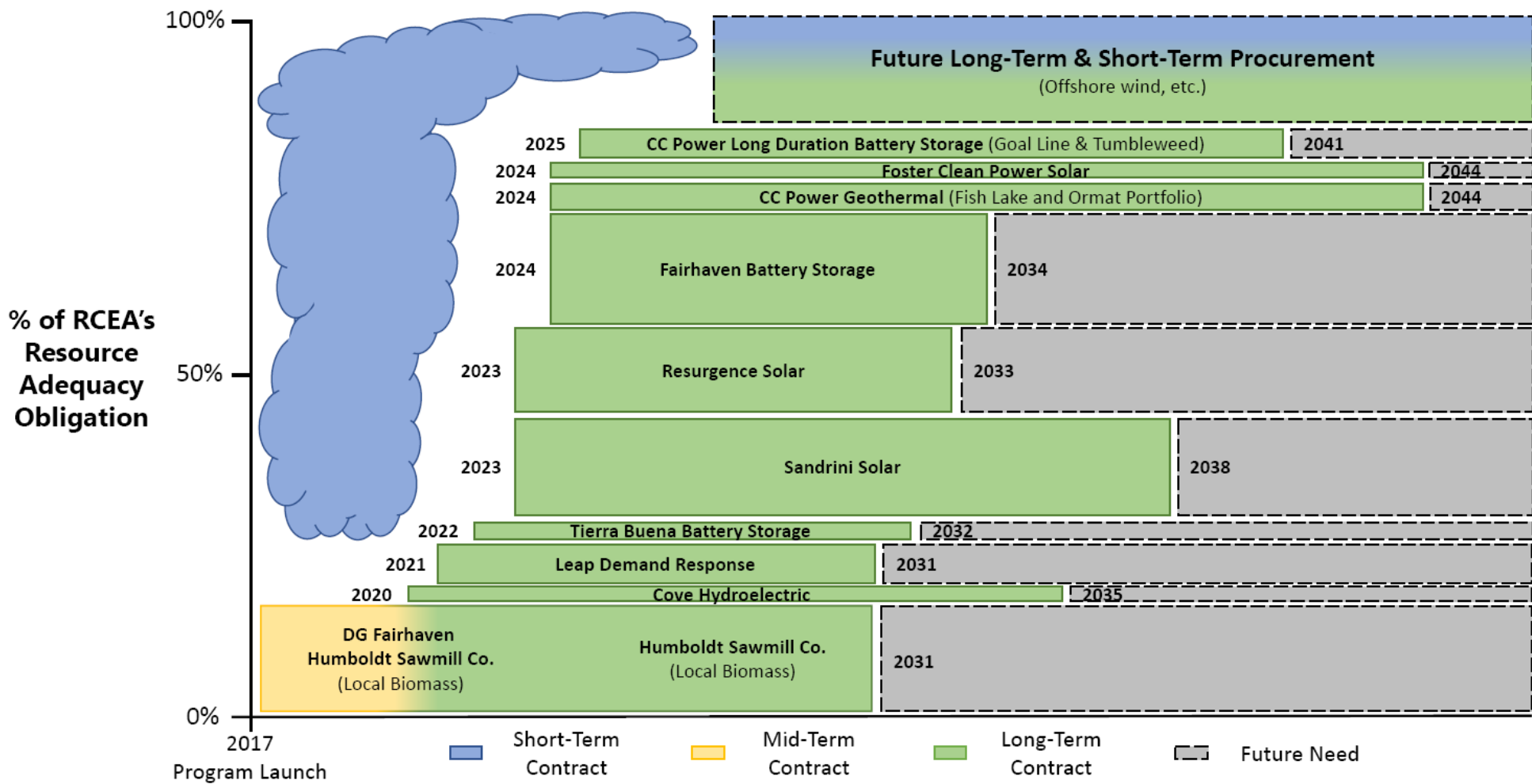
\*local resource

As shown in Tables 1 and 2, different resources enter RCEA's portfolio in different years and persist for longer or shorter terms, eventually needing to be extended or replaced with other resources. See Figures 2 and 3 for a conceptual illustration of how our various contracts make up our past, present, and future energy portfolio.



Scale Approximate

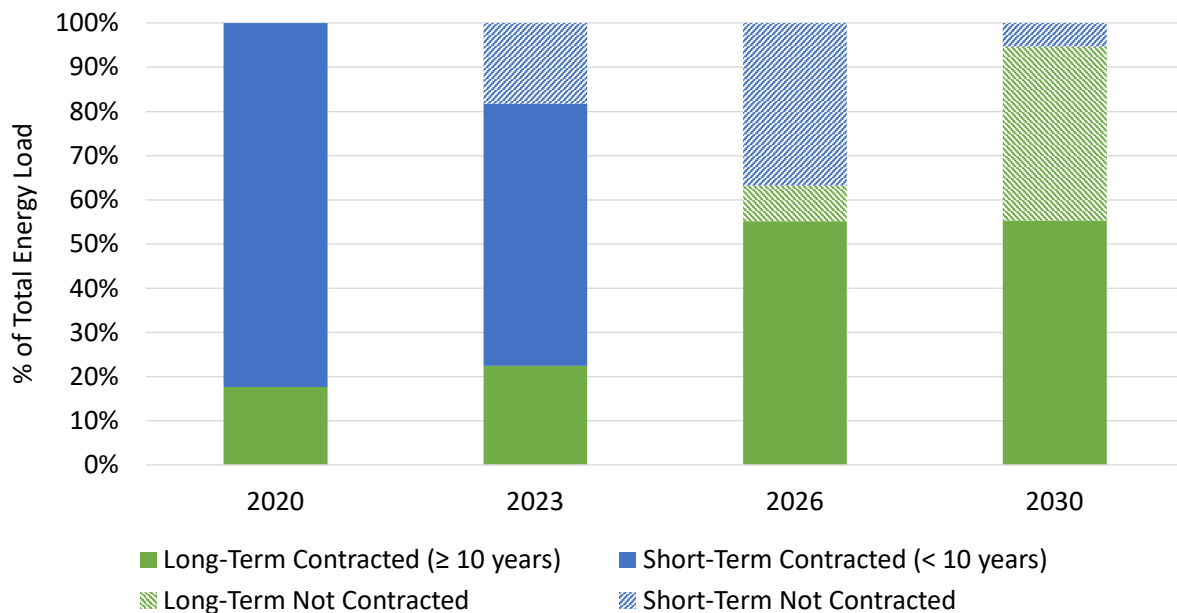
Figure 2. RCEA Energy Portfolio Timeline



Scale Approximate

Figure 3. RCEA Resource Adequacy Timeline

Despite our Board’s goal that all our energy come from local resources by 2030, RCEA has found it necessary for compliance with state laws and regulations to enter into some contracts for non-local resources that extend beyond 2030. One state law, Senate Bill 350, requires at least 65% of our renewable energy required under the CA Renewables Portfolio Standard to come from contracts of ten years’ duration or longer, or from resources we own. In addition, the CPUC has issued a series of procurement orders aimed at ensuring grid reliability; contracts compliant with these orders also need to be of minimum ten years’ duration. Figure 4 illustrates how RCEA is currently positioned to meet customer demand through a combination of short-term and long-term contracts.



**Figure 4: RCEA’s Progress Towards Long-Term Procurement**

Each solicitation issued by RCEA since 2019 has stated a preference for local projects, but the great majority of offers received have been for non-local projects. RCEA has had to weigh the importance of local procurement against several other factors, including cost, developer qualifications, and project risk. In addition, RCEA often finds itself competing for few available new resources when other energy providers across the state are working on the same schedule to fulfill the same CPUC-ordered procurement. At times, this has led to RCEA committing to non-local projects as the only alternative to non-compliance.

Some of RCEA’s contractual commitments needed for compliance and risk management purposes are at odds with the goal of 100% local procurement by 2030. However, as noted above RCEA’s strategic plan couples that goal with the aim that Humboldt County become a “net exporter of renewable electricity.” That goal could be fulfilled if other power providers, such as RCEA’s sister CCE agencies across the state, procure offshore wind or other Humboldt County renewable resources in sufficient

quantities to offset RCEA's purchase of non-local renewable energy. Given that the developable wind resource off the Humboldt coast is much larger than our local electricity demand, this scenario is very likely to come to pass within the coming decade.



**Figure 5. Redwood Coast Airport Microgrid**

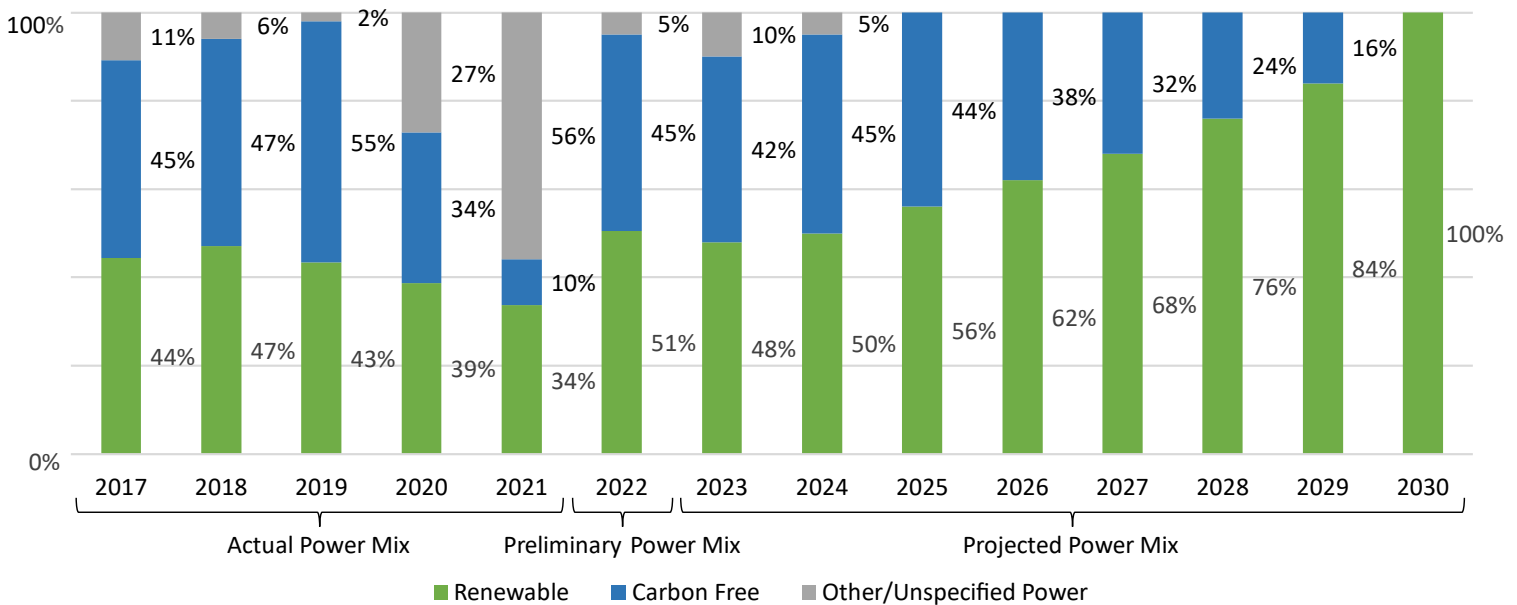
Most of RCEA's power is procured through contracts with power project developers or operators. However, RCEA has invested in one important RCEA-owned energy project. In 2021, RCEA began commercial operation of the Redwood Coast Airport Microgrid (RCAM), a solar plus energy storage facility at the California Redwood Coast Airport in McKinleyville. RCAM is California's first 100% renewable energy, front-of-the-meter<sup>3</sup>, multi-customer microgrid. The microgrid provides energy resilience for the regional airport and U.S. Coast Guard Air Station and electricity to RCEA's customers. Tax provisions in the federal 2022 Inflation Reduction Act make it more financially attractive for public agencies like RCEA to develop their own renewable energy projects, which may lead to RCEA developing more projects of this type.

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<sup>3</sup> "front-of-the-meter" means that this resource is serving the grid at large, rather than just offsetting load at one customer's site like a "behind the meter" rooftop solar system does.

Over the first six years of operating RCEA’s CCE program, our power portfolio has evolved. While we have sought to advance gradually toward our 100% renewable goal, we have had to respond to external challenges by temporarily adjusting our procurement. During 2020 and 2021, short-term financial challenges required RCEA to temporarily reduce our renewable energy content to keep customer rates competitive. These financial challenges included increased wholesale power costs, lower than expected PG&E electric rates that are used to benchmark RCEA’s own rates, and delayed or reduced customer revenues due to financial hardships during the pandemic.

The financial outlook in 2022 and future years has improved, allowing RCEA to resume our trajectory toward 100% renewable and carbon-free energy by 2025 and 100% local renewable energy by 2030. Figure 6 shows our power mix to date and our projected power mix to meet our 2025 and 2030 goals. Note RCEA’s 2022 power mix is a preliminary estimate using data received as of the publication of this document.

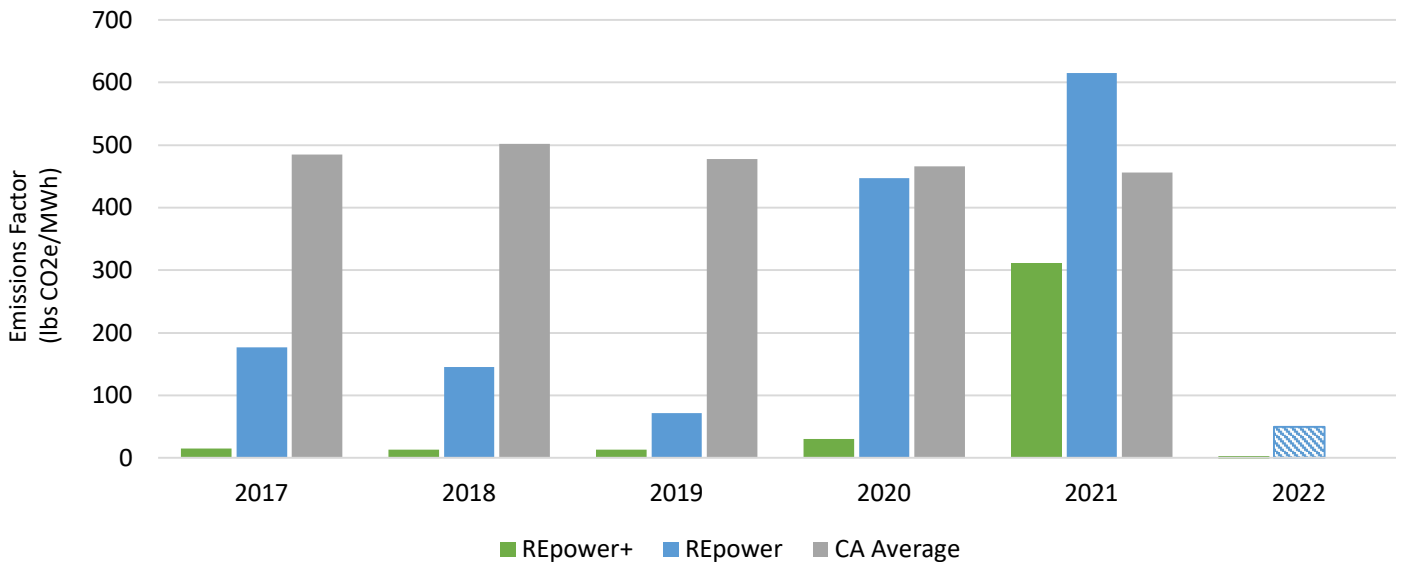


**Figure 6. Past and Projected RCEA Power Mix**

For the time being, RCEA’s power mix includes unspecified power in addition to renewable and carbon-free resources. Unspecified power cannot be traced back to a specific source. It tends to be less expensive and have greater emissions than renewable and carbon-free power. RCEA currently includes some power from unspecified sources in its portfolio to keep customer rates affordable. As we continue to add long-term renewable energy contracts to RCEA’s power portfolio, we plan to gradually phase out our reliance on unspecified sources of power.

## Greenhouse Gas Emissions

RCEA's GHG emissions have mostly been below the California utility average. However due to the short-term financial challenges in 2020 and 2021, the temporary reduction of our renewable and carbon-free energy procurement resulted in higher than usual GHG emissions. Also, a regulatory change took effect that ascribed GHG emissions to energy RCEA purchased from out-of-state renewables. As mentioned previously, RCEA's finances improved in 2022. This, along with procuring only in-state renewables in 2022, enabled us to get back on track to reducing GHG emissions associated with our energy mix, as shown in Figure 7. Please note that the 2022 GHG emissions shown in Figure 7 are a preliminary estimate. However, we will have RCEA's final GHG emissions for the 2022 calendar year published in summer 2023.



**Figure 7.** RCEA's Historic Greenhouse Gas Emissions (lbs CO2e/MWh)



## RCEA's Rate Structure

To date, RCEA has offered standard rates to our customers that parallel PG&E's generation rates with a Board-approved discount. Currently, RCEA customers receive a half a percent discount from what they would otherwise pay PG&E. This type of rate structure indexed to the local utility's rates is common among CCAs across California.

While RCEA's rate structure ensures that every customer will pay less than they would as a PG&E customer, it doesn't accurately represent the true cost of serving our customer base. This is because PG&E's rates reflect their cost to serve millions of customers across Northern California, plus an approved rate of return for their shareholders. Humboldt County has a unique climate, economy, and demography that determines our customers' energy consumption patterns. Most of RCEA's customer load is located on the temperate coast with more demand for winter heating than summer air conditioning, while PG&E's load is typically the opposite. Coupling RCEA's rate structure with PG&E's means our operational budget for power procurement and customer energy programs must fit within the confines of the current rate structure.

Building financial reserves over time will allow RCEA more short-term flexibility in setting its rates.

An accelerated timeline toward 100% renewable energy, or a decision to procure more premium priced renewable resources would drive up RCEA's operating costs. This could require RCEA to decouple our rates from PG&E's to appropriately cover the operational costs for meeting our procurement goals and serving our customers. Resulting rates could turn out to be lower or higher than PG&E's, depending on our comparative power procurement costs and other operating expenses.

Some CCE providers in California have begun to adopt rates based on their actual cost of service, rather than using a set discount relative to the investor-owned utility's rates. If RCEA were to adopt such a cost-of-service rate-making model and the resulting rates were higher than PG&E rates, we would face the risk of customers opting out of RCEA service. We would also need to consider all the challenges a utility faces in developing its own rates, including an added analytic burden and potential shifting of costs among customer classes.

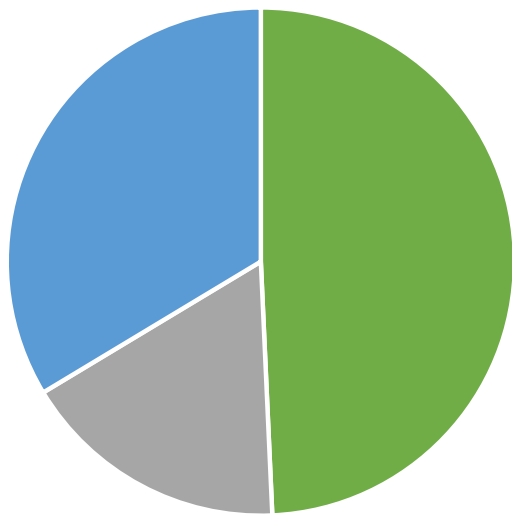


## REpower and REpower+ Participation

In 2017, when RCEA began serving customers in Humboldt County, all customers<sup>4</sup> were automatically enrolled into RCEA's REpower electricity service. However, approximately 1.4% of customers have "opted-up" into REpower+, RCEA's 100% renewable electricity service. RCEA monitors the number and load of opted up customers and procures additional renewable energy to cover this load.

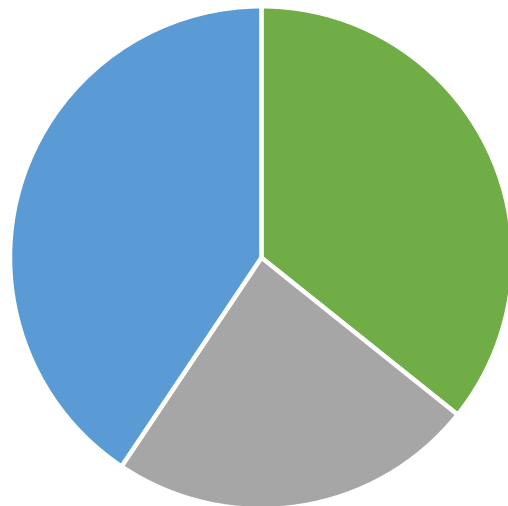
## The Customers We Serve

RCEA provides electricity to 92% of eligible customers in RCEA's service area. RCEA's customer base differs from what is typically seen across the State of California. In RCEA's service area, residential customers make up the largest electricity use sector, while for the state as a whole, commercial electricity use is dominant. Figures 8 and 9 are a comparison of how RCEA's customer base differs from the State as a whole.



■ Residential ■ Industrial ■ Commercial

**Figure 8. RCEA Usage by Customer Class**



■ Residential ■ Industrial ■ Commercial

**Figure 9. California Usage by Customer Class**

<sup>4</sup> Some large commercial and industrial customers who have special contracts with third-party electricity providers through a statewide program called Direct Access were not enrolled.

## Are the renewable electrons procured by RCEA actually delivered to my home or business?



Humboldt County is connected to a regional electric grid that spans across the western United States and has energy generators contributing electricity at various locations. When RCEA procures energy, we're paying a particular generator to put it into the grid at their plant, wherever it may be.

What electrons are actually delivered to our customers is not exactly the same as what we buy, since electricity flows by the path of least resistance to the customer load that's physically closest to the generation source. So, a unit of electricity used in Humboldt most likely originated at one of the plants here in the county, which are currently powered by natural gas, biomass, or solar. But electrons circulating on the grid are all the same, whether they are generated with renewable or non-renewable resources. It's similar to how your dollars can be deposited at a bank or credit union, then an equivalent amount of dollars can be withdrawn from an ATM thousands of miles away; it doesn't matter to you or the bank that those bills are different than the ones you deposited.

What's important in terms of cleaning up the grid is that we're gradually ensuring more of the energy going in comes from clean and renewable sources. In this way, Humboldt County ratepayer dollars are directly reducing total GHG emissions via renewable and carbon-free energy purchased by RCEA.

It is also RCEA's goal to generate as much of Humboldt's electricity as possible using local renewable resources, thereby reducing reliance on the Humboldt Bay Generating Station natural gas plant and imported fossil energy. As we make that transition, more of the electricity we buy will be what's consumed close to the source by our own customers. This is important for local economic development, and for local electric reliability as we transition away from natural gas in a grid constrained region. It's also important in terms of local air quality, as we gradually replace today's power plants that combust natural gas or biomass with non-emitting resources. But it's less important in terms of GHG emissions, for which the benefit is essentially the same wherever they can be reduced on the planet.

## California's Integrated Resource Planning (IRP) Process

Integrated resource planning is a standard long-term planning exercise conducted periodically by utilities to assess resources needed to meet customer energy demand at affordable rates. In California, load-serving entities including RCEA are required to submit an Integrated Resource Plan (IRP) to the CPUC every two years. These plans also address non-energy requirements that the LSE must meet, such as system reliability, dependence on unspecified system power, renewable resource integration, GHG emissions targets, and consideration of impacts that power plants may have on disadvantaged communities.

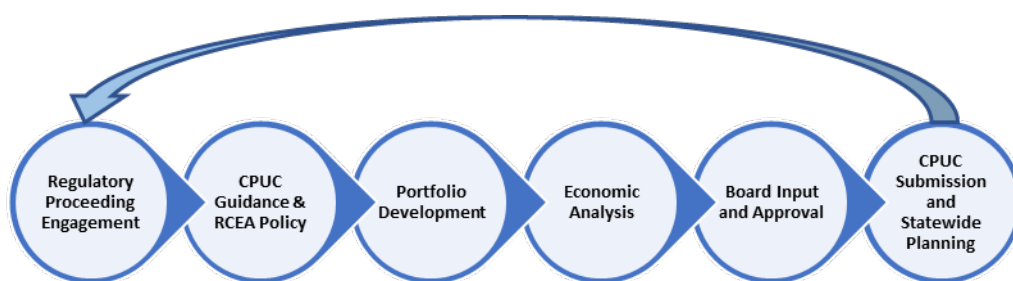
### RCEA's 2022 IRP

RCEA filed its biennial IRP with the CPUC on November 1, 2022. The plan details RCEA's electricity procurement plans through 2035 in keeping with statutory requirements for grid reliability and GHG emissions targets. RCEA is expected to submit its next IRP to the CPUC in 2024.

The CPUC requires load-serving entities like RCEA to submit a comprehensive package as part of the IRP process. The CPUC provides load-serving entities with spreadsheets to enter our proposed power portfolio(s) and demonstrate the portfolio's compliance with the State's grid reliability and GHG emissions targets. In 2022, RCEA submitted a detailed narrative describing our proposed portfolio, and two sets of spreadsheets, corresponding to two different 2030 and 2035 GHG emission scenarios.

RCEA's 2022 and prior IRP materials are available for viewing on our website. However, some of the information required by the CPUC to be included in the resource data templates is market-sensitive and therefore redacted from the public versions. Learn more by visiting:

<https://redwoodenergy.org/integrated-resource-plan/>.



**Figure 10.** RCEA's Integrated Resource Planning Process

Figure 10 represents the cyclical IRP process that RCEA undertakes every two years. First, RCEA and other LSEs engage in the regulatory process via the CPUC's IRP proceeding to understand and critique state planning assumptions and analysis methods. From this, the CPUC issues final guidance, requirements, and templates for the compliance filing, which staff review along with RCEA policies, plans and programs that will all advise development of the IRP portfolio. To develop the portfolio, staff

review existing and planned resource commitments and consider new resources to fill out the portfolio over time in different configurations, referred to as candidate portfolios. Then, RCEA’s consultant (in consultation with staff) analyzes the economic performance of each candidate portfolio, and the options are presented to the RCEA Board along with a portfolio recommendation. After Board input and approval, RCEA submits the IRP to the CPUC, whose staff combine all LSE IRPs into one statewide portfolio that is used for grid planning, and the cycle is then repeated two years later.

### Equity Considerations

Many communities disproportionately lack access to clean, reliable, and affordable energy due to race, nationality, income, or geographic location. Currently the U.S. Department of Energy is working toward providing disadvantaged communities with 40% of the overall benefits from federal investments in climate and clean energy. When it comes to the energy system, many communities face serious challenges.

| Energy Insecurity  | Energy Poverty   | Energy Burden  |
|--|--|--|
| <p><b>Definition:</b> The hardships households face when meeting basic needs.</p>                | <p><b>Definition:</b> The lack of access to reliable energy itself.</p>                                    | <p><b>Definition:</b> The percentage of household income spent on energy expenditures.</p>                                     |
| <p><b>Example:</b> Not using the air conditioning during a heatwave because of energy costs.</p> | <p><b>Example:</b> Disproportionate exposure to power outages experienced by marginalized communities.</p> | <p><b>Example:</b> Communities of color and low-income families direct a higher share of their income toward energy costs.</p> |

Energy justice is aimed at overcoming these challenges by reducing energy costs and burdens on low-income customers, avoiding disproportionate impacts, guaranteeing the equitable distribution of the benefits of energy generation and transmission, ensuring access to reliable and clean energy, and providing community participation in energy related decision-making and development.

To help overcome some of these challenges, RCEA’s Board approved a Racial Justice Plan in 2022, which is designed to remove racial disparities among communities in accessing energy services, and increase access to clean energy, energy efficiency, and healthy communities. In relation to RCEA’s CCE program, the Racial Justice Plan includes the following commitments:

- Tribal engagement
- Diversity, equity and inclusion in program selection design and implementation
- Energy justice in power procurement and energy resource development
- Collaboration with other California CCE providers and other external organizations on environmental justice and energy equity matters

## Achieving True Round-the-Clock Renewable Energy

In keeping with the current regulatory framework and common accounting methods for clean energy procurement, RCEA has set its procurement goals on an annual basis. If our goal is a 40% renewable portfolio, we purchase enough renewable energy over the course of a year to meet 40% of our customer load. This is an important step toward a truly clean energy portfolio, but it doesn't get us all the way there. For example, if we were to procure that 40% by buying only solar energy, we would not actually be providing renewable energy to our customers at night when the sun isn't shining, so we would need to purchase energy from other, potentially more polluting, sources to meet customer load round-the-clock.

Aiming for a 100% renewable portfolio on an annual basis is an ambitious goal RCEA and other electricity providers have set, but it does not ensure a completely clean portfolio every hour of the year. Years before launching our CCE program, RCEA in partnership with the Schatz Energy Research Center at Cal Poly Humboldt and PG&E performed a California Energy Commission-funded study on the feasibility of transitioning Humboldt County to a renewable energy-driven economy. The study used detailed computer modeling to identify a pathway to meeting loads in all seasons and times of day with renewable energy, using natural gas for generation only minimally to fill in gaps due to intermittency of wind and solar resources. At the time, battery energy storage at utility scale was not yet considered cost-effective. Inclusion of energy storage in the scenarios analyzed could further reduce dependency on fossil fuels.<sup>5</sup>

More recently, some clean energy leaders, notable among them Peninsula Clean Energy, the CCE agency serving San Mateo County, have set goals to serve their customers with 100% renewable energy around-the-clock, by carefully analyzing what renewable energy, energy storage, and other resources they would need to procure to meet their load in every hour of the year without having to call on fossil fuel power plants. Peninsula Clean Energy concluded that truly meeting a 100% renewable goal every hour of the year would be cost-prohibitive. Their study recommends procuring a portfolio

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<sup>5</sup> [http://schatzcenter.org/docs/RePower\\_Humboldt\\_Strategic\\_Plan.pdf](http://schatzcenter.org/docs/RePower_Humboldt_Strategic_Plan.pdf)

that can meet the 100% renewable goal 99% of the time. In Peninsula Clean Energy's case, this is estimated to result in only a 2% cost increase over a portfolio that merely meets the goal of 100% renewable on an annual basis.<sup>6</sup>

RCEA has embarked on our own analysis to study the costs and benefits of a round-the-clock renewable energy portfolio. We will share our findings as they become available.

### **RCEA Goals vs Constraints**

As highlighted throughout this document, there are numerous factors for RCEA to consider when supplying our customers with energy. As we strive to achieve our various goals, we're required to strategically navigate various constraints, whether they be internally or externally imposed. As represented in Figure 11, there are times when our goals are in conflict with the constraints that we operate within, but we're determined to overcome these challenges through innovative solutions and adaptive strategic planning.

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<sup>6</sup> <https://www.peninsulacleanenergy.com/our-path-to-24-7-renewable-power-by-2025/>

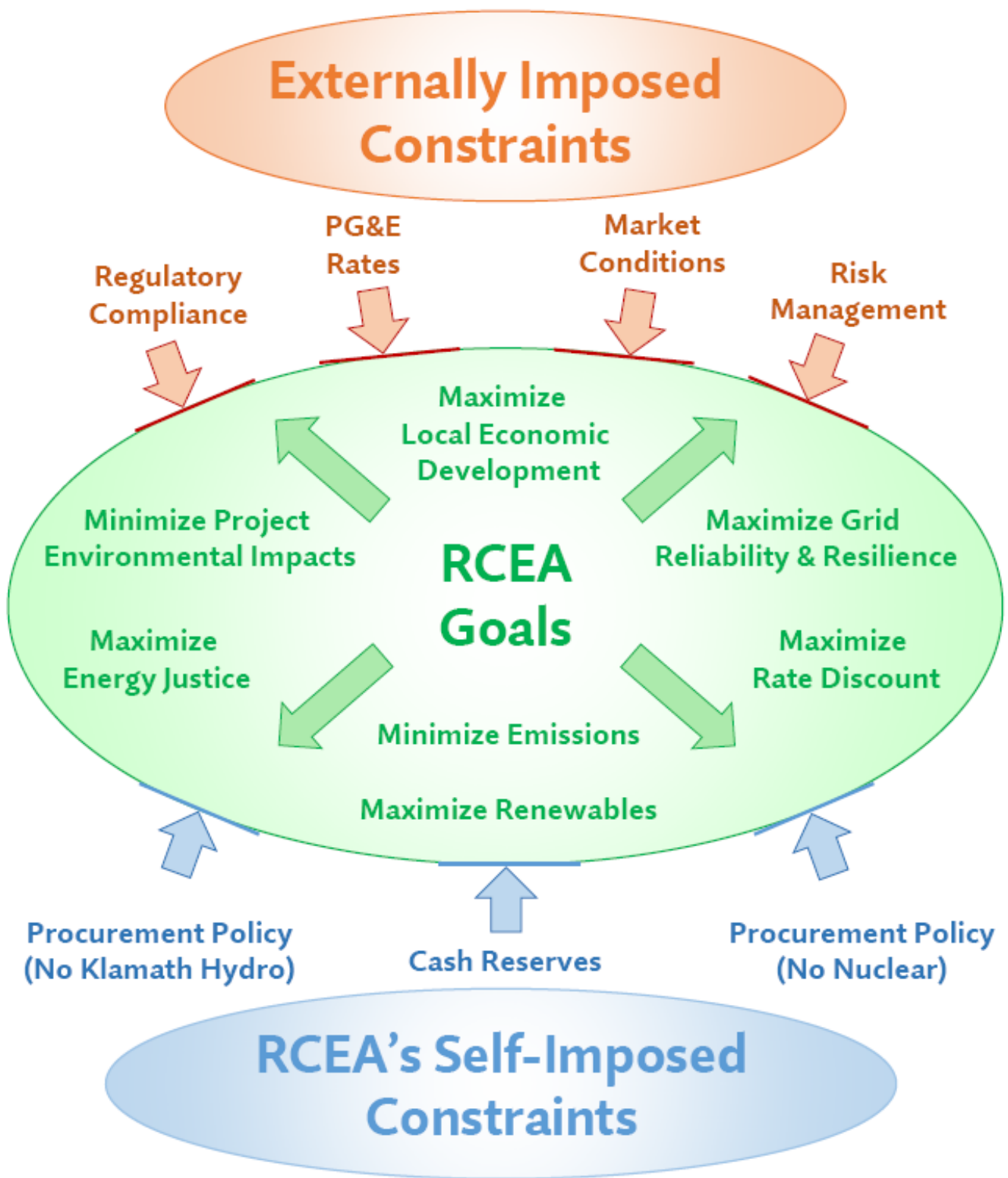


Figure 11. Goals & Constraints



## Conclusion

RCEA appreciates your interest in planning Humboldt County's clean electricity future. We will offer opportunities during 2023 for the public to provide input to be incorporated as feasible in RCEA's 2024 integrated resource plan.

Please visit <https://www.redwoodenergy.org/humboldts-electric-future> to find updated information and to sign up for event notifications.

You can also email us at [Humboldts-Electric-Future@RedwoodEnergy.org](mailto:Humboldts-Electric-Future@RedwoodEnergy.org) any time with comments or questions about RCEA's Community Choice Energy program.



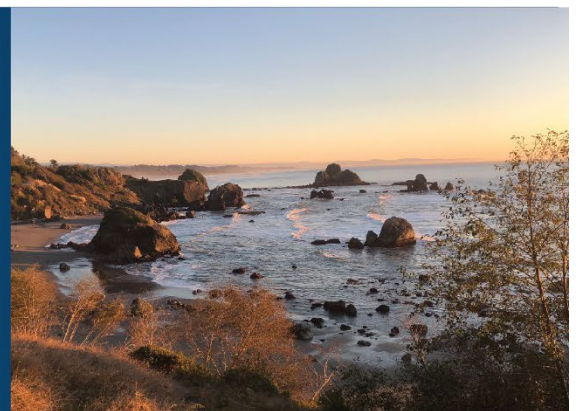
*Luna Latimer, RCEA Community Advisory Committee member, indicates her priorities during RCEA's 2019 Comprehensive Action Plan for Energy update*



# REDWOOD COAST **Energy**Authority

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## Appendix B: Quantitative Analysis Methodology

The purpose of the portfolios developed for Humboldt’s Electric Future was to present a differentiated set of potential scenarios to be ranked by workshop participants, thereby providing RCEA staff with information about resource mix preferences. As such, the portfolios themselves were not based on rigorous modeling of RCEA’s demand and needed supply, but rather a qualitative assessment of what resources will be available for RCEA to contract by 2035. That year was chosen as a benchmark for the analysis because several of RCEA’s current long-term contracts expire by 2035, making more room for new contracts. The following steps were taken to develop the various portfolios:

1. RCEA’s forecasted 2035 load<sup>5</sup> was broken down into the portion to be met with currently contracted resources that will still be operating then, and the remainder of RCEA’s load that will be available for new resources not yet contracted.
2. The uncontracted portion of the portfolio was filled with five different scenarios, each with a distinct resource mix of either local Humboldt or non-local generic resource types, as presented in Figure 5.
3. Daily and annual generation profiles of each portfolio were constructed using a combination of counterparty proforma forecasts, risk-adjusted profiles used for RCEA’s financial modeling, and data from the California Public Utilities Commission’s Integrated Resource Plan Clean System Power Calculator, depending on the resource type.
4. Average daily generation profiles of each portfolio were compared against RCEA’s four-year average demand profile for both the summer and winter months, as presented in Figure 6.
5. Proxy resource costs were assigned to each resource type based on a combination of current contracts, recent solicitations, and market knowledge from RCEA’s consultant, The Energy Authority (TEA).
6. Expected annual net revenue of each portfolio was quantified based on the sum of proxy resource costs, expected market revenues generated by each resource, RCEA’s cost to serve load, and expected revenues from retail rates. Expected market revenues were quantified using TEA’s internal forward price curves for energy, resource adequacy, and renewable energy certificates or carbon-free attributes, as applicable.

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<sup>5</sup> RCEA’s 2035 load forecast is from the California Energy Commission’s Integrated Energy Policy Report (IEPR), [https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycle-events-and-materials/2022-final-ghg-emission-benchmarks-for-lses\\_public.xlsx](https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycle-events-and-materials/2022-final-ghg-emission-benchmarks-for-lses_public.xlsx), as assigned in the CPUC’s 2022 IRP proceeding. The IEPR incorporates assumed load growth associated with electrification or fuel switching: “Updated electricity demand forecasts show that electricity consumption in California is increasing at an accelerating rate, fueled in part by California’s efforts to decarbonize the transportation and building sectors by switching from fossil fuels to electricity.” (Source: Final 2022 Integrated Energy Policy Report Update, <https://efiling.energy.ca.gov/GetDocument.aspx?tn=250084>)

## Appendix C: Workshop Transcriptions

The following is a full transcription of notes taken by the notetakers and activity results at both the in-person and online workshops. Only minor corrections to spelling and grammar were made to the text.

### a. Small Discussion Groups

#### 1) RCEA reinvests revenues back into the community-- how can RCEA make the biggest impact? Examples: Programs to save energy or convert from gas to electric appliances and vehicles, building RCEA's cash reserves for long-term financial stability, local energy infrastructure investment, other?

- All of the above.
- Rebates
- Public education and information
  - Recommendations to people on how to save money – various appliances, education.
- Neighborhood microgrids.
- What RCEA can do in terms of encouraging microgrids, informing people that it could be feasible.
- Solar on lakes – floating solar panels – potentially on the bay.
- Various projection of electric rates
- More public education to inform people on electrification – economic impact, financial impact.
- Heat pump – how could that affect the resale value of house.
- Information dissemination
- Agriculture – potentially tapping into the dairy industry. Methane digester – Partnering with agriculture to develop renewables.
- Constraints exist – timeline, low hanging fruit, various programs for rebates, heat pumps, EVs. Starting for Electric bikes. In the Future – developing local investment energy.
- community batteries; utility or behind the meter? Looking at infrastructure in schools or other agencies.
- Are we there to move gas to electric? Rural places lose power frequently. We have gas stoves, well for water, wood fire for heat. We suffer in the winter without gas. J: Having small Microgrids, and solar with batteries for back up power. But this is a important barrier.
- Priority to keep electricity on now. Farmer and Ranchers need alternate fuels.
- Accelerate roof top solar; feedback, doesn't require maintenance and easy to implement. Humboldt has plenty of sun. Batteries also, powerwalls. I will report after installation and effectiveness. Cheapest and best way to help climate change. Heat pump is good, but depends on freon or CO2 or propane in the system, Freon has high emission factor. Use CO2 heat pumps. 10 panel array, by scaling 50 panels more efficient, future maybe 60, look at multi housing arrays.
- McKinleyville CSD has a solar array. Could Manila CSD do this? Reach out to special districts or other entities to encourage solar. Would this be good for RCEA to do?
- Encourage individuals to do solar – homeowners install or enlarge their existing systems to feed more into grid.
- Rebates and tax credits to electrify appliances. Important to weatherize first. Coordinate with RCAA. RCEA does refer customers to RCAA.
- Emphasis on public health scourge of woodstoves and their benzene and pm2.5 emissions. Heat pump incentives should be aimed specifically at woodstove replacement.

- NEM 3.0 – emphasize solar + storage since the financial outlook for solar only is not so good any more.
- More accessible flyers and community meetings to talk about RCEA’s programs – better outreach and info distribution
- Distributed solar on the built environment, in addition to other sources RCEA currently uses.
- More heat pump water heater incentives and rebates.
- More rate subsidies for low-income community members.
- Heat pump incentives (Heating/ hot water)
- RCEA community Solar
- Local infrastructure development
- Consumer rebates
  - Energy efficiency
  - Electrification, etc.
- Prioritize rebate accounts to encourage specific behaviors
- Giving people power to generate systems
  - “Small community”
  - “Backyard systems”
- Public ownership of infrastructure
  - More efficient appliances
  - Lower rates
- Energy conservation
- Storage
- More small microgrids
- Emissions reduction
- Energy conservation programs
- Rebates/ incentives (EV’s, Solar, etc.)
- Grants for RCEA to maximize revenue/loans/ incentives + credit worthiness
- Credit rating
- Local generation – preference in permitting
- Visible generation e.g.; solar parking/ carports, paired EV charger with solar
- Send message to public through good design.
- Education about RCEA
- RCEA ownership of local projects including offshore wind, more microgrids.
- More incentives for battery storage (increase \$\$)
- Borrow against future savings of offshore wind to develop local projects
- More EV charging stations
- Invest in wave energy (more local than offshore wind)
- Using local sources for generation, long term payoff
- Incentives for EV’s and infrastructure to support EV drivers.
- Sharing resources for EV chargers, more diverse chargers/ stations
- Encourage workplaces/ multi family units to have chargers too.
- E-bike programs
- Utilizing offshore wind
- More public engagement
- Outreach to developing solar and info sharing (E-bike ex.)

- Partner with radio stations, more info for new housing and rebate appliances
- “Electrification of built infrastructure will be challenging – spend \$ on this”
- Putting extra high-A circuits into remodels
- “Cant just target new buildings, have to include existing buildings”
- Heat pump rebates, expand to other load types/ appliances
- Panel upgrade rebates (existing) are good.
- More outreach (Only head about this workshop yesterday) for new and existing programs.
- Installer trainings/ certificates. Heat pumps are not plug and play, need skills.
- Workforce for electrification
- Rates – hold a workshop to inform everyone.
- Rates and electric loads are inter-related.

**2) Our experience to date has shown that developing new renewable energy projects locally can be more expensive than simply purchasing renewable energy without concern for where it is generated. How important to you is developing local Humboldt generation resources compared to other goals such as greenhouse gas reduction, maximizing renewable energy, and customer rate savings?**

- Local production is nice for resilience – however, reducing GHG is a priority. Replacing biomass in the portfolio would be important.
- Reducing GHG is a larger priority than local sources.
- More investigation into reducing GHG – and boosting local production.
- I like the whole idea of reducing GHG. With that goal, other issues fall in line. GHG reduction first, that would allow renewable energy and rate savings.
- Undecided. Questions prior to workshop would be good. Renewable needed, but keeping it local will benefit the economy. Expensive to truck in goods.
- Habitat destruction is a critical factor in making any decision: solar panels in the desert or scrubland create far more impacts than local rooftops. Same for marine impacts. Powerlines waste energy, start fires, and waste resources.
- Get rid of biomass, don’t care if it’s local, just want it to be clean.
- Agrees about biomass. Challenges for local are significant – higher cost, lack of developer interest, infrastructure limitations. Apart from the biomass issues, it doesn’t make much \$ sense to develop locally. Maybe the local goal needs to be changed.
- CAC will be called upon to address this local energy question. Suggestion for CAC members to hold their comments till the CAC meeting. Multiple CAC members are in this breakout room.
- More emphasis on cleaner energy, time for change after procuring biomass for a long time.
- People are lobbying to remove biomass from CA’s definition of renewable energy.
- In 2021 500 scientists and economists wrote a letter against biomass being considered renewable due to 50+ years it takes to sequester the carbon emitted.
- Doesn’t necessarily have to be inside Humboldt County, but closer is better.
- Distributed solar on the built environment.
- Tidal/wave energy would be useful, and much less seasonal than solar.
- More local community solar projects, inland where they will be effective.
- STOP subsidizing non-carbon-free energy resources.
- Until transmission is improved, local is very important. Import and Export
- Use local innovative resources to develop more local

- Local is the top 3 goal
- GHG reduction over local, however local is great if possible
- Local over all so we can close the loop
- System should prioritize affordability
- Need more info/ education—too complex
- Location doesn't matter, just get it done quickly
- Very important – incentivize remaining local.
- Energy resiliency, more microgrids, ability to have battery storage during emergencies, large scale battery storage.
- It's a free market, if local projects cant compete on price, forget local. Local does create jobs and keep families local. If we don't build local, we are exporting and losing resilience, while maintaining dependence on HBGS gas plant, local power could help with reliability.
- Local RA is necessary, can't just build solar
- Resilience and not relying on power.
- RCEA can't totally exclude non-local projects. Peril of non compliance, put an adder in solicitations.
- We need to decide exact weighing criteria, a 2x preference for local is probably too high.
- Economies of scale will occur if local installers are able to increase their number of installs.
- RCEA- commission a study on economics of local power.
- Scalability is a concern
- Equity is important
- Local not important for generation, but storage is.
- Resilience is key to why local is important
- Local generation without GHG
- Ensuring max incentives for local generation
- "Backyard local"
- Rate savings for low income

3) **What are the challenges to providing equitable, affordable access to energy for all Humboldt residents while meeting local clean renewable energy goals? Example: lack of investment in energy infrastructure restricting new development.**

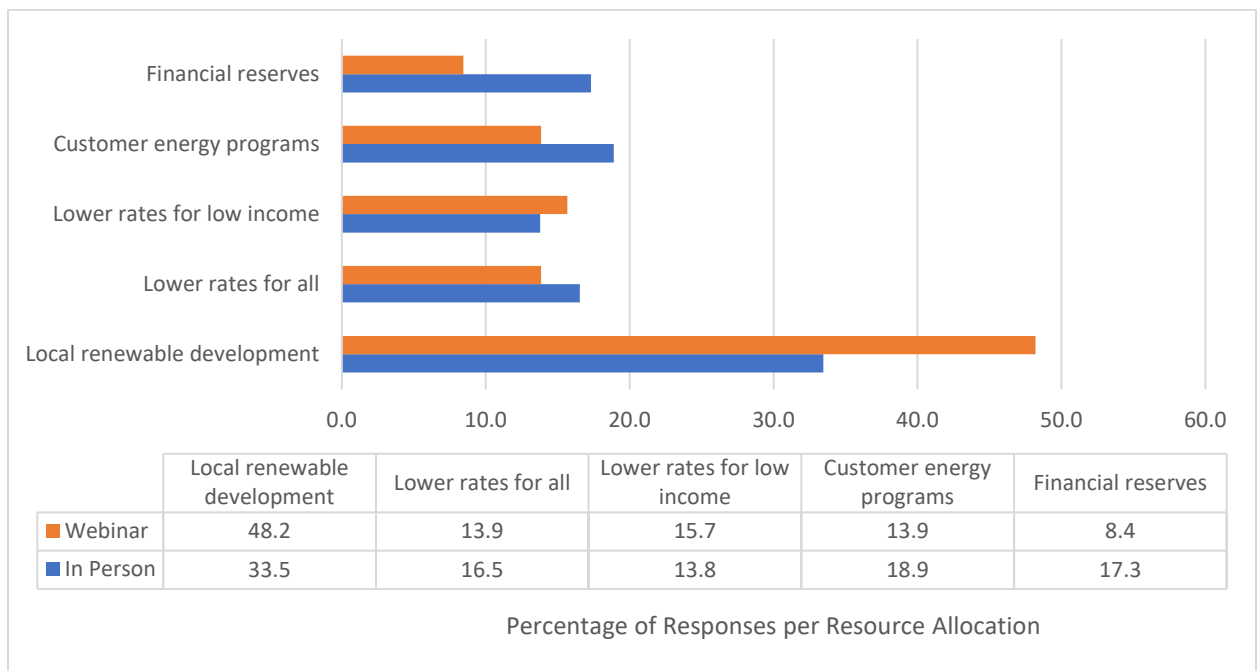
- Southern Humboldt County faces a problem of infrastructure for transmission.
- Need to invest in undergrounding lines, specifically for safety threats.
- Looking into the probability/likelihood of wind energy coming on the grid.
- There is a need for investing in infrastructure of wind energy.
- There is a need for improving current transmission lines – RCEA should encourage electrification, cables that are more efficient, potentially underground transmission lines.
- There was a proposal for utilizing agriculture for electricity
- Reduce the amount of power polls, including pivots.
- Improving infrastructure and reducing powerlines.
- Comment on Southern Humboldt. Discussion on microgrids.
- Reliability is key for agriculture
- Do more education with developers. Get them more in line with new development with the new energy policies in place. With right mentoring we can redirect that kind of attitude.

- Education lacking by government and schools. This happening rapidly. Tesla proposed in March, business plan 3, converting world to solar battery and wind. The Plan points out efficiencies. RCEA should look at this, study it, and debunk as much as possible. Look at energy savings, reduces emissions by half.
- Hard for me to see any, education needed. Good models for deployment. Initial investment feasibility. They save money.
- Electric rates high, whether from PG&E or RCEA. Rate structures are a disincentive to electrify. People can't afford clean appliances. Clean techs need to be affordable.
- Power outage rates in our rural area discourage electrification. Trees fall on power lines.
- Time of use rates discourage using electric stove to cook dinner.
- Access to rate info and understanding the rates is really key. Some aren't aware they could be on CARE or other rates they may qualify for.
- Distance – microgrids are a solution, but having to distribute power over long distances is a barrier.
- At Manila CSD, staff was good about informing people about programs to help w/ water & sewer bills during the pandemic. Had a sheet ready to hand out to people when they came in to pay their bills. Community orgs would be interested to provide this. RCEA could help make sure churches, community centers, etc. have info to give people.
- Same people show up at these meetings. How can we reach beyond the usual suspects and get more people from the community involved? (staff mentioned citizen assembly)
- Woodstoves are a major environmental justice problem
- We need to subsidize and incentivize for lower income citizens, to enable them to take advantage of technological improvements and efficiencies.
- RCEA should take advantage of existing programs to encourage distributed solar.
- Lack of money is a main barrier for many.
- Distribution, being on the same line, educating customers on financial apps and decrease energy usage.
- Time of use plan education, how to make it possible/ affordable
- Reliability during peak and off peak hours
- Reliability for rural customers, going electric, bringing entire county on board through public outreach (NIMBYism)
- Development cost outweigh benefit so cant get investors
- Lose volumetric price discount because jobs have to be small
- Humboldt market more expensive, find ways to have community projects
- Ensuring RCEA continues rebates so we can electrify and keep rates low so people don't regret
- Lack of understanding of rates – there's access to info but its hard to make decisions. RCEA could offer rate assessment services. PG&E has a tool, but its not easy to use. People have varying schedules so rate outcomes vary (Gamify education?)
- More expensive local could be a challenge, tiered rates based on income?
- Many people don't know if they qualify for medical baseline.
- By 2030 will all be opted up, so getting people to opt up is a temporary problem
- Get more people on a medical baseline, free up their money for other things.
- PG&E infrastructure
- Renter vs. homeowner- agency to change home infrastructure – mobile home lack of agency



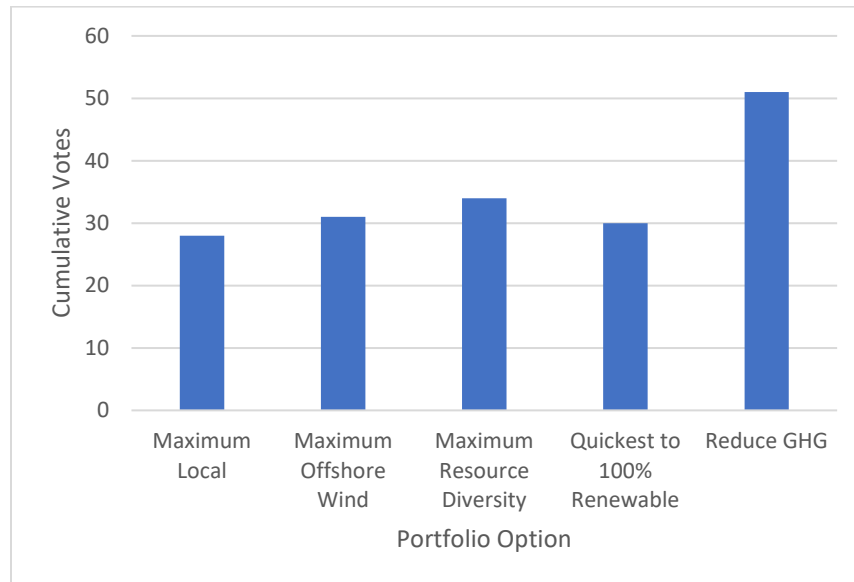
- Political resistance to green energy
- Lack of education on navigating programs and grant programs
- Planning and permitting processes
- Conservation
- Support transformative technologies and infrastructure such as OSW
- Infrastructure limitations
- Need a single point of contact to coordinate for those most in need
- Need for education
- Available assistance is being monopolized by people who don't need it
- Access to capital
- Negative effects of wind to aquamarine life and local fisherman
- Public power accountability to rate payers
- Education about energy (renewable basics) and dirty energy
- Investment towards education

b. Resource Allocation Exercise

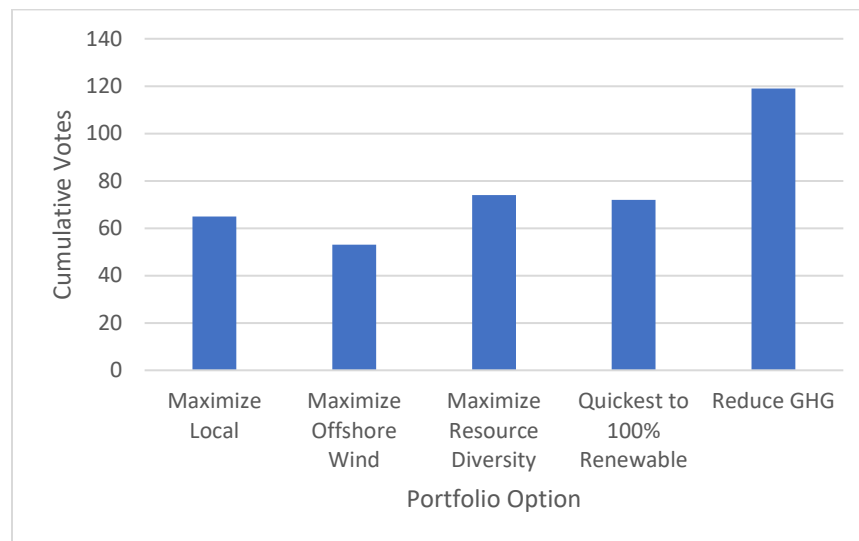


**Figure 3: Cumulative Resource Allocation Votes**

### c. Preferred Energy Portfolio Exercise



**Figure 2: Online Workshop Cumulative Votes per Portfolio Option**



**Figure 3: In-Person Workshop Cumulative Votes per Portfolio Option**

### d. Evaluations

#### **What did you like most about the workshop?**

- That it was an in- person option w/o hybrid virtual.
- Well prepared, thanks RCEA team!
- It moved right along.
- The opportunity to learn about RCEA and to participate in decision making by having my voice heard.
- The small group settings were well organized, thank you!
- Informative, knowledgeable presenters.

- Well conducted.
- Richard's intro was very good, and the sticker activities.
- Seemed like everyone was heard.
- Format.
- Discussion.
- Interaction.
- I learned a lot about the different choices we have and other people's comments to help educate myself about the complexity of the questions we face.
- Community involvement.
- Scoring of options.
- Efficient, friendly.
- Lots of engagement.
- Good to get community input.
- Informative to a point, but it's complicated topic, so I felt many of us may not have had sufficient info.
- The interactive nature and the thoroughness of the questions - it was also very well planned and kept to time.
- Breakout group discussions
- Breakout rooms
- I very much appreciate that you had a Zoom option. Thank you for that!
- Initial presentation and graphs of options
- The topic!

### **How do you think the workshop could have been improved?**

- Alt portfolios wall sheet: print the \$\$ costs on sheet that are on slide (which I didn't see before I voted).
- I recognize that the public is reluctant to engage.
- Better noticing of rate payers/ residents, perhaps some tabling at grocer stores.
- A little more about the history of RCEA would be good to know.
- Clarify ratings again.
- More time for discussion, clarification on how the results will be used.
- Opening comments, welcome, and team intros could be quicker and more concise to leave more time for other activities. Report out to larger group took a long time.
- It felt like a small turnout. Not a large portion of the community was invited.
- More participants.
- It was fine.
- I am hoping staff does not conflate winning votes for "local energy development" with continuing local biomass.
- Better explanation of questions, more diverse group.
- More time in groups.
- Work on how to attract larger crowd.
- Less gimmicks.
- Be better to have better defined, narrower choices and to describe tradeoffs because RCEA isn't Santa Claus.

- More education about the specific energy sources though I know that would have lengthened things.
- Maybe a practice run with the tech could have saved 5 mins and also sending out the questions beforehand to get the best responses
- The polls limited the range of potential feedback/input that the public could give in ways that clearly didn't sit well with some people (i.e., people were asked to choose among options, but may not have liked any of them)
- Was difficult to answer survey questions, especially with survey rating format needing to be moved to see charts
- Fewer canned poll answers, and more opportunity to provide real input would have been much preferred.
- Needed more individuals in each group; we only had two who actively participated.
- The moderator took up a lot of precious time. she could have been more succinct.

**Indicate your level of agreement with the following statements:**

*I felt that my opinions were heard in the workshop:*

Strongly Agree: (15)  
 Somewhat Agree: (4)  
 Neutral: (4)  
 Somewhat Disagree: (0)  
 Strongly Disagree: (0)

*The workshop is an effective means of gathering community input on RCEA's energy procurement:*

Strongly Agree: (9)  
 Somewhat Agree: (11)  
 Neutral: (2)  
 Somewhat Disagree: (4)  
 Strongly Disagree: (0)

**Please share any other comments you have about this event:**

- Its good but it is so hard to get broad, diverse attendance.
- I appreciate the different options for sharing thoughts/opinions (I.e. discuss, gold votes, # votes)
- Can(t) pick appropriate solutions without more background information.
- Needs to be more widely publicized.
- Enlightening and fun!
- I would like to see the prospect of publicly owned and operated utilities be a part of engaging public.
- Well done, very good summary of ratings, thanks for the food.
- More people need to know about these workshops.
- Thanks!
- It's a very limited cross section of our community.
- Appreciate RCEA's efforts to reach out into the community to gather input.
- Great job.
- I don't know. Not sure they really made it onto this paper. All electrification/ rebates not alike. Is lowering rates really on this table? I think perhaps an education session first would have helped.

- OSW should be on alt. portfolio. Accountable % of logical items/ ideas incorporated report. Great job, thanks.
- Thanks for dinner.
- Too many old white people.
- Came late, from what I saw it was great.
- Multiple choice polls are frustrating because they guide choices into certain directions that may not reflect the participants' intentions.
- It was a genuinely pleasant and well-organized Zoom event, but like most of these things that RCEA does, it felt like it was carefully structured to get the answers that RCEA wanted. Ultimately, it felt like an exercise to give the appearance of getting community input, without actually seriously considering the community's input.
- Would have been useful to have a Q&A portion where we could actually ask questions. You didn't really indicate the current program priorities and what energy sources are being explored and the costs of each. A cost-benefit analysis would have been useful. You need to try to improve the use of the zoom technology, perhaps, and the polling process. You got a variety of ideas, which is great.
- Effective in that some people simply cannot attend in person. The ability to write comments in chat box is helpful and people took good advantage of that.

#### **How did you hear about this event?**

- Found out from a friend.
- RCEA e-newsletter.
- I heard through climate action committee of Humboldt, Unitarian fellowship, TV and newspaper, John Schaefer.
- NEC or EcoNews.
- I was looking up RCEA to learn about offshore wind.
- Heard from Wendy Ring.
- An email from RCEA.
- I heard about this via email blast.
- Heard about it in email.
- Email.

## Appendix D: Glossary

### Renewable

*Renewable* energy refers to electricity generated from naturally replenishing sources. According to California's [Renewable Portfolio Standard](#), Solar, Wind, Small Hydroelectric, Geothermal, and Biomass resources are among those counted as qualifying renewable energy.

### Carbon-Free

Resources labeled as *carbon-free* refer to electric generation facilities that produce zero greenhouse gas emissions. These can include resources such as large hydroelectric and nuclear power, neither of which is classified as renewable by the State of California. Carbon-free energy resources can play a large part in reducing greenhouse gas emissions, but may also have other environmental or economic impacts that need to be considered. Note: RCEA does not procure any electricity from contracts with nuclear facilities, and does not include nuclear power in current or planned portfolios.

### Local Energy Resources

RCEA defines *local energy resources* as those located within the Humboldt Local Reliability Area, which is roughly geographically contiguous with Humboldt County itself.

### Clean Energy

The "Defining 'Clean' Energy" sidebar on page 3 of "RePower Humboldt: The Redwood Coast Energy Authority's Comprehensive Action Plan for Energy" (<https://redwoodenergy.org/wp-content/uploads/2020/06/RePower-2019-Update-FINAL-.pdf>) explores the problematic nature of this widely used term, stating: "After receiving public comments and discussing the matter at length, the CAC [Community Advisory Committee] members generally agreed that the term is too subjective to be used as a litmus test for making specific energy procurement decisions. In lieu of an explicit definition of 'clean,' the CAC endorses the goals stated in the Power Resources section of this plan that call for minimizing greenhouse gas emissions and maximizing renewable energy content of RCEA's CCE program, while also taking into consideration other environmental or public health impacts."

### Net Qualifying Capacity

*Net Qualifying Capacity* (NQC) refers to the state-recognized amount of generating capacity that can be claimed for an energy resource, determined using a percentage (the Effective Load Carrying Capacity or ELCC) of the nameplate capacity of the facility. Different resources are assigned different values throughout the year. A hypothetical 50 MW nameplate generic solar facility in California this year would have an ELCC ranging from 0.4% to 14%, which would mean a Net Qualifying Capacity between 0.2MW and 7MW.

### Resource Adequacy

*Resource Adequacy* (RA) refers to minimum capacity requirements that the State of California mandated to ensure balanced supply and demand across the grid, particularly during extreme weather that places the heaviest demand on supply. Load Serving Entities like RCEA must report monthly and annually to the CPUC on their contracted supply of RA, and may be penalized when they cannot show they have contracted enough power to meet their share of the minimum reserve capacity in a given period.