LOCAL CLEAN ENERGY VISION FOR SOUTHERN CALIFORNIA

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INTRODUCTION

Clean Power Alliance (CPA) and other Community Choice Aggregation (CCA) electricity providers are leading the rapid expansion of clean electricity in California. Clean energy resources such as solar PV and battery storage are often developed at a large scale in remote desert landscapes but can also be developed locally at a smaller scale that can add additional benefits. The face value costs of larger systems are generally cheaper due to economies of scale. Developing clean energy resources locally is justifiable when the benefits are greater than the cost premium. Our team worked with CPA and The Nature Conservancy to analyze the benefits of local development and to prioritize where the energy systems should be sited to achieve them in Los Angeles and Ventura Counties.

MULTIPLE BENEFIT LOCAL CLEAN ENERGY

Clean energy projects between 250 kW and 10 MW that locally-produce zero carbon electricity and include additional benefits such as:

- Local Jobs
- Cost Savings for Disadvantaged Communities (DACs)
- Improved Air Quality
- Reduced Development Impact on Greenspace and Habitat
- Increased Resilience Against Power Outages

IMPROVED AIR QUALITY

Question: Can local battery storage displace natural gas power plants located within or near CPAs service territory and improve local air quality? If so, by how much?

Finding: Battery storage is most likely to displace a natural gas power plant if the power plant has a high cost of electricity production and doing so does not increase the likelihood of blackouts. CPA can install battery storage in favorable reliability sub-areas to maximize the possibility of displacing a natural gas power plant located within or near its service territory. Displacing one ton of sulfur dioxide, nitrous oxide, and particulate matter 2.5 emitted by a natural gas power plant in Los Angeles County is estimated to improve air quality by $122,000, $40,000, and $257,000, respectively.

INCREASED RESILIENCE AGAINST POWER OUTAGES

Question: What is the value of having clean back up power at critical facilities during an outage?

Finding: There is significant value in having a clean energy system that can provide electricity during an outage. This value is dependent on two main factors: 1) the risk of incurring a power outage, and 2) the type of facility––specifically, the value of the services provided that depend on electricity. We find that a system capable of providing 50 kW of load over 4 hours would generate between $10,000 to over $70,000 of benefits to a generic facility over a 10 year period. Communities vulnerable to wildfire generally have the highest value of resilience due to higher historical outage rates.

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REDUCED DEVELOPMENT IMPACT ON GREENSPACE & HABITAT

Question: How can renewable energy developments have a lower impact on wildlife habitat and other greenspace?

Finding: Land use impacts from photovoltaic development vary based on the land use of the existing space and the availability of habitat and greenspace near the area of interest. Vacant land, disturbed land, and parking lots that can be converted to greenspace or habitat in areas of high greenspace and habitat need present higher levels of land use conflict and should be avoided for photovoltaic development. Areas that already have extensive habitat and greenspace provide opportunities for development with less conflict, with the lowest conflict development occurring on the roofs of existing buildings in these areas. These lower conflict opportunities are the best places to investigate for photovoltaic development.

KEY TAKEAWAYS

Even within the local territory, there is significant variation in the benefits provided by solar and storage systems. Any strategy to achieve multiple benefit local clean energy must account for location dependent and site specific characteristics. There are ample opportunities for local development in Southern California to provide the benefits we investigated. These opportunities support opting for local solar and battery storage systems even with the greater cost.

Local clean energy programs can incorporate the methods and findings of this project into their procurement processes to maximize the public good of energy systems. Exploration of other benefit areas can contribute to further incentives for local clean energy development.

RECOMMENDATIONS

We encourage Clean Power Alliance to:

- **Focus battery procurement efforts on the Western Los Angeles Basin reliability subarea:** This focus will maximize the possibility of displacing natural gas generating capacity located within or near CPA's service territory and improve local air quality.
- **Target critical facilities at high risk of outages for solar + storage projects:** The value that backup power systems provide during outages adds to their value during normal operations, especially in locations that provide services to the public. This value should be incorporated into procurement decisions.
- **Prioritize development within the built environment on building roofs and parking lots:** Screen potential project locations against existing and potential habitat and greenspace, and avoid interference with those areas where habitat and greenspace are already limited.

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