

# Microgrid in Richmond California as a Path to Climate Resilience

## BACKGROUND

Located in the heart of Northern California's refinery corridor, Richmond is one of the most vulnerable cities to climate change in the state. As a primarily Severely Disadvantaged Community within Richmond the Iron Triangle neighborhood is even more at risk. An historically segregated neighborhood, the Iron Triangle evolved among factories, refineries and rail lines. This area of Richmond is particularly exposed to extreme heat, while it suffers from a lack of green space and green infrastructure that can help protect the community from both. Additionally, Iron Triangle residents suffer severe health impacts from poor air quality, such as asthma, chronic obstructive pulmonary disease, heart disease and stroke.<sup>1</sup>

Increasing climate impacts from extreme heat, together with risk for power outages create a high vulnerability for the disadvantaged residents of Iron Triangle as these two events frequently converge in the late summer, endangering compromised people to high heat and the lack of power for air conditioners to keep cool. By implementing community microgrid in Iron Triangle, the city can address the need for climate resilience in a disadvantaged community.

*Refinery Flaring, Richmond, CA*



## HIGHLIGHTS

### ENVIRONMENTAL FINANCE CENTER

Environmental Finance Center West

### PARTNERS

Richmond Progressive Alliance

The Fossil Fuel Working Group

### LOCATION

Iron Triangle, Richmond California

### SCALE/SIZE

Population 19,807

### KEYWORDS

Microgrids, Community Resilience, Climate Resilience,

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**Refinery Flaring:** by Jose C Silva in Creative Commons

# APPROACH

EFCWest partnered with community organizations and city representatives in Richmond California to explore the potential for a microgrid installation in the Iron Triangle. EFCWest researched microgrids throughout the United States and presented five examples of community microgrids to partners and Richmond community leaders. All five microgrid systems included solar array and battery backup for energy storage. The microgrids represented different potential sites including: a community center, fire station, a housing complex, a gas station, and an entire town. Because of the varying conditions for each microgrid, the range of energy production, cost and complexity to implement was broad. The smallest system, developed for a fire station in Fremont California, offered 40 kW solar array and 95 kWh of storage. The largest microgrid supported an entire town, Borrego Springs, and eventually expanded to become the largest microgrid in the United States.

EFCWest also evaluated how microgrids are funded. Most microgrids are financed through partnerships that pool state, federal and utility funds while the sites or property most often provided by local governments or nonprofits. The type of funding is both loans and grants, and most often requires matches from local governments or organizations.

## KEY FINDINGS

Microgrids are primarily implemented to provide resilience while also reducing greenhouse gas



*Nevin Community Center, Iron Triangle*

emissions (GHG), increasingly required by state legislation.

EFCWest's overall recommendation to the community leaders and city representatives was to investigate the feasibility of developing a microgrid for an existing community center, the Nevin Community Center, within the Iron Triangle, and to model the project after a similar community center in Seattle. A contractor was prepared to conduct the required technical assessment to apply for state funds; however, they were not able to access the building to complete the assessment and the window for requesting funds closed.

The key findings call out the barriers that eventually prevented the assessment. There is a need for community and local government to engage on projects in very early, pre-funding stages - this applies to all climate resiliency planning. Political conditions such as elections and/or short terms can endanger collaborative teams and can quickly diffuse efforts. Building climate resiliency in the communities most in need requires accessible funding for pre-planning, planning and implementation. It also takes time to build the relationships that open the doors to funding. Funders at all levels need to consider this when introducing programs.

### ADDITIONAL RESOURCES

- <https://www.seattle.gov/city-light/in-the-community/current-projects/miller-community-center---solar-microgrid-project>
- <https://insideclimatenews.org/news/04122017/microgrid-emergency-power-backup-renewable-energy-cities-electric-grid/>
- <https://bluelakerancheria-nsn.gov/blrs-low-carbon-microgrid-is-complete/>
- <http://innovation.energy.ca.gov/SearchResultProject.aspx?p=30084>