



AGENDA REPORT

Economic Development

DATE:	December 19, 2023
TO:	Mayor Martinez and Members of the City Council
FROM:	Nannette Beacham, Economic Development Director Samantha Carr, Environmental Manager Omar Rascon, Associate Management Analyst
Subject:	Communities Local Energy Action Program (C-LEAP) Pilot Richmond Report
FINANCIAL IMPACT:	No financial impact as this report is paid for through a technical assistance award from the Department of Energy
PREVIOUS COUNCIL ACTION:	None.
STATEMENT OF THE ISSUE:	At the end of 2021, the City of Richmond passed an ordinance banning natural gas in new construction. In 2022, the City in partnership with RCF Connects was awarded technical assistance through the Department of Energy (DOE), Community Local Energy Action Program (C-LEAP). The goal of Richmond’s C-LEAP project was to conduct a city-wide building energy-use analysis to assess the impacts of various approaches to electrifying and improving energy efficiency of existing residential and commercial buildings.
RECOMMENDED ACTION:	RECEIVE the Communities Local Energy Action Program (C-LEAP) written research report – Economic Development Department (Nannette Beacham/Samantha Carr 510-620-5407).

DISCUSSION:

Background

On October 2016, the City Council adopted the [Richmond Climate Action Plan](#), which includes strategies to transition existing buildings to all electric and increase renewable energy generation within Richmond. Since then, the City of Richmond in partnership with multiple organizations has worked to reduce greenhouse gas emissions from energy-use.

On March 3, 2020, the City Council passed an ordinance adopting and amending the 2019 California Energy Code (California Code of Regulations, Title 24, Part 6) requiring electricity as the sole fuel source for newly constructed buildings (not natural gas), exceeding the requirements of the 2019 California Energy Code. These types of codes are referred to as a Reach Code. On November 2, 2021, City Council passed Ordinance [No. 15-21](#) prohibiting natural gas infrastructure in newly constructed buildings. The most cost-effective time to integrate electrical infrastructure is in the design phase of a building project. Building systems and spaces can be designed to optimize the performance of electrical systems and the project can take full advantage of avoided costs and space requirements from the elimination of natural gas piping and venting for combustion air safety. Electrification of existing buildings is significantly more expensive and research was needed to study and receive feedback on how to equitably electrify existing buildings.

In 2022, the City in partnership with RCF Connects, applied for and was one of 24 cities in the US to be awarded technical assistance through the Department of Energy (DOE), [Community Local Energy Action Program \(C-LEAP\)](#). C-LEAP is a pilot technical assistance (TA) program intended to facilitate sustained community-wide economic and environmental benefits to low-income and energy-burdened communities experiencing environmental justice or related impacts. The C-LEAP program is currently being managed by the National Renewable Energy Laboratory (NREL), in coordination with a variety of subject matter experts.

Through this effort, NREL conducted a city-wide building energy use analysis and assessed the impacts of various approaches to electrifying and improving energy efficiency of all existing residential and commercial buildings within the city limits. This assessment was in coordination with [Richmond's Green-Blue New Deal \(GBND\) project](#) and focused on data available through NREL's [ResStock™](#) and [ComStock™](#) analysis tools. This report did not look at actual energy consumption, greenhouse gas emissions, or utility bill data for the City. Instead, it used tools that model potential energy consumption patterns. Although the models are highly vetted and the baseline building stock data cross-checked with City and County assessor data, every model makes specific assumptions; therefore, it includes uncertainties and limitations. The report is intended to build an understanding of the potential impacts of existing building electrification and energy efficiency, and to support the City of Richmond in making informed decisions on policies and programs related to existing building electrification and energy efficiency.

NREL's analysis looked at potential modeled impacts of building envelope and electrification upgrades on five (5) indicators. The report includes an equity analysis related to the indicator areas:

1. Building energy consumption,
2. Greenhouse gas (GHG) emissions,
3. Utility bill charges and cost-effectiveness,
4. Employment impacts, and
5. Health and safety impacts.

Not all building types were included in the modeling. Almost all residential building types in Richmond (98 percent), about 65 percent of commercial and institutional buildings, and about 16 percent of industrial buildings (warehouse and storage). Heavy industrial was not included in the report. There were four types of building upgrades modeled: 1) Building Envelope, 2) Lower-Efficiency Electrification, 3) Higher-Efficiency Electrification, and 4) Building Envelope + Higher- Efficiency Electrification.

In August 2023, the [Equitable Electrification Analysis for Existing Buildings in Richmond, CA](#) was published and shared with Richmond community stakeholders at a virtual workshop. The purpose was to gain insight on stakeholder feedback, reactions, concerns, and ideas about how such work could be implemented equitably in Richmond.

Key Findings

Below are the major takeaways from the report:

- On a city-wide annual basis, natural gas makes up an estimated 46 percent of energy consumption and almost 80 percent of GHG emissions for the buildings modeled. Residential buildings consume about 70 percent of the energy and are responsible for 84 percent of associated GHG emissions for the buildings modeled (Report page 6-7).
- Natural gas makes up 56 percent of energy consumption and is responsible for 83 percent of GHG emissions in residential buildings (Report pages 22-23).
- Renters make up approximately 46 percent of households in Richmond with a majority of renters living in multifamily dwellings while 94 percent of owners live in single-family buildings (Report page 22).
- 71 percent of Richmond's housing stock was built before 1980 and are predominately single-family. Homes built before 1980 are likely to consume more energy per unit, use more natural gas per unit, and more at risk for health and safety issues (Report pages 8, 21, 22, and 25).
- In 1978, California adopted its first energy code in 1978 and the year the U.S. Environmental Protection Agency (EPA) first enacted bans on lead-based paint and asbestos in certain building materials (Report page 21).

- In both the residential and commercial sector, appliances are the highest consumers of energy (Report page 23 and 49).
- Of the commercial buildings with known construction dates, three-quarters were built before 1980 (Report page 48).
- Mercantile uses are the most common commercial building in Richmond and responsible for the majority of city-wide commercial building energy consumption with highest GHG emissions, however, the highest energy consumers per square foot are food service establishments (Report page 10).
- Literature review found that envelope improvements (when completed by a trained professional) and building electrification have the potential to improve indoor air quality and associated health impacts for both Richmond residents and Richmond workers, by reducing or removing pollutants that result from incomplete combustion in natural gas appliances. However, poorly or incompletely installed envelope measures could result in an increase in indoor pollutants, especially if natural gas appliances are still present (Report page 12).
- Renter households are more likely to pay for their own electricity while their landlord is more likely to pay for natural gas use. Since the price of electricity in Richmond is higher than natural gas (in terms of dollars per equivalent unit of kilowatt hours), these households could be more sensitive than single-family residents to electricity utility bill increases that may result from certain electrification improvements. This is particularly true in the case of lower-efficiency electrification upgrades, which the analysis showed could result in increased utility bills if not paired with envelope improvements (Report page 11).
- Envelope paired with high efficiency electrification upgrades yields the highest reduction in energy consumption, greenhouse gas emission and energy bill costs. However, these improvements are the most expensive to implement. (Report page 9, 11 and 53).
- In general, the high upfront cost of both envelope and electrification measures may be a barrier to low- and moderate-income owner households, and to small-scale landlords (those that own single-family and small multifamily rental properties) (Report page 12).
- In terms of employment, pursuing residential envelope and higher-efficiency electrification upgrades combined in Richmond could support up to 7,500 direct and indirect jobs, with two-thirds of those more likely to be local jobs (city/county/region), and half of them likely to be new jobs (a net increase). It is estimated that pursuing commercial envelope and electrification upgrades in Richmond could support more than 14,000 jobs, nearly two-thirds of which could be direct jobs, which are more likely to be local (Report page 9 and 57).

Next Steps

City staff will bring a funding request at mid-year to develop a strategy and programs to equitably increase residential, multifamily, and business access to energy efficiency and renewable energy technologies which in turn reduce GHG emission, improve health equity, and decrease energy bill burdens. The funding currently used for these efforts is the Environmental and Community Investment Agreement (ECIA) Energy Efficiency

funding which will soon be depleted. Example of programs funded or currently funded by ECIA include the [no-cost solar program for low-income homeowners](#), [Energize Richmond for businesses](#), and Energize Richmond for multi-family dwellings. Additional funding is needed to continue the City's efforts and develop a strategy document to equitably transition existing buildings to all electric.

Policy Synergies

The Richmond C-LEAP project supports various City goals and strategies in the General Plan, [Richmond Health in all Policies](#), [Richmond Resilience Roadmap](#), and Climate Action Plan.

[2012 Richmond General Plan](#)

- Element 8 Goals EC1, 3, and 5

[2016 Richmond Climate Action Plan](#)

- Objective 1/Strategy EE1
- Objective 2/Strategy RE3

2023 Bay Area Air Quality Management District Vote on [NOx emissions Phase Out for Space and Water Heating](#)

- 2015 [CA State Bill 350, The Clean Energy Pollution Reduction Act](#)
- 2022 [CA Energy Code Update](#)
- 2022 California Air resources Board vote on [Natural Gas Appliance Ban](#)

DOCUMENTS ATTACHED:

Attachment 1 – Building Stock Analysis (Final Report)