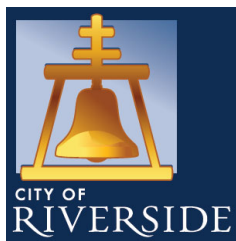


Date: EDC 6-23-22

Item No.: 3



REACH RIVERSIDE BUILDING DECARBONIZATION STRATEGY

**Economic Development, Placemaking,
Branding/Marketing Committee Meeting**
June 23, 2022

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BACKGROUND

- On November 17, 2020, the Riverside City Council adopted the Envision Riverside 2025 Strategic Plan with an **ambitious goal of reaching citywide carbon-neutrality by 2040 – 5 years ahead of the State of California's goal.**
- On April 22, 2021, the City Council's Economic Development, Placemaking, Branding/Marketing Committee formed the **Decarbonization Advisory Group** with the goal of gaining input and industry advice from the development community, organized labor, advocacy groups, and other potential stakeholders.



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DECARBONIZATION ADVISORY GROUP

The scale of this challenge requires an all-hands approach and an inclusive process that engages, involves, and consults all involved. The Decarbonization Advisory group was made up of the following:

Internal Membership:

- Chair of the Council ED Committee
- Representative from Board of Public Utilities
- Representative from the Planning Commission
- City Manager's Office
- Building Official
- RPU
- General Services

External Membership:

- Greater Riverside Chamber of Commerce
- Building Industry Association
- California Apartments Association
- Inland Valley Association of Realtors
- Southern California Gas Company
- Southern California Edison
- Inland Empire Labor Council
- Building Trades Council
- The Sierra Club
- RCCD
- Riverside Neighborhood Partnership
- Others...

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DECARBONIZATION ADVISORY GROUP

- Beginning in July 2021, the DAG met for nearly a year and discussed the benefits and trade-offs of moving forward with a building decarbonization reach code.
- The group heard from, among others:
 - **Local Government Commission**
 - **American Institute of Architects**
 - **Building Decarbonization Association**
 - **California Building Industry Association**
 - **Southern California Edison**
 - **Southern California Gas Co.**
 - **ARUP Consulting**

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DECARBONIZATION ADVISORY GROUP

- While the Decarbonization Advisory Group did not provide official recommendations, as it was not within their purview and as requested by several members, the group largely agreed that decarbonizing new buildings is an essential step towards achieving our carbon neutrality goals.
- The main concerns articulated in the group discussions revolved around **housing affordability, the cost of electricity, the impact of an increased load on the electric grid, the cost of infrastructure, and market-readiness of all-electric appliances.**



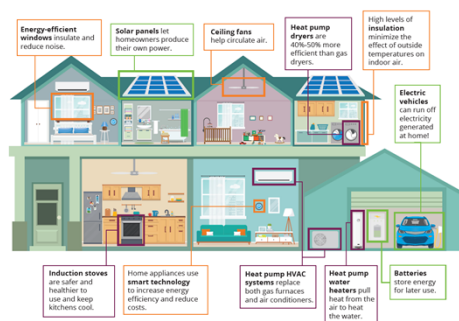
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WHAT IS BUILDING DECARBONIZATION?

- Building electrification refers to the process of phasing out fossil-fuel energy sources in buildings and transitioning to the use of renewable energy – mainly powered by solar, wind and other sources of zero-carbon electricity.
- While buildings today rely on a variety of different fuels, fossil fuels such as natural gas and propane are used to power furnaces, boilers, and water heaters



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WHY BUILDING DECARBONIZATION?

- Building decarbonization is a key strategy to reducing GHG emissions and is a “least-regret” logical first step in making a meaningful dent in citywide carbon emissions
- Fully decarbonizing the built environment will take varied strategies and phasing for existing buildings (retrofitting) and for new construction.
- An all-electric mandate is proven effective, palatable and cost-effective if initially focused on **new construction** and coupled with energy efficiency measures, decarbonization rebates and energy resilience programs.



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AFFORDABLE FOR HOUSING CONSTRUCTION

- All-Electric buildings have been proven to be cost-effective for new construction for nearly all building types since most electric appliances have similar or lower operating costs compared to natural gas appliances.
- According to an Energy and Environmental Economics report commissioned by the California Energy Commission, **building electrification is a lower-cost, lower-risk and longer-term strategy in comparison to “renewable natural gas”** (RNG; biomethane, hydrogen and synthetic natural gas, methane produced by combining hydrogen and carbon).



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IMPROVES INDOOR PUBLIC HEALTH

- According to the UCLA Fielding School of Public Health, replacing all of California's gas appliances with electric appliances **would prevent 900 cases of respiratory illnesses, lower health care costs by \$3.5 billion and save 350 lives every year.**



- Cooking with gas appliances for over an hour can cause carbon monoxide and nitrogen dioxide levels to increase above the acute national and state-based ambient air quality thresholds in over 90% of scenarios modeled by the research team
- A 2013 study in the International Journal of Epidemiology showed that living in a home with gas cooking increased children's chance of having asthma by 42%.



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JUST TRANSITION TO CLEAN JOBS

- UCLA Luskin Center for Innovation found that electrifying 100% of California's existing and new buildings by 2045 **would create over 100,000 full-time equivalent jobs, even after accounting for losses in the fossil fuel industry.**



- Exploring **workforce development opportunities** for local workers currently employed by or recently employed in a fossil-fuel industry and **creating pipelines for electrification-related job industries.**
- Working in conjunction with Riverside's Clean Tech Attraction efforts to **ensure good-paying job opportunities** are brought to the Riverside region



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ELECTRIC GRID IMPACT

- The future electricity grid is being prepared to integrate and fully transition to renewable and zero-carbon electricity in the future. This new grid will transition to a mix of renewable and zero-carbon generation, battery energy storage, distributed resources, incorporation of energy efficiency, and more.
- The Riverside Transmission Reliability Project (RTRP) is expected to be completed in 2026. Currently and until the completion of the RTRP, RPU has sufficient capacity and resources available (including through market purchases) to support electricity demand, including the additional electricity demand from the electrification requirement in the Decarbonization ordinance.
- New buildings increase electricity load as it is and adding full electrification will be incremental to the already occurring additional new load



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ALL-ELECTRIC REACH CODE ORDINANCE



PHASE 1: A local amendment to the California Building Standards Code requiring building permit **applications filed on or after January 1st, 2023, for newly-constructed buildings that are three stories or less** to be all-electric buildings.



PHASE 2: A local amendment to the California Building Standards Code requiring building permit **applications filed on or after January 1st, 2026, for newly-constructed buildings that are four stories or more** to be all-electric buildings.



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WHAT DOES ALL ELECTRIC MEAN?

“All-Electric Building” means a building that does not have natural gas piping or propane plumbing installed on a lot or within the building and uses electricity as the sole source of energy for its space heating, water heating, cooking appliances and drying appliances.



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EXEMPTIONS UNDER CONSIDERATION:

1. **Ground floor food establishments:** cooking equipment only
2. **Manufacturing/industrial facility:** manufacturing process loads
3. **Regulated affordable housing:** Water heating exemption when virtual net energy metering is not available



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ADDITIONAL INFEASIBILITY CONSIDERATIONS

- If an applicant establishes to the satisfaction of the Building Official that it is infeasible to comply with the above requirements, the Building Official may waive those portions of the buildings where all-electric is infeasible, considering:
 - **Type of building**
 - **Physical site conditions**
 - **Commercial availability of electric applications**
 - **Electrical infrastructure requirements**
 - **Public health/safety**



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WAIVER DETERMINATION PROCESS

- The Building Official will be required to develop guidelines in consultation with industry experts and practitioners and will be subject to approval by the City Council.
- The process will include but is not limited to:
 - **Meeting with the permit applicant**
 - **Process for determining timely decisions**
 - **Delivered written decision**
 - **Waiver Application Process**



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EV INFRASTRUCTURE REACH CODE

- In response to feedback to look further than just building electrification, an Electric Vehicle Infrastructure requirement for new buildings was also considered by the Decarb Advisory Group
- According to the California Energy Commission, California does not have nearly the amount of level 2 chargers expected to be installed by 2025 to provide the adequate amount of infrastructure to support **California's goal of reaching 5 million zero-emission vehicles by 2030 and 100% sales of electric vehicles by 2035.**



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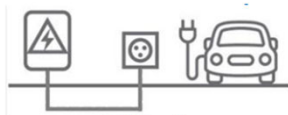
EV INFRASTRUCTURE REACH CODE

- The existing State Building Standards require that 10% of parking spaces at new buildings be "EV Capable" while the State Building Standards Commission's 2022 Code Update will require that **5% of new parking spaces be "EV-Ready" at new non-residential buildings with 26 parking spaces or more** and be equipped with Level 2 Charging Stations (EVSE rated at 208/240 Volts with 40 Amp Supply Circuit.) and that **25% of new parking spaces in general be "EV Capable."**



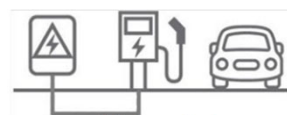
EV Capable

Installation of "raceway" (the enclosed conduit that forms the physical pathway for electrical wiring to protect it from damage) and adequate panel capacity to accommodate future installation of a dedicated branch circuit and charging station(s).



EV Ready

EV Capable plus installation of dedicated branch circuit(s) (electrical pre-wiring), circuit breakers, and other electrical components, including a receptacle (240-volt outlet) or blank cover needed to support future installation of one or more charging stations.



EV Installed

EV Ready plus installation of a minimum number of Level 2 electric vehicle supply equipment (EV chargers)



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RETROFITTING STRATEGY

- A common thread in the Decarbonization Advisory Group's meetings revolved around the more difficult aspect of building electrification: existing buildings.
- According to the California Air Resources Board, more than 75% of California's existing homes and commercial buildings were built before the State developed by Building Energy Efficiency Standards in 1978.



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RETROFITTING STRATEGY

- Hire/retain consultant to assist drafting of retrofitting strategy to potentially implement in the 2026 building cycle
 - Map locations of high-carbon emitting buildings or identify high-carbon emitting uses for prioritization
 - Pair electrification retrofits with other needed upgrades (energy efficiency, weatherization)
 - Ensure equitable access and potential programming/grant assistance for low-income households



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WHAT'S NEXT?

- The City of Riverside will engage with the community through public workshops, project demonstrations and townhalls in line with the Citywide Community Engagement Framework to inform residents, business owners and the development community of the upcoming changes to the building code and our efforts to reach City carbon reduction goals.
- The city is also engaging with the Local Energy Codes team to complete a cost-analysis study for the California Energy Commission's Climate Zone 10 which will include data on cost-feasibility for all-electric requirements. The 2019 study proved cost-effectiveness for all-electric for low-rise construction within our climate region.
- Fall 2022: Reach codes will be brought to City Council and wrapped into Triennial Building Code Cycle Update.



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COMMITTEE RECOMMENDATIONS

That the Economic Development, Placemaking & Branding/Marketing Committee:

1. Recommend that the City Council adopt a Reach Code Ordinance that provides a local amendment to the California Building Standards Code to require the following: a. Newly constructed buildings three-stories or less (low-rise) with a building permit filed on or after January 1st, 2023, to be all electric buildings. b. Newly constructed buildings four stories or more (high-rise) with a building permit filed on or after January 1st, 2026, to be all electric buildings; and
2. Review the following exemptions to the reach code: (a) Cooking equipment exemption for commercial kitchens. (b) Process load exemption for manufacturing facilities. (c) Water heating exemption for regulated affordable housing due to state requirement; and provide direction on an appeal process for additional infeasibility scenarios to allow for the building official to waive the all-electric requirement when there is verifiable proof that the type of building, physical site conditions, commercial availability of electric appliances, electrical infrastructure requirements or public safety conditions would make the project infeasible; and



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COMMITTEE RECOMMENDATIONS

3. Provide direction on the exploration of an Electric Vehicle Infrastructure Reach Code to require new buildings to provide a certain percentage of parking spaces to be capable to support Electric Vehicle Supply Equipment (EVSE) and
4. Recommend that staff hire a consultant to assist in the drafting of a retrofitting strategy (existing buildings) that would pair electrification retrofits with other needed upgrades and prioritize high-carbon emitting building types; and
5. Direct staff to prepare and return with a comprehensive report on carbon reduction strategies already in place within the municipal organization that complement this effort.



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