CITY OF LOS ANGELES
CALIFORNIA

CF 22-0151 - REPORT BACK

September 30, 2022

Honorable Members of the City Council
City of Los Angeles
City Hall, Room 395
Los Angeles, CA 90012

Report from the Department of Building and Safety Relative to the Implementation of Building Decarbonization Strategies in New Buildings; CF 22-0151

Dear Honorable Councilmembers,

Background

On May 27, 2022, the City Council adopted CF 22-0151 (Harris-Dawson/Koretz/Martinez/O'Farrell/Raman) which instructed the Los Angeles Department of Building and Safety (LADBS), with assistance from the City Attorney, the Climate Emergency Mobilization Office (CEMO), and all relevant departments, to report back within 180 days with a plan for the implementation of an ordinance and/or regulatory framework, effective on or before January 1, 2023, that will require all new residential and commercial buildings in Los Angeles to be built so that they will achieve zero-carbon emissions. The motion specified that the plan should integrate and be informed by the findings of the CEMO's Climate Equity LA Series on building decarbonization, as well as by LADBS's engagement with technical experts and key stakeholders per C.F. 21-1463 and additional engagement with building owner/operators, and should include:

- A recommended timeline for the implementation of the ordinance and/or regulatory framework, by building type;
- Recommended regulatory language to ensure that the ordinance and/or regulatory framework does not place the economic burden of transitioning to decarbonized construction on low-income tenants or contribute to housing destabilization or community displacement pressures;

- An analysis of any negative impacts to construction costs and timelines for publicly-funded residential buildings and recommendations for mitigating measures; and
- Strategies to mitigate and offset any potential impacts to construction jobs through programs and/or policies, developed in consultation with workers and labor union representatives for workers in the building trades impacted by the decarbonization of buildings, that would lead to the creation of new, quality jobs for workers working in impacted industries and that could bolster the City's ongoing Targeted Local Hire and Bridge to Jobs programs.

Environmental and Health Rational for All-Electric Buildings

There are multiple benefits for all-electric buildings, including health, climate, and economic benefits. Building electrification is a crucial component of the path to LA's Green New Deal and carbon neutrality before 2050. Environmental and health benefits include:

- **Building Electrification Creates Healthy Homes and Living Environments** – Emissions from gas combustion can impact both indoor and outdoor environments. The use of gas appliances, especially stoves and ranges, in poorly ventilated indoor spaces can produce concentrations of air pollutants in excess of state and federal outdoor exposure limits. As a result, the air indoors—where people spend nearly 90 percent of their time—is often more polluted than outdoor air. Homes with gas stoves have nitrogen dioxide (NO2) concentrations that are 50 percent to over 400 percent higher than in homes with electric stoves

a. **Reduction in Fugitive Emissions from Gas Infrastructure** – Accidental releases of gas from wells, pipelines, storage areas, and distribution networks are a limiting factor on the City's efforts to reduce the amount of greenhouse gases accumulating in the atmosphere. Less demand for gas means will lead to a reduction of fugitive emissions from the extraction, storage, and transportation of gas.

- **Building Electrification Is a Key Part of the Solution for Climate Change and Reducing Emissions** - Gas used in residential and commercial buildings is responsible for 25% of Californian's climate-warming greenhouse gas emissions. This makes electrification an important strategy in meeting climate goals and in the process saves developers, home owners, and renters upfront and operating costs.

Sources:

Seals, B. A., & Krasner, A. (2020). Health Effects from Gas Stove Pollution. Rocky Mountain Institute, Physicians for Social Responsibility, Mothers Out Front, and Sierra Club. https://psr.org/wp-content/uploads/2020/05/health-effects-from-gas-stove-pollution.pdf

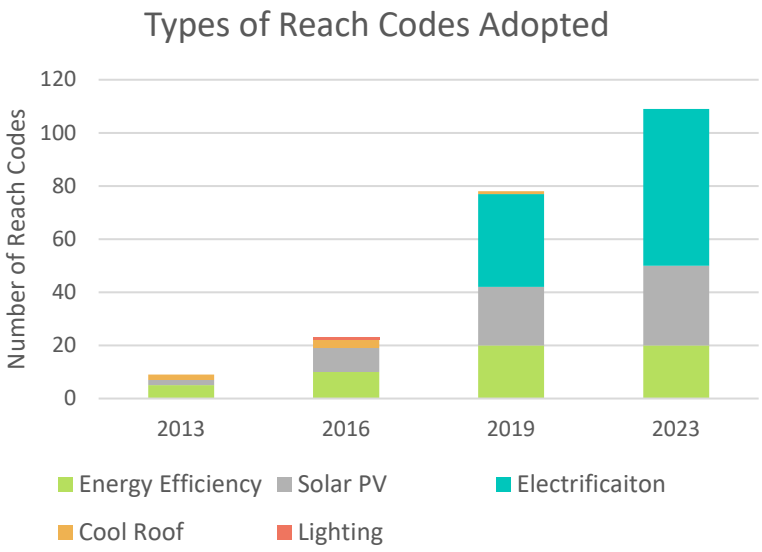
Rocky Mountain Institute, Gas Stoves Pollution Health https://rmi.org/insight/gas-stoves-pollution-health

Zhu, Yifang, Rachel Connolly, Yan Lin, Timothy Mathews, and Zemin Wang. 2020. "Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California," no. April. https://coeh.ph.ucla.edu/effects-of-residential-gas-appliances-on-indoor-and-outdoor-air-quality-and-public-health-in-california/

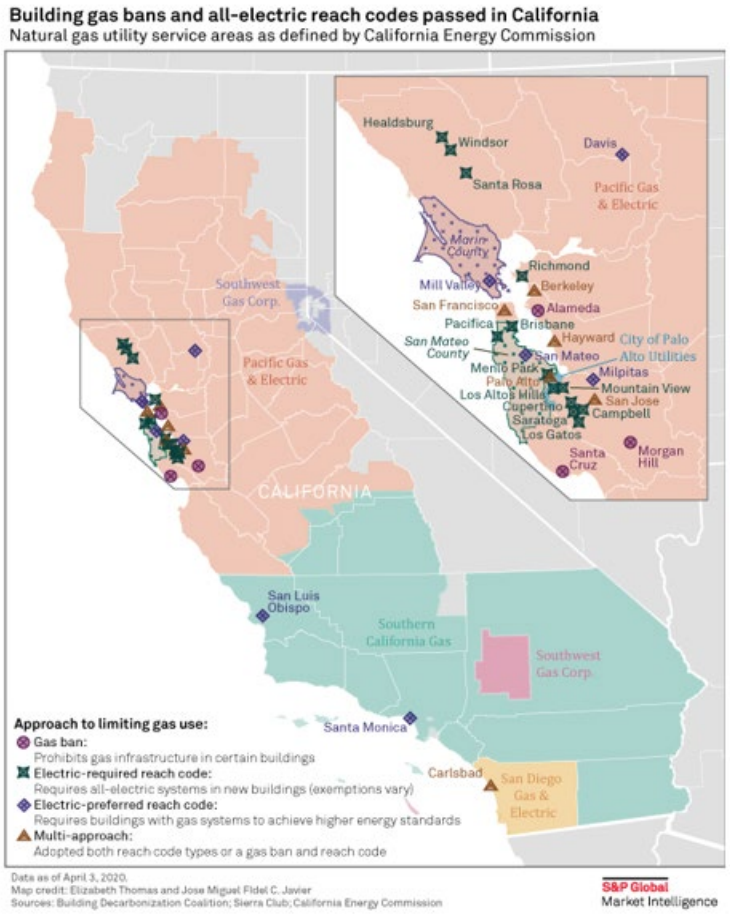
Christopher W. Tessum, Joshua S. Apte, Andrew L. Goodkind. 2019. "Inequity in consumption of goods and services adds to racial–ethnic disparities in air pollution exposure" https://www.pnas.org/doi/10.1073/pnas.1818859116

Local Electrification Ordinances in California

To date, 59 cities and counties have adopted electrification reach codes in California. Electrification "reach codes" include those that require electrification of one or more appliances, all-electric construction, and natural gas bans.



Source: https://epicenergyblog.com/2021/08/16/the-rise-of-reach-codes/



Source: Building Decarbonization Coalition, Sierra Club, and California Energy Commission

California Cities Local Ordinance Review

The tables below detail code review for single family dwellings and duplexes, low-rise residential buildings, high-rise residential buildings, and non-residential buildings in various California jurisdictions.

Single Family Dwelling & Duplexes

Single Family Dwelling & Duplexes				
City	**Requirements**	**Exemption**	**Condition**	**Opportunities (labor)**
City of Windsor	Electric-only	Accessory Dwelling Units	N/A	N/A
San Francisco	Electric-only & PV	Physically or Technically infeasible	Electric-ready	Solar PV, Solar Water-heating, & Living Roofs
City of San Jose	Electric-only, Solar-ready, & EV	Accessory Dwelling Units	N/A	N/A
City of Santa Monica	Electric-Preferred, PV, & EV	Heating and Appliances	Increased Efficiency	Solar Water-heating for Pools
City of Menlo Park	Electric with Exemptions & PV	Cooking & Fireplace	Electric-ready (cooking/fire)	Solar Water-heating
City of Pacifica	Electric with Exemptions	Cooking & Fireplace	Electric-ready (cooking/fire)	N/A
Mountain View	Electric-only, Solar-ready, & EV	None	N/A	Solar Water-heating
Solana Beach	Electric with Exemptions & EV	Cooking & Fireplace	Electric-ready (cooking/fire)	N/A
Sacramento	Electric-only	Builidng ≥ 4 stories	N/A	N/A
Ojai	Electric with Exemptions	ADU, Pools, for-profit kitchen	N/A	N/A
Santa Barbara	Electric-only	Public interest exemption	NA	N/A
New York City	N/A	N/A	N/A	N/A

Low-Rise Residential

Low-Rise Residential				
City	**Requirements**	**Exemption**	**Condition**	**Opportunities (labor)**
City of Windsor	Electric-only	Accessory Dwelling Units	N/A	N/A
San Francisco	Electric-only & PV	Physically or Technically infeasible	Electric-ready	Solar PV, Solar Water-heating, & Living Roofs
City of San Jose	Electric-only, Solar-ready, & EV	Accessory Dwelling Units	N/A	N/A
City of Santa Monica	Electric-Preferred, PV, & EV	Heating and Appliances	Increased Efficiency	Solar Water-heating for Pools
City of Menlo Park	Electric with Exemptions & PV	Cooking & Fireplace	Electric-ready (cooking/fire)	Solar Water-heating
City of Pacifica	Electric with Exemptions	Cooking & Fireplace	Electric-ready (cooking/fire)	N/A
Mountain View	Electric-only, Solar-ready, & EV	None	N/A	Solar Water-heating
Solana Beach	Electric with Exemptions & EV	Cooking & Fireplace	Electric-ready (cooking/fire)	N/A
Sacramento	Electric-only	Builidng ≥ 4 stories	N/A	N/A
Ojai	Electric with Exemptions	ADU, Pools, for-profit kitchen	N/A	N/A
Santa Barbara	Electric-only	Public interest exemption	NA	N/A
New York City	Carbon Emission limits by 2024 (>25,000 sqft)	Healthcare, worship, city-owned	Annual Fine	N/A

High-Rise Residential

High-Rise Residential				
City	**Requirements**	**Exemption**	**Condition**	**Opportunities (labor)**
City of Windsor	N/A	N/A	N/A	N/A
San Francisco	Electric-only & PV	Physically or Technically infeasible	Electric-ready	Solar PV, Solar Water-heating, & Living Roofs Non-potable water use
City of San Jose	Electric-only, Solar-ready, & EV	For-profit kitchen	N/A	
City of Santa Monica	Electric-Preferred, PV, & EV	Heating, Cooking, & Appliances	Increased Efficiency	Solar Water-heating for Pools
City of Menlo Park	Electric-only & PV	N/A	N/A	Solar Water-heating
City of Pacifica	Electric with Exemptions & PV	for-profit kitchen & Fireplace	Electric-ready (cooking/fire)	N/A
Mountain View	Electric only, PV, & EV	N/A	N/A	Solar Water-heating
Solana Beach	Electric with Exemptions & EV	for-profit kitchen & Fireplace	Electric-ready	N/A
Sacramento	Electric-only & EV	Builidng ≥ 4 stories	N/A	N/A
Ojai	Electric with Exemptions	Pools, for-profit kitchen	N/A	N/A
Santa Barbara	Electric-only	Public interest exemption	NA	N/A
New York City	Carbon Emission limits by 2024 (>25,000 sqft)	Healthcare, worship, city-owned	Annual Fine	N/A

Non-Residential

Non-Residential				
City	**Requirements**	**Exemption**	**Condition**	**Opportunities (labor)**
City of Windsor	N/A	N/A	N/A	N/A
San Francisco	Electric with Exemptions	Physically or Technically infeasible Cooking	Electric-ready (cooking)	Solar PV, Solar Water-heating, & Living Roofs Non-potable water use
City of San Jose	Electric-only, Solar-ready, & EV	Hospitals, Connected to DER, Industrial and Food Service	N/A	
City of Santa Monica	Electric-Preferred, PV, & EV	Heating, Cooking, & Appliances	Increased Efficiency	Solar Water-heating for Pools
City of Menlo Park	Electric-only & PV	N/A	N/A	Solar Water-heating
City of Pacifica	Electric with Exemptions & PV	for-profit kitchen	N/A	N/A
Mountain View	Electric only, PV, & EV	Hospitals and Laboratories	Electric-ready (appliances)	N/A
Solana Beach	Electric with Exemptions, PV, & EV	for-profit kitchen	Electric-ready (cooking)	N/A
Sacramento	Electric-only & EV	Building ≥ 4 stories	N/A	N/A
Ojai	Electric with Exemptions	Pools, for-profit kitchen	N/A	N/A
Santa Barbara	Electric-only	Public interest exemption	N/A	N/A
New York City	Carbon Emission limits by 2024 (>25,000 sqft)	Healthcare, worship, city-owned	Annual Fine	N/A

Summary of California Cities Approach

Assessment of 11 California electrification reach codes are detailed below. Findings are based on 2019 Title 24, Part 6, Building Energy Efficiency Standards and the associated reach code codified for each city. In total, 59 municipalities in California have implemented electrification reach codes with similar requirements and exemptions. The below table details the typical requirements for each building use type seen in other jurisdictions.

Peer City Electrification Approaches				
Building types	**Requirements**	**Exemption**	**Condition**	**Opportunities (labor)**
SFD & Duplex	Electric-only, Solar PV, & EV	Accessory Dwelling Units	N/A	Solar Water-heating
Low-rise Residential	Electric-only, Solar PV, & EV	Accessory Dwelling Units	N/A	Solar Water-heating
High-rise Residential	Electric with exemptions, Solar PV, & EV	For-profit kitchen, Affordable Housing	Electric-ready (For-profit kitchen)	Solar Water-heating, Dual Piping, rainwater
Non-Residential	Electric with exemptions, Solar PV, & EV	For-profit kitchen, Certain use types*	Electric-ready (For-profit kitchen)	Solar Water-heating, Dual Piping, rainwater

***Additional property exemptions**

- Manufacturing & Industrial Processes
- Hospitals & Laboratories Processes

Definitions:

- *Electric-Ready: Pre-wiring and panel capacity for future electric systems and appliances*
- *Low-Rise Residential: Three or less habitable stories above grade*
- *High-Rise Residential: Four or more habitable stories above grade*

2022 Energy Code Updates – Electric Ready Buildings

The updated 2022 Title 24, Part 6, Building Energy Efficiency Standards were formally adopted by the California Building Standards Commission in a hearing in August 2021.

The following standards related to building electrification will go into effect on January 1, 2023.

- New Single-Family Requirements
    - Electrical wiring and panel capacity are required for water heating, space heating, cooktops, and clothes dryers serving the dwelling.
      Reference: Section 150.0 - Mandatory Features and Devices, subsections (n), (t), (u) and (v)

- New Multi-Family Requirements
    - Electrical wiring and panel capacity are required for water heating, space heating, cooktops, and clothes dryer located inside the dwelling units.
    - Electrical wiring or raceway and panel capacity are required for clothes dryers in common use areas.
      Reference: Mandatory Requirements for Electric Ready Buildings Sections 160.4 & 160.9

As a result of State action, starting on January 1, 2023, new single-family homes as well as multi-family buildings will be required to be built with pre-wiring and panel capacity for heating, cooking, and laundry appliances. This will likely cause developers to begin constructing all-electric new buildings regardless of any action from the City, since they will already be required by State law to ensure their projects meet electrical load requirements and include the necessary wiring to support fully electric appliances.

There is a need for significant public education, outreach, and technical assistance on the January 1, 2023 State Building Standards update and its implications for the electrification of new construction. LADBS has found that many developers are unaware that these electric-ready requirements will apply to projects submitted for approval starting on January 1, 2023. LADBS will work with the California Energy Commission on public outreach.

<u>Cost of Electrification Analysis</u>

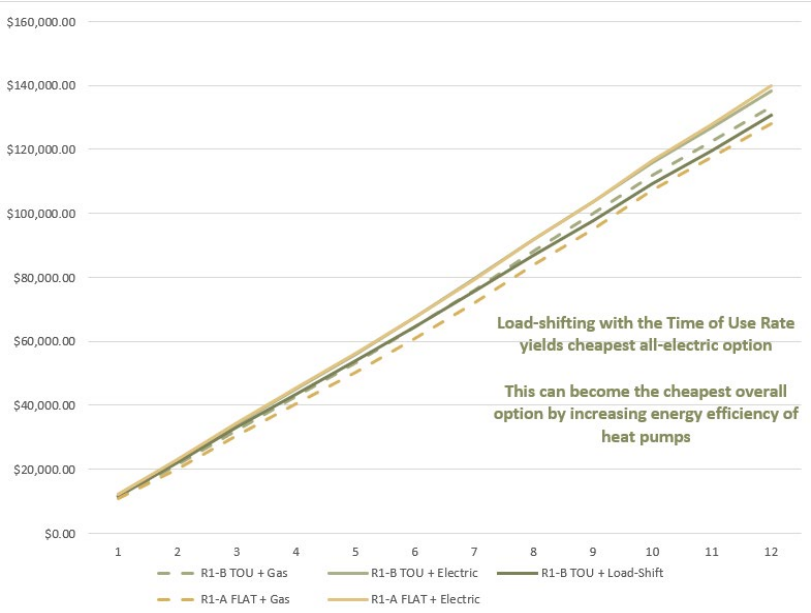
The analysis below details the cost difference between mixed fuel with natural gas and all-electric for single-family dwellings, multi-family dwellings, and non-residential buildings. This cost analysis does not take into consideration any current or future incentives.

The typical installation cost for electric appliances is very similar to that for natural gas appliances. Based on the 2019 cost effectiveness study developed by the California Public Utilities Commission, the cost difference between natural gas and electric resistance options for clothes dryers and water heaters is negligible. All-electric stoves are on average $200 more expensive than gas stoves, but that amount is offset by the $200 that is saved by using an electric heat pump system for heating and cooling rather than a traditional furnace.

All-Electric Appliances – Initial Cost Comparison	
Measure/Appliance	**Average Cost Difference for All-Electric**
Heating and Cooling (heat pump vs furnace)	-$200
Water Heater	Similar
Clothes Dryer	Similar
Cooking Stove	+$200

2019 CPUC Studies: ***Low-Rise/Single Family Cost Effectiveness***

As for the ongoing cost of utility bills, a study by Buro Happold performed as part of the preperation of this report back compared City of Los Angeles utility costs between all-electric and mixed-fuel buildings using the tiers related to time of use and a traditional flat billing. Using a prototype 8-story, high-rise multi-family building, the study concluded that the R1-A (flat rate) and R1-B (time of use), on average, are cost neutral for all-electric buildings. Mixed fuel buildings, under current rates, saw a slightly lower annual utility costs when compared to all-electric buildings, however, when factoring in maintenance, equipment replacement, and gas infrastructure costs, all-electric buildings are the cheapest overall. Additionally, when comparing energy savings between all-electric and mixed-fuel buildings, all-electric buildings see an average energy savings of 27%, which can be further translated into carbon emissions savings. R1-B (time of use) has the greatest upside by using a combination of load shifting and efficient systems; an all-electric building using R1-B will likely be the cheapest option in the long-term. Further research is recommended to determine the effects of behavioral change on time-of-use utility pricing.



The 2019 California Cost Effectiveness Studies are used for many California municipalities' justification for electrification reach codes. Results are calculated as a Net Present Value accounting for a 30-year period. Incremental costs represent the equipment, installation, replacement, and maintenance costs of the proposed measures relative to the base case.

The 2019 Low-Rise Residential New Construction Cost-Effectiveness Study found an incremental cost savings of $2,337 per unit for all-electric small multi-family buildings. The initial cost savings not taking into account equipment replacement and maintenance is an even higher cost savings of $3,361. Annual utility costs per unit were $12-30 higher in these buildings, but still resulted in lower lifetime costs due to the upfront incremental cost savings.

The 2019 Mid-Rise Residential New Construction Cost-Effectiveness Study found an incremental cost savings of $606 per unit for all-electric buildings. Initial cost savings not taking into account equipment replacement and maintenance were not available in the CEC study. Annual utility costs per unit were $7-$28 higher in year one, however, lifetime utility cost savings in these buildings ranged from $153-$227 per unit.

The 2019 High-Rise Residential New Construction Cost-Effectiveness Study found that clustered heat pumps are more cost-effective than central heat pumps (unless paired with solar PV). For clustered systems, there was an incremental cost savings of $715 per unit in all-electric buildings. Initial cost savings not taking into account equipment replacement and maintenance were not available in the CEC study. Utility costs ranged from lifetime savings of $71 per unit to a cost increase of $67 per unit. First-year utility costs saw savings of $39-$41 per unit.

The 2019 Non-Residential Cost-Effectiveness Study found significant savings for both office and retail buildings. Office buildings had an incremental cost savings of $63,102-$76,153 for the whole building and an average $1,462-$2,538 utility cost savings for the whole building per year. Retail buildings had a $21,762-$32,113 incremental cost savings for the whole building and an average $725-$1,922 utility cost savings for the whole building per year. Initial cost savings not taking into account equipment replacement and maintenance were not available in the CEC study.

The CEC has only released an updated 2022 cost effectiveness study for single-family dwellings. It is expected that the CEC will release updated cost effectiveness studies for other building types by the end of 2022.

The 2022 Single-Family Residential New Construction Cost-Effectiveness Study found an incremental cost savings of $5,234 for all-electric single-family buildings. The initial

cost savings not taking into account equipment replacement and maintenance is an even higher cost savings of $5,288. Annual utility costs were $264-$269 higher in these buildings, but still resulted in lower total lifetime costs due to the upfront incremental cost savings.

These studies show that while many utility customers will see savings from the transition to all-electric buildings, others may see an initial increase in monthly utility costs. For multi-family buildings, some of these costs will be offset by the solar thermal water heating systems being recommended in this report below. Long-term, electrification will also likely reduce utility bills across the board as heat pumps and other electrification technology become more efficient, especially in the face of rising fossil fuel costs. LADBS recommends that in the meantime the Department work closely with LADWP to leverage existing and future rebate programs to help customers address any initial increases in utility costs in advance of the requirements in this report going into effect.

All-electric detached accessory dwelling units can be cost effective in all climate zones through either the utility bill or Time Dependent Valuation (TDV) metrics when compared to a mixed fuel baseline. All-electric detached ADUs were found to be more cost effective than mixed-fuel ADUs.

New Construction Costs: Detached ADU			
Construction Item	**Mixed-Fuel Cost**	**All-Electric Cost**	**Difference in cost for All-Electric**
Appliances	See Previous Table		-$200
In-house gas plumbing	$540	$0	-$540
In-house electrical upgrades	$0	$600	$600
Site gas service extension	$1,998	$0	-$1,998
Site electrical service connection	$3,500	$3,500	$0
Feeder and subpanel	$1,666	$2,152	$486
Total	**$7,704**	**$6,252**	-$1,673

On average **All-Electric Detached ADUs are less expensive** to build than similar mixed-fuel ADUs

Source: California Energy Commission - Detached Accessory Dwelling Units Cost Effectiveness Study

Natural Gas Savings

Under the new 2022 CEC code and the proposed City of Los Angles all-electric building requirement, the cost of installing natural gas infrastructure in residential buildings will be significantly reduced or eliminated altogether. Based on the 2019 and 2022 California Cost Effectiveness Studies summarized on page 9 of this report, there is a significant cost savings achieved in all categories including single-family and multi-family dwellings. The

study shows a $6,300 construction cost savings for single-family dwellings and $3,361/dwelling unit construction cost savings for low rise multi-family. Mid- and high-rise multi-family building construction cost savings are expected to be published by the California Public Utilities Commission by the end of 2022 and are expected to be in line with low-rise multi-family construction cost savings. This is an important cost savings result which will help achieve the City's goal of requiring new buildings to be constructed all-electric without increasing the cost of housing.

Effect on Natural Gas Service Pricing

New buildings represent less than 0.5% of the building stock in the City of Los Angles. Therefore, the electrification of new buildings will likely have no significant effect on the price of natural gas service for existing natural gas customers.

LADBS is simultaneously working on developing a building decarbonization policy for existing buildings and that policy will examine whether any incentives will be needed over time as existing building stock is retrofitted and electrified to prevent remaining gas customers from seeing increases in utility bills.

Effect on DWP Connection Cost

The Los Angeles Department of Water and Power (LADWP) is committed to 100% clean energy, as well as supporting the electrification of the transportation and building sectors. As part of the groundbreaking LA100 study, electrification is central to any pathway towards a clean energy future.

In cases where electrical distribution for a new building construction project does not exist, or when the existing electrical distribution to the site is not sufficient to provide the necessary electrical service required by a new development, the cost of providing electrical distribution or upgrading existing distribution infrastructure is charged by LADWP to the developer, which can be a significant cost. This scenario occurs now regardless of whether a building is using mixed-fuel or fully electrified.

In some locations within the City, existing transformers may not have enough capacity to support a new development. In addition, there is sometimes no infrastructure to support a new development, and LADWP must extend the power distribution lines and install a new pole for that particular development. These scenarios do not make up a large percent of overall development and affect mixed-fuel buildings in addition to electric-only buildings.

LADBS recommends that LADWP investigate ways to address this issue to determine if there are alternatives available to prevent the first-mover development in a location from

having to subsidize infrastructure costs that later developments will then not incur—especially as this relates to the development of affordable housing projects.

In the vast majority of cases, however, the electrification of new construction will not be a deciding factor in a project needing to take on the cost of upgrading electrical distribution infrastructure.

In addition, given the requirements of January 1, 2023 State Building Standards update, both single-family and multi-family dwellings will need to be constructed with electrical wiring and panel capacity to support electric water heating, space heating, cooktops, and clothes dryers. So where electrical distribution infrastructure upgrade costs are required for a new building, developers will be required to make those upgrades regardless of any action from the City pursuant to this motion.

Climate and Emergency Mobilization Office (CEMO) Report

The *Equitable Building Decarbonization Report* prepared by the CEMO in response to Council File 21-1463 contains additional information pertaining to the decarbonization of new buildings, including recommendations to:

- Create a Building Decarbonization Community Advisory Committee to develop a set of equity metrics and conduct regular Equity Impact Assessments.
    - Require that these equity metrics be published on the City's website in a manner accessible to the general public.
- Integrate traditional ecological knowledge into the City's building code to inform engineering, design, and materials used for residential and commercial buildings to be more energy-efficient and less carbon-intensive by using materials that do not require as much energy to process or transport.

LADBS supports these recommendations and plans to address building materials and design in future code updates.

Los Angeles Housing Department (LAHD) Report

LAHD has made additional observations regarding the decarbonization of new buildings in connection with Council File 21-1463, including:

- That the City focus first on implementing the new construction decarbonization ordinance, as the cost differences at initial construction are minimal.
- Clear technical requirements to eliminate uncertainty with upgraded codes, standards and infrastructure needs as property owners conduct improvements.
- Clear alignment, coordinating and staff capacity among City departments to assist with both new and existing buildings, considering the magnitude of the scale for the size of Los Angeles that includes education, training, and technical assistance.

LADBS concurs with these recommendations and will work with LAHD on implementation.

Potential Impacts to Construction Jobs

The transition away from natural gas in residential and commercial buildings has the potential to impact construction jobs for workers in the natural gas and plumbing sector.

As mentioned above, however, the January 1, 2023 State Building Standards update is already set to require single-family and multi-family dwellings to be electric-ready for all appliances including cooking, heating, and laundry. This requirement may already encourage developers to discontinue providing gas connection to these appliances.

The recommendations in this report call for all buildings to require solar thermal water heating in multi-family dwellings. These recommendations will help to make up for displaced plumbing work while increasing environmental benefits and avoiding an increase in the per unit cost of housing.

The Case for Solar Thermal Water Heating

A solar thermal collection system directly heats water or other liquid using sunlight to offset the energy use associated with the use of domestic hot water (DHW). High efficiency evacuated tube solar thermal collectors have a higher efficiency when to compared to photovoltaic solar panels paired with heat pumps for DHW. Solar thermal water heating systems also provide significant resiliency benefits to the electric grid. With added electric demand from shifting to all-electric buildings, solar thermal water heating can offset what might otherwise be electric demand for residential DHW systems.

The cost of solar thermal water heating systems will be offset by the construction cost savings achieved by the reduction or elimination of gas infrastructure, as shown in the 2019 and 2022 California Cost Effectiveness Studies summarized on page 9 of this report. Additionally, solar thermal water heating systems will provide annual cost of fuel savings by reducing a building's energy demand.

Recommendations

That the City Council, subject to the approval of the Mayor:

I. REQUEST the City Attorney, with the assistance of LADBS, to draft an ordinance for implementation on January 1, 2023, requiring the decarbonization of new buildings through electrification, as follows:

1. Require all new buildings to be fully electrified as of April 1, 2023.
    a. Except that Affordable Housing Projects as defined in the Mayor's Executive Directive 13 shall have an effective date of June 1, 2023.
2. Require all new hotel, motel, and residential buildings over a number of units to be determined to install a solar thermal water heating system for a portion of the domestic hot water demand if they have a flat roof and central domestic water heating system.
    a. Except that new hotel, motel, and residential buildings that implement greywater and/or dual plumbing systems shall be exempt from the solar thermal water heating system requirement.

1. Provide the following exemptions from the full electrification requirement:
    a. Process Gas:
        i. Manufacturing & Industrial Facilities
        ii. Hospitals & Laboratories
    b. Specialized Equipment:
        iii. Cooking appliances in restaurants and cafeterias
        iv. Gas-powered life-safety systems (Emergency Backup)
    c. Accessory Dwelling Units:
        v. Newly constructed, attached Accessory Dwelling Units (ADUs) using existing systems in dwelling.
    d. Additional exemptions as needed.
    e. In all cases, exemptions shall require electrical wiring and panel capacity to be installed for future conversion.

Summary of Recommendations		
Building Type	**Requirement**	**Exemption**
Single-Family Dwelling & Duplex	All-Electric	Attached ADU when using existing systems
Hotel, Motel, Residential under threshold (see note below)	All-Electric	Cooking equipment in Restaurants/Cafeterias
Hotel, Motel, Residential over threshold (see note below)	All-Electric, Solar water heating system (unless greywater/dual plumbing system)	Cooking equipment in Restaurants/Cafeterias
Non-Residential	All-Electric	Cooking equipment in Restaurants/Cafeterias, Process Gas Systems

Note: LADBS is in the process of determining the appropriate threshold in terms of number of units.

II. REQUEST the Los Angeles Department of Water and Power (LADWP) to explore the establishment of a financial incentive program for the installation of solar thermal water heating systems in buildings subject to the above requirements.

III. DIRECT the Los Angeles Department of Building and Safety (LADBS) to work closely with the Los Angeles Department of Water and Power (LADWP) to leverage existing and future rebate programs to help customers address any potential increases in utility cost during the transition to electrified buildings.

Should you have any questions, please contact Celeste Nguyen at 213-482-6855 or via email at celeste.nguyen@lacity.org.

Respectfully,

Osama Younan
General Manager
Department of Building and Safety