

DOCKETED

Docket Number:	19-BSTD-03
Project Title:	2022 Energy Code Pre-Rulemaking
TN #:	236709
Document Title:	Laura Rosenberger Haider Comments - Electrify all appliances in new buildings
Description:	N/A
Filer:	System
Organization:	Laura Rosenberger Haider
Submitter Role:	Public
Submission Date:	2/9/2021 12:38:54 AM
Docketed Date:	2/9/2021

Comment Received From: Laura Rosenberger Haider
Submitted On: 2/9/2021
Docket Number: 19-BSTD-03

Electrify all appliances in new buildings

It would cost too much more to install natural gas pipes, etc. in new homes. In 2022, the cost of gas stoves is expected to increase due to CARB's resolution to limit emissions from gas appliances in buildings. CARB will set stronger gas stove ventilation standards after unsafe levels of NOx from cooking was measured.

Social cost: Children in homes with gas stoves have a 42% increased risk of experiencing asthma (<https://doi.org/10.1093/ije/dvt150>). The impacts of climate disruption on power infrastructure & homes from the methane transmission leakage rate of 0.39% for each 680 miles of pipeline (this includes storage of CH₄, venting + leakage) and/or methane used by transport vehicles of liquified natural gas. (See the study by UC Davis: Research Report -UCD-ITS-RR-16-20 by Amy Myers Jaffe et al., Section 2.2.2.3). In addition, PG&E found a high amount of leakage from gas meters in homes. Inspectors had to check and seal people's meters.

Building all-electric is less expensive than building with gas for every single housing type, according to data from SF Environment. In some cases, forgoing gas hookups and appliances saves thousands of dollars in construction costs.

TPs: All-Electric affordability data SF

E3's 2019 study, Residential Building Electrification in California, finds that across six different climate zones in California, the capital costs for all-electric single-family and low-rise multifamily buildings are cheaper than their natural gas alternatives.

E3, Residential Building Electrification in California, at viii-xi. August 15, 2019

The report 2019 Energy Efficiency Ordinance Cost-Effectiveness Study, prepared for the California Energy Codes and Standards Program by Frontier Energy, evaluated the cost effectiveness of code compliance package options for both mixed-fuel and all-electric homes across all sixteen California climate zones. The report concluded that the all-electric code compliance option was cost effective in every climate zone when using time dependent valuation (TDV).

California Energy Codes & Standards, 2019 Cost-effectiveness Study: Low-Rise Residential New Construction, at 41-42. July 2019

Research done for the California Energy Commission (CEC) on the affordability of all-electric commercial buildings found substantial capital savings in all climate zones modeled for several different building types. The CEC analysis found that a mixed-fuel medium size office building in California costs between \$45,029 and \$96,106 more than an all-electric version, with the cost-differential varying by climate zone. The CEC also found that a mixed-fuel mid-rise residential building in California costs about \$14,400 more than an all-electric version, and a mixed-fuel hotel costs between \$1,277,845 to \$1,284,121 more than an all-electric version.

2019 Nonresidential New Construction Reach Code Cost Effectiveness Study at 11 (2020)

2019 Mid-Rise New Construction Reach Code Cost Effectiveness Study at 8 (2020)
2019 Nonresidential New Construction Reach Code Cost Effectiveness Study at 13 (2020)

According to a 2018 study conducted by Navigant for the California Building Industry Association (CBIA), electric space heating also has a lower first cost than natural gas space heating. Specifically, that report, which looked at total installed costs, states that “electric appliances for space heating, cooking, and clothes drying have lower costs than natural gas options” in new construction.

California Building Industry Association Comments “Impacts of Residential Appliance Electrification, Docketed 9/20/2018

Data shows that on average a baseline code-compliant gas furnace/AC system unit is 14% more expensive than a baseline heat pump. Cost data for ultra-low NOx furnaces, which are required in key California markets including the South Coast and San Joaquin valley air districts show that the average cost of the furnace/AC unit is 29% higher (considering 0.80 AFUE ULN units only).

NRDC Comments - Price comparison of heat pumps vs gas furnace and AC systems.
Docketed 11/12/2020