

# ALBANY CALIFORNIA



**CITY OF ALBANY**  
1000 SAN PABLO AVENUE  
ALBANY, CA 94706  
[www.AlbanyCA.org](http://www.AlbanyCA.org)

9 November 2021

**MEMORANDUM**

To: Albany City Council Members  
From: Vice Mayor Jordan  
Re: Development of an existing building electrification pilot program

**RECOMMENDATIONS**

That the Council authorize City staff to work with StopWaste staff to develop a potential pilot program utilizing Measure DD funds to electrify existing buildings in locations that allow future reduction of the gas distribution network, with a focus on older multi-residence buildings.

**BACKGROUND**

In 2019, according to a staff key performance indicator (KPI) [analysis](#), Albany generated about 60,000 metric tons of the greenhouse pollutant CO<sub>2</sub> from burning natural gas in buildings, burning gasoline and diesel in vehicles operating within its borders, and releases in the manufacturing of materials thrown away by its residents. The City’s adopted goal for 2035 is 25,000 metric tons from these sources.

In 2019 burning natural gas in residences released about 13,000 metric tons of CO<sub>2</sub>. This is the largest source of pollution over which the City can exert some direct control through ordinance, such as adopting energy performance requirements for new and remodeled residences. Pollution from fossil-fueled vehicles is substantially greater but the City has no direct legal authority in this domain.

Technoeconomic assessments of alternatives to decreasing California’s net greenhouse pollution to zero all find eliminating combustion of natural gas in buildings an element of the lower cost pathways ([E3, 2020](#)). This is achieved by substituting electrically-powered appliances for all currently gas-burning appliances.

For heating, both of space and water, and clothes drying electrically-powered heat pumps substitute for gas-fired furnaces and water heaters. While electricity is more expensive per unit of energy, heat pumps commonly have efficiencies equal or greater than 300% currently while gas-

fired appliances have a maximum theoretical efficiency of 100% and actual efficiencies a bit lower, such as 95% for appliances that recover heat from the combustion exhaust by condensing the water vapor contained, to 80% or lower for less expensive non-condensing appliances.

Heat pumps attain more than 100% efficiency because they use energy to move heat from one location to another rather than producing heat themselves. Refrigerators and air conditioners are familiar heat pumps. They move heat from a location where we don't want it to a location where it is acceptable to put it, our kitchens or the outdoors, respectively. Heat pumps for heating move heat from a source we don't mind making a bit cooler, such as the outdoors, into the indoors for space heating and water for water heating.

For cooking, induction cooktops provide greater control than gas-fired stoves but using electricity. These cooktops do not themselves get hot, such as do older electrical stoves using resistance coils. Rather induction cooktops use the pan as the resistance coil. Like heat pumps compared to gas-fired heaters, this makes induction cooktops multiple times more energy efficient than gas-fired stoves because only the pan is heated rather than also heating a burner from which most of the heat bypasses the pan. This shift also eliminates indoor air pollution from combusting natural gas for cooking, a significant health risk identified and quantified over the last decade ([Logue et al., 2014](#)).

Because electricity can be produced by means that release little to no greenhouse pollution, replacing gas-fired appliances with electrically-powered appliances reduces to eliminates this pollution from the services provided by those appliances. For this reason, the Bay Area Air Quality Management District (BAAQMD) is considering banning the sale of gas-fired appliances starting in 2030 ([BAAQMD, 2021](#)).

For transportation, an Executive Order has directed state government to commence working on banning on the sale of internal combustion cars and passenger trucks as of 2030 ([Newsom, 2020](#)).

## **DISCUSSION**

The contemplated regional and state actions banning the sale of most fossil-fueled equipment next decade will not be sufficient for Albany to reach its 2035 greenhouse pollution reduction goal, even if both bans being contemplated are adopted. There will be too much legacy fossil-fueled equipment still in place. If Albany desires to meet its goal, its best option is to focus on supporting the substantial substitution of electricity for natural gas in existing buildings needs to occur. This is because Albany has some authority over buildings and their equipment at various times in their life cycle but has no authority over vehicles.

To this end, Albany adopted an electric-preferred code at the end of last year that was approved by the California Energy Commission early this year. The code applies to new low-rise buildings. The largest period of building construction in Albany in several decades that is underway was prioritizing electrification even before and beside this code adoption. SAHA has committed to constructing an all-electric building at Washington and Cleveland with approximately 60 residences. The University of California Berkeley has committed to all-electric new residences for approximately 800 graduate students in University Village. The architect for the more than 200 new residences at San Pablo and Brighton has relayed the buildings will be all-electric for all space

heating and cooking in the private spaces and is contemplating whether to electrify water heating. On the block where I live, a new house (not a remodel) has been built in the last two years. Due to the cost PG&E's charges for a new gas service the owners chose to build all electric. A major remodel is just finishing on another house on the block. Its owners chose all electric except for water heating.

Maintenance of the natural gas distribution system is funded by the charges on each unit of gas delivered. As electric rather than natural gas appliances in new and existing buildings are installed the number of units of gas delivered per capita declines. If this occurs without also decreasing the extent of the gas distribution system, the cost of maintaining that system will remain largely unchanged with the result this cost will be divided among fewer and fewer units of gas over time. As the price of gas increases it will motivate those that are able to will replace gas appliances with electric, further driving up the price of gas for those left using gas. Because replacing appliances requires capital, wealthier households will be able to switch appliances more readily than lower wealth households.

A further consequence of electrification of space heating with heat pumps is the provision of cooling as they can also operate in air conditioning mode. As Albany the maximum daily temperatures have already increased significantly and substantially in the last three decades and the trend is not abating the provision of cooling in residences is becoming more necessary. With most of the past few years having multiple days reading over 100° F cooling is becoming a matter of safety beyond comfort. Unless otherwise addressed, only wealthier households will have the financial capacity to adapt to Albany's new climate via the replacement of gas furnaces with electric heat pumps.

The proposed pilot would set Albany on a path to countering the price escalation spiral described and protecting likely lower wealth households occupying the lower cost rental residences in older multi residence buildings. This would be accomplished by supporting electrification of those buildings that are also served by portions of the gas distribution network that could be abandoned if electrification is achieved. Both technical and financial support would be provided to the owners of the buildings.

Initial conversations with City, StopWaste, and PG&E staff regarding such a pilot have been fruitful. Operating such a pilot would be technically and administratively beyond the ability of City staff, and would consequently not be worth considering. In contrast, StopWaste, under governance by the Energy Council, has been and is running the Bay Area Multifamily Building Enhancements (BAMBE) program for the Bay Area Regional Energy Network (BayREN). StopWaste staff have overseen and facilitated the electrification of several multi-residence buildings have been electrified through this voluntary program. As a result, StopWaste staff have both the technical and administrative capacity to conduct the proposed pilot for Albany cost should the City so choose.

A recent example of the cost effectiveness of StopWaste staff is the contract recently approved by the Energy Council for the organization to administer a multi-residence building electrification program for Sonoma Clean Power. For a cost of \$30,000 the StopWaste will administer and provide technical support disbursing \$270,000 of electrification support (Attachment).

Preliminary discussions with StopWaste staff regarding an Albany electrification pilot also demonstrated its administrative acumen. Staff brought in PG&E staff to discuss prospects for the pilot involving electrifying buildings in locations that would facilitate future natural gas distribution system pruning. PG&E staff responded enthusiastically. For example, under a non-disclosure agreement signed by the City Manager, PG&E has provided Albany staff beta access to a mapping tool it has developed for the purpose of cooperating on strategically pruning this network.

As perhaps evident from the above, Albany has positioned itself at the right moment to lead the Bay Area in advancing building electrification designed to decrease the cost of abandoning the gas distribution network and provide economic equity. While Albany alone cannot reduce the cost of maintaining the natural gas distribution system for those that remain using it at any given time, this pilot provides an opportunity for Albany to contribute substantially to the knowledge needed for a regional and statewide program to achieve this goal.

### **SUSTAINABILITY CONSIDERATIONS**

As described, the proposed action will allow City staff to develop a pilot program proposal to support electrification of existing buildings. Substantial elimination of natural gas use in Albany's existing buildings is necessary for the City to attain its 2035 greenhouse pollution reduction goal and a necessity to reach its 2045 goal.

The proposed pilot, if successfully developed and subsequently adopted by Council, would contribute to the electrification of Albany's existing buildings. While it would likely result in the electrification of a small percentage of Albany's existing residences (1-5%) it would also provide information on how to scale up such electrification going forward. It would also support the development of market capacity for electrifying buildings, which is also important to scaling electrification in the necessary time period.

Electrification will also reduce the number of potential ignition sources and fuel following a damaging earthquake. This reduces the risk of fire starting in one structure consuming numerous surrounding structures. A risk recognized from past experience and recent modeling studies.

### **SOCIAL EQUITY AND INCLUSIVITY CONSIDERATIONS**

As described, the goal, if the Council approves, is to develop a proposed pilot program targeting electrification of older, multi residence buildings. These are considered to have residences that are more affordable relative to the median for Albany. As such, supporting electrification of these buildings benefits likely lower wealth households on average. This electrification protects those households from future increases in the price of natural gas as delivered due to the declining rate base for maintaining the natural gas distribution system.

Electrification will also provide these households with cooling, an important adaptation to Albany's current and future climate. It will also provide these households with healthier indoor air quality by replacing natural gas stoves with induction stoves. In this regard, it also reduces the risk

of poisoning by combustion products from released from in-residence gas furnace flues that have lost integrity. While this is a low probability event it is high consequence because it can be fatal. For instance, not far from Albany four years ago: <https://www.berkeleyside.org/2017/02/03/berkeley-police-carbon-monoxide-caused-death-couple-cats>.

My wife and I apparently came close to such an outcome in the first residence we lived in Albany, an apartment with a wall heater. We smelled something amiss and called PG&E to inspect. After measuring and inspecting, the technician cut the gas to the heater, red tagged it, and told us we could have ended up in the news due to having died as a result of a failed flue.

### **CITY COUNCIL STRATEGIC PLAN INITIATIVES**

The recommended action advances Goal 1, Objective 1, which is to “advance climate action and adaptation.” It specifically regards fulfilling Workplan Item 2, “Establish pilot program for electrification of existing buildings.”

### **FINANCIAL CONSIDERATIONS**

The ballot question for Measure DD projected it would raise \$675,000 of new revenue. Revenue from Measure DD is general. The Council is not required to spend any of it in any specific manner. The voters have recommended spending a third of it on climate action and adaptation. This was one of the two aspects of the measure most featured by the campaign (Attachments 1 and 2). If the Council chooses to honor this recommendation, \$225,000 per year of the projected revenue would be spent on climate action and adaptation.

The Council has authorized using Measure DD revenue to pay for new street trees. If this results in planting 100 trees per year upon request, which is about double recent history, the charge against Measure DD revenues would be \$30,000 per year. The Council next authorized assigning \$50,000 of Measure DD funding to a pilot for providing technical and financial support for installation of electric vehicle chargers in multi-residence buildings. This is a one-time rather than annual or otherwise ongoing allocation.

The action recommended by this report will not itself result in allocation of Measure DD funds, other than perhaps a relatively small amount for staff time to collaborate with StopWaste staff developing the proposal for the suggested pilot program. If a proposal is successfully developed and subsequently recommended by the Climate Action Committee, the Council has discretion regarding whether to allocate funding. By that time, the amount of the new revenue from Measure DD will be better understood and whether or not to fund the pilot program described can be considered in the context of a complete plan for utilizing the portion of Measure DD funding recommended for greenhouse pollution reduction and climate change adaptation.

### **Attachment:**

1. StopWaste staff report, resolution, and budget for proposed Sonoma Clean Power multi residence building electrification contract



**DATE:** September 22, 2021

**TO:** Energy Council

**FROM:** Candis Mary-Dauphin, Program Manager  
Ben Cooper, Program Manager

**SUBJECT:** Bay Area Multifamily Building Enhancements – Sonoma Clean Power Partnership

**SUMMARY**

Staff is requesting Energy Council approval to enter into a contract to provide supplemental incentive funding for BayREN Multifamily program participants to overcome barriers to building electrification. Although these incentives would only be available to projects within the Sonoma Clean Power territory, the project is a proof-of-concept for working with other Community Choice Aggregators to offer funding for electric panel and related upgrades more broadly in the future.

**DISCUSSION**

In order to accelerate adoption of building electrification, the BayREN Multifamily program began offering a Clean Heating Pathway in 2020. This program provides higher levels of incentives and technical assistance for projects interested in pursuing scopes of work that contain at least one major gas-to-electric upgrade, and no gas-to-gas upgrades. Electrifying appliances and equipment are expensive and can be cost prohibitive when substantial electrical system work such as panel upgrades or branch circuit wiring are also needed. The BayREN Multifamily program’s primary source of funding – California Public Utility Commission energy ratepayer funds – does not allow the use of incentives for electrical system upgrades, even though these upgrades can exceed the cost of purchasing and installing electric appliances themselves. The proposed contract would make available \$270,000 for direct incentives for electrical upgrades, with \$30,000 allocated to the Energy Council for associated administrative costs.

This project supports the BayREN multifamily program’s goal of aligning with local and state agencies and utilities to offer electrification to reduce building-related GHG emissions and promote cleaner, more resilient housing.

**RECOMMENDATION**

Adopt the attached Resolution authorizing the Executive Director to enter into a contract through December 2022 of up to \$300,000 for implementation of the Sonoma Clean Power contract and other related actions.

Attachments:  
Attachment A: Resolution #EC 2021- \_\_  
Attachment B: Proposed Scope of Work

**Attachment A**

**ENERGY COUNCIL  
RESOLUTION #EC 2021 – \_\_**

**MOVED:  
SECONDED:**

**AT THE MEETING HELD SEPTEMBER 22, 2021  
RESOLUTION AUTHORIZING THE EXECUTIVE DIRECTOR TO ENTER INTO A CONTRACT FOR THE  
SONOMA CLEAN POWER PARTNERSHIP AND OTHER RELATED ACTIONS**

**WHEREAS**, the Energy Council recognizes that it is in the interest of the local, regional, state, and federal agencies to stimulate the economy; create and retain jobs; reduce fossil fuel emissions; and reduce total energy usage and improve energy efficiency; and

**WHEREAS**, the Energy Council was formed to seek funding to develop and implement programs and policies that reduce energy demand, increase energy efficiency, advance the use of clean, efficient and renewable resources, and help create climate resilient communities; and

**WHEREAS**, the Energy Council implements the Bay Area Multifamily Building Enhancements (BAMBE) program for the Bay Area Regional Energy Network; and

**WHEREAS**, the Sonoma Clean Power Authority (SCPA) seeks to accelerate multifamily electrification and overcome market adoption barriers; and

**WHEREAS**, SCPA intends to provide the Energy Council with a contract of \$300,000 for the scope of work described in Attachment A;

**NOW THEREFORE, BE IT RESOLVED**, that the Energy Council hereby authorizes the Executive Director to:

1. Enter into all necessary contracts and agreements with SCPA in order to accept funds of up to \$300,000 and make any necessary changes to the FY 2021-22 budget to add Project 1341: Sonoma Clean Power Partnership.
2. Approve any required time extensions, modifications, or amendments thereto.
3. Allocate the necessary resources to implement and carry out the amended scope of work.

**BE IT FURTHER RESOLVED** that the Executive Director as the Board President's designee, is hereby authorized to execute on behalf of the Energy Council all grant-related documents, including, but not limited to, applications, payment requests, agreements (including the hiring of temporary staff), and amendments necessary to secure grant funds and to implement the approved grant projects.

**ADOPTED this 22nd day of September 2021, by the following votes:**

**AYES:**

**NOES:**

**ABSENT:**

**ABSTAINED:**

I certify that under the penalty of perjury that the foregoing is a full, true and correct copy of Resolution #EC 2021 – \_\_\_

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Arliss Dunn, Clerk of the Board



**Attachment B**  
**Sonoma Clean Power Partnership Scope and Budget**

This proposed contract builds upon the project identification, enrollment and close-out processes that are conducted as part of the BayREN Multifamily program. The additional scope of work made possible by the contract includes:

<b>Deliverables</b>	<b>Description</b>			<b>Not-to-exceed</b>
Account and Project Administration	Monthly report showing incentives paid on behalf of Sonoma Clean Power and incentive processing.			\$30,000
Supplemental Incentives	<b>Eligible Measures</b>		<b>Incentive Amount</b>	\$270,000
			<b>Low Income Bonus</b>	
	Central Panel Upgrade, including associated wiring and infrastructure	\$5,000	\$0	
	In-unit Panel Upgrade, including associated wiring and infrastructure	\$500	\$250	
<b>Budget</b>				<b>\$300,000</b>