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City of Piedmont
COUNCIL AGENDA REPORT

DATE: February 1, 2021

TO: Mayor and Council

FROM: Sara Lillevand, City Administrator

SUBJECT: Second Reading of Ordinance 750 N.S., Amending Chapter 8 of the City Code Regarding Requirements for Energy Efficiency Measures, Photovoltaic Systems, and All-Electric Construction in New or Existing Low-Rise Residential Buildings; and Second Reading of Ordinance 751 N.S. Amending Division 8.08 of the City Code to Include Requirements for the Preparation of a Home Energy Audit or Home Energy Score for Low-Rise Residential Buildings.

RECOMMENDATION

1. Conduct a second reading of Ordinance 750 N.S. (Attachment 1, pages 16-24) amending Chapter 8 of the City Code regarding requirements for energy efficiency measures, photovoltaic systems, and all-electric construction in new or existing low-rise residential buildings; making required findings related to the climatic, geological and topographical conditions warranting more stringent local requirements; making required findings related the cost-effectiveness of the amendments; and determining that the actions are categorically exempt from CEQA.

2. Conduct a second reading of Ordinance 751 N.S. (Attachment 2, pages 25-27) amending Division 8.08 of the City Code to include requirements for the preparation of a Home Energy Audit or Home Energy Score for low-rise residential buildings, and determining that the action is categorically exempt from CEQA.

EXECUTIVE SUMMARY

At the July 20, 2020 City Council meeting, the City Council held a first reading of Ordinances 750 and 751, to adopt local amendments to the California Code of Regulations, Title 24, Parts 2.5, 3, and 6 ("Reach Codes"). The goal of these amendments is to reduce natural gas use in residential buildings so that the Piedmont community can achieve its greenhouse gas emissions reduction targets. The code amendments also will help make Piedmont homes healthier and more comfortable, and create opportunities for residents to save money over time.

The proposed amendments are as follows:

- Newly constructed low-rise residential buildings, including new detached accessory dwelling units (ADUs), must use all electric building appliances.

- Projects proposing an entire new upper level on a low-rise residential building, or that increase a low-rise residential building's total roof area by 30% or more, are required to install solar panels on the roof.

- A renovation project on a low-rise residential building that costs $25,000 or more, will require the applicant to choose one item from a list of energy efficient insulation or heating system electrification improvements to include in the renovation. A renovation project on a low-rise residential building that costs $100,000 or more will require the applicant to choose two items.

- An application for an electrical panel upgrade must include capacity in the panel to accommodate future electrification of all appliances in the residence.

- An application for a kitchen or laundry area renovation must include electrical outlets for future appliance installation.

- At point of listing for sale of a property, a report from a Home Energy Audit or Home Energy Score (homeowner's choice) must be provided to potential buyers and submitted to the City - unless the residential building was constructed in the past 10 years.

During its approval of the first reading in July 2020, the City Council asked that the agenda report for the second reading of the ordinances include additional clarification about the proposed solar panel installation and renovation insulation/electrification requirements. Particularly, City Council wanted staff to explain:

- Which projects would trigger insulation requirements, and which projects would trigger solar panel requirements.
- How much insulation or solar panel installation would cost upfront, and how much these items would save homeowners over time.
- Staff's criteria for granting exceptions to these requirements.

This staff report clarifies these points. In addition, staff has generated a list of frequently asked questions (FAQs) intended to provide clarity and dispel misconceptions related to the proposed Reach Codes, which is provided as Attachment 6 to this report (pages 34-48) and is posted on the City's website. Under the list of supplemental documents in the Attachments section on pages 14-15 of this report is a hyperlink to the key findings of a city-wide random sample voter survey conducted in June 2020 to assess the views of residents on the City's greenhouse gas emissions reduction strategies. The survey found that two-thirds of Piedmont residents support local amendments to the state building codes that result in less use of natural gas in buildings. Another city-wide random sample voter survey was conducted in November-December 2020 to track opinions of Piedmont residents more specifically on the proposed Reach Codes following additional public engagement. Consistent with findings from June, two-thirds of Piedmonters support amending state building codes to reduce natural gas in buildings, even after learning

more about cost impacts and other legitimate concerns expressed by some members of the community.

PROPOSED MODIFICATIONS TO ORDINANCE 750 N.S.

The following information provides proposed amendments to Ordinance 750 N.S. since the first reading of the Ordinance on July 20, 2020.

Proposed Amendment Regarding Home Energy Score

Definition as explained in Section 4. Amendment to Section 8.02.060 of proposed Ordinance 750 N.S.:

"HOME ENERGY SCORE. Home Energy Score means the score provided by a Home Energy Score Certified Assessor following an assessment of a property, using the Home Energy Score Scoring Methodology developed by the U.S. Department of Energy."

Proposed Amendment to Section R106.6 Regarding Home Energy Score Exception:

When the cost of a project in an existing residential building exceeds $25,000, it must include one of the listed insulation or electrification improvements, as stipulated in Section R106.6 Renovation Energy Efficiency Upgrades. A project that exceeds $100,000 must include two of the listed insulation or electrification improvements. If requested, a homeowner may apply for an exception that shall be granted to these requirements if the building has received a minimum Home Energy Score of 7 on a scale of 1 to 10 within five years prior to the project. This exception will only be applied to requirements in Section R106.6.

The Home Energy Score is a national program created and overseen by the U.S. Department of Energy. In order to receive an energy score, residents should contact a third party contractor to schedule an appointment. Scores range from the worst score of 1 to the best score of 10. Scores of 7 or greater will mean projects will not need to include Energy Efficient improvements included in Proposed Ordinance 750 N.S.

A score of 7 or above was chosen because this qualifies the home as energy efficient. As outlined in the U.S. Department of Energy presentation found here, a score of 7 or above means a home is more energy efficient than approximately 70% of American homes.

An average American home will score around a 5 on a Home Energy Score. As Piedmont homes are both larger and older than an average American home, achieving a 7 on this scale means that significant improvements have been made to the home's insulation and energy efficient appliances have been installed. This amendment was intended to recognize the work that property owners have accomplished on their own initiative.

If the home has the required score of 7 or higher, the project is not required to include an insulation or electrification improvement outlined in Section R106.6. However, the Home Energy Score cannot be used as an exemption from any of the following projects:

- Projects requiring solar panel installation.

- Projects involving laundry areas (as detailed in Subsection 210.52 (F). The requirement states that at least one 120/240v, 30 amp circuit shall be installed within 6 feet of appliance location. This requirement still stands.
- Projects in the kitchen area (as detailed in subsection 220.83). The requirement calls for the installation of at least one 240v 50 ampere circuit within 6 feet of cooking appliance location.
- Projects involving an Existing Dwelling Unit must still include the 120/240-volt service outlined in Section 220.83 of the proposed ordinance.

Following are a list of resources that residents can use to obtain a home energy score. In order to be considered as an exception, the Home Energy Score must come from a certified professional and be dated in the previous five years. The building official will need a receipt of the Home Energy Score before and exemption to the requirements of Section R106.6 is granted.

- StopWaste is the licensed authority on Home Energy Scores in the Bay Area. Their website can be found here: https://www.stopwaste.org/at-work/built-environment/energy-materials/codes-standards-labels

- BayREN can help Piedmont residents find authorized assessors and offer homeowners a $200 rebate on a Home Energy Score here: https://www.bayren.org/hes. The average cost of a Home Energy Score ranges from $200-$500.

Clarification of Circumstances Allowing an Exception by the Building Official

Modern life is governed by a myriad of rules and regulations. Building and renovating homes in Piedmont is no different. The built environment is regulated by an alphabet soup of agencies from all levels of government. The federal government, the State of California, Special Districts, Alameda County and the City of Piedmont all have a say in how a home is built and renovated. The State of California Title 24 Codes, commonly called “Building Codes" span a dozen volumes of Building, Electrical, Plumbing, Mechanical and other codes. Those codes reference dozens of standards from other entities such as the American Society of Refrigeration and Heating Engineers (ASHRAE), American Concrete Institute (ACI) and the American Society for Testing and Materials (ASTM). The one commonality of all these codes and standards is they attempt to cover a wide range of conditions. The same codes apply to a tract home in the Inland Empire as well as a cottage on the Humboldt County coast. As a result, the codes as written in black and white do not always conform exactly to the conditions of the proposed project. A city like Piedmont, built out over more than a century, with a plethora of sizes, styles, conditions and configurations, does not have homes that conform exactly to the code ideal. A part of a Building Official’s responsibility is making daily decisions to interpret code requirements as promulgated by a committee of code writers in a far off conference room in relation to the real world conditions involved in renovating homes, some of which were originally constructed in conformance with century-old regulations. For instance, cast iron drainage piping, in lieu of Acrylonitrile butadiene styrene (ABS) piping, is required by the plumbing code if the home has more than two stories and a basement. On a hillside home, deciding whether the bottom level meets the definition of “basement” isn’t always straightforward. In creating an Accessory

Dwelling Unit (ADU) in an existing home, the building code requires the ADU to be treated like a duplex, with a 1 hour fire separation between the two spaces. Occasionally, there are conditions that make it difficult, if not impossible, to meet those requirements. Using the authority granted in Section R104.10 of the Residential Building Code, the Building Official has to balance the life safety aspects with the costs and constructability needed to meet the intent of the code when the exact letter of the code does not meet the reality of the conditions. A principle of the code enforcement world is "the code is a basis for reasonable interpretation by reasonable people".

California Residential Building Code Section R104.10 Modifications provides the Building Official the authority to allow modifications to the requirements of the Residential Building Code subject to listed criteria. Because they are amendments to the Building Code, this provision would also apply to the proposed Reach Codes, if adopted. However, to address concerns expressed by the City Council and the larger community regarding the authority provided to the Building Official to allow modifications of the Reach Code requirements and the criteria for such modifications, staff proposes the addition of text to Section R106 that references the provisions in California Residential Building Code Section 104.10 (see Attachment 1). Additional text added also references that in accordance with Section R104.10 Modifications, the Building Official shall not require the installation of R106.6 Energy Efficient Measures E. (replacement of Fuel Gas furnace with an electric heat pump system) and/or F. (replacement of Fuel gas water heater with a heat pump water heater or other high efficiency electric water heating system) if one or more of the following conditions apply:

- The unique features of the construction of the low-rise residential structure including, but not limited to, existing heating and/or cooling system(s), are not configured for conversion to forced air systems.
- The installation of the measures is not commensurate with the project's scope and budget, as determined by the Building Official, because the cost of those measures would exceed 20% of the total project cost or require substantial construction in areas of the residential structure that would otherwise not be part of the project.

PUBLIC ENGAGEMENT

Development and Posting of Frequently Asked Questions

Following the first reading of the ordinances in July, City staff continued public engagement to publicize and describe the proposed Code amendments. An effort was made to further understand public response, and to generate comments for Council's consideration. In August, City staff generated a list of frequently asked questions (FAQs) and answers to those questions designed to provide clarity and dispel misconceptions related to the proposed Reach Codes (see list of supplemental documents). The FAQs address areas pertaining to the ordinances such as new housing units, roofing and solar panels, furnace and space heaters, kitchen and bathrooms, and landscape improvements, which have been mentioned by residents and the City Council throughout the code drafting and public engagement process. Since the end of August, the FAQs have been posted on the City's website and have been periodically updated to incorporate additional questions and answers (last updated September 25, 2020). The City encourages

residents to remain engaged in the Reach Code process by contacting staff with any further questions.

Town Hall

On September 3, 2020, the City hosted a virtual Town Hall meeting to provide an opportunity for Piedmont residents to ask questions and learn more about the proposed Reach Codes. A presentation on the Reach Codes proposal consisted of questions submitted by the public after the first reading of the Reach Code ordinances followed by answers from City staff. Additional questions from Town Hall attendees were also taken and answered by staff during the meeting. The Town Hall was videotaped and is available on the City website (see list of supplemental documents). Following the Town Hall, staff updated the Reach Code FAQs on the City website to clarify questions raised by attendees.

November-December 2020 Survey

Staff commissioned FM3, a public policy-oriented opinion research firm to design and implement a random-sample representative survey of Piedmont registered voters (n=384, margin of error ± 5%) to evaluate residents' opinions about the draft Reach Codes. Overall, the survey shows strong support for the City's proposed building code revisions to reduce natural gas in buildings. Even after being presented with oppositional arguments to the Reach Codes, 66% of respondents continued to support their adoption. Interestingly, the opposing opinions resonated highly with respondents and were viewed as concerning but did not change the level of support for adoption.

Dave Metz, president of FM3, provided a thorough presentation and analysis of the survey results at the January 19, 2021 City Council meeting. A video of January 19th City Council meeting can be found here:
http://piedmont.hosted.civiclive.com/cms/One.aspx?portalId=13659823&pageId=14122987

Key survey takeaways are summarized below.

- After reading a brief list of example improvements that would meet the Reach Code requirements, 64% of respondents supported requiring these improvements in order to reduce natural gas use; 32% opposed the idea.
- Respondents were asked about the specific proposed building code amendments (Reach Codes). Depending on the measure, between 55 and 71% of respondents supported each measure; only 24 to 41% opposed each measure.
- About seven in ten respondents said reduced greenhouse gas emissions (70%) and preventing climate change by reducing fossil fuel consumption (69%) are an extremely or very important benefit of establishing Reach Codes.
- Three in four respondents noted the most convincing reason to support adopting Reach Codes is the importance of reducing greenhouse gas emissions generated by homes, and the consequences for not doing so.
- When presented messages opposing the Reach Codes, 87% of Piedmonters noted relying on electric appliances could leave homeowners vulnerable to power outage as a concern,

including 39% who said this is a major concern. About eight in ten were concerned the proposal is unfair to residents who have already taken energy efficiency improvements (81%) and that it may be costly for some homeowners (79%). Fewer respondents said they are concerned that the proposal is confusing for homeowners (68%) and an example of government overreach (51%).

- In a separate open-ended question, the most frequently mentioned concerns about establishing the Reach Codes included the restriction of gas (11%), cost (10%), and government overreach (10%). In another open-ended question, the most commonly suggested changes to the Reach Codes included providing financial incentives for homeowners to implement proposed changes (12%), allowing the use of gas in new construction (11%), and providing opportunities for exceptions (10%).

As the survey was administered to a representative sample of Piedmont's registered voters, the survey results suggest that an appreciable majority of residents support both the overall idea of revising building codes to transition off of natural gas appliances and the specific code amendments included in the ordinances. A more detailed summary of survey results can be found in the Supplemental and Referenced Documents section.

COMMUNITY CONCERNS

The following information provides responses from City staff addressing concerns and potential changes to the Reach Codes mentioned in the survey.

- **Vulnerability**: The top concern surrounding the proposed Reach Codes is relying on electric appliances could leave homeowners vulnerable during power outages, which are taking place more and more in northern California. As outlined in the Reach Codes FAQs, residents are virtually in the same position during a power outage having either gas or electric appliances. Electrifying appliances should not leave residents more vulnerable than the existing gas appliances. Indeed, many natural gas appliances will not work properly in a power outage, particularly new gas appliances that commonly require an electric ignition. The City partners with East Bay Community Energy (EBCE) to offer residents a fully-renewable energy portfolio. EBCE also offers consultations to determine if a backup solar or battery system would be the right decision for residential customers.
- **Unfair to existing improvements**: Another top concern mentioned was the proposed Reach Codes are unfair to residents who have already taken steps to install insulation and energy efficiency improvements in their homes. As mentioned in the Reach Codes FAQ and discussed during the September Town Hall, residents may request a modification to the requirements. There is a section in the Building Code (R104.10, discussed above) that allows the Building Official to take note of circumstances in projects and to grant modifications for individual cases when the strict letter of the code is impractical and the modification is in compliance with the intent and purpose of the code and the modification does not lessen health and safety requirements. Text in the Proposed

Ordinance 750 N.S. clarifies such exceptions (R106.6, discussed above). This includes property owners submitting a Home Energy Score Report for the low-rise building – with a minimum Home Energy Score of 7 – completed within 5 years to the Building Official.

- **Cost**: A concern of the proposal was Reach Codes would require changes to some home renovation projects that may be too expensive for some property owners – especially during an economic downturn. As outlined in the Reach codes FAQs, renovation costs associated with the proposed changes varies. The proposed code will only come into effect if a renovation project costs over $25,000. Only 22% of projects requiring a building permit currently exceed this threshold. The requirements are designed to offer residents a range of options to meet all budgets. The options include installing attic insulation, replacing all incandescent bulbs with LED bulbs, or completing a home energy audit or home energy score and implementing at least one recommendation from the resulting report. These options are not expected to significantly add to a project's up front cost, while still offering sustained savings over the longer term. Additionally, the measures in the Reach Code Ordinance will save homeowners money on their utility bill over the long term. There are a wide variety of homes and families in Piedmont, so it is hard to quantify the specific savings for each situation, but staff estimates the cost savings on a utility bill will likely pay back the cost of the improvement fully within about ten years, after which they will continue paying back cost savings. California requires that energy reach codes be cost effective. Energy improvements such as those proposed in the reach code will to offer life cycle cost savings. On the City website, staff has provided information on rebates and incentive programs. As of June 2020, residents may qualify for up to $5,000 in energy efficiency upgrades from different sources when bundled together. Sources include the Bay Area Regional Energy Network (BayREN), EBCE, and Pacific Gas & Electric (PG&E). Additionally, as mentioned previously in this report, exceptions may be made if the installation of Energy Efficient measures not commensurate with the project's scope and budget, as determined by the Building Official, because the cost of those measures would exceed 20% of the total project cost or require substantial construction in areas of the residential structure that would otherwise not be part of the project.

- **Confusing**: Survey respondents perceived the Reach Codes as confusing for some homeowners, with a lack of clarity or understanding of what the requirements are, what the cost impacts are, and which projects they apply to. City staff conducted extensive outreach to disseminate information about the proposal and keep residents abreast of updates through public forums, updates on the City's website, social media, and KCOM-TV. Staff recognizes that public engagement and the dissemination of information will be an ongoing project. More information will continually be distributed to the community, especially on the City's website and on building permit applications. Additionally, questions will be answered in community newspapers. Further information on Reach Codes requirements, costs, and applicable projects is provided below in this report.

- **Bureaucracy/Government Overreach**: Survey respondents also expressed concern about the Reach Codes being an example of government overreach. At the encouragement of the State government, the City is pursuing a change in the building code in order to meet the Climate Action Plan goals adopted by the City Council in 2018. Both the state of California and the City of Piedmont have adopted climate action plans and strategies to reduce greenhouse gas emissions. One of Piedmont's largest sources of greenhouse gas emissions is natural gas stemming from homes. Subsequently, the City decided to initiate its efforts to reduce emissions from buildings by focusing on residential buildings as they make up a large percentage of community emissions. The application of reach codes on existing residential buildings would position the City at the forefront in this area, and exemplify Piedmont's leadership. As of March 2020, thirty cities and counties across California have adopted reach codes to reduce the use of natural gas. Without a radical decrease in natural gas usage, Piedmont will not achieve the goals outlined in the Climate Action Plan. As a community invested in progressive climate action, the reach codes are a relatively low impact way to make a difference.

- **Restrictive**: An additional concern surrounded the restriction of gas and natural gas appliances as result of establishing the Reach Codes. There is no requirement to remove an existing gas range in the Ordinance. That is an option left to the owner of an existing home to decide when making renovations. City staff is proposing the Reach Codes in order for the City to meet its greenhouse gas reduction goals, but moving away from gas stoves and other gas appliances can also result in a healthier home through improving indoor air quality and overall safety. Instead of offering intrusive, prescriptive measures, City staff wants to give residents many different pathways and options to achieve the clean energy goals. Thus, rather than requiring the removal of a gas range during a kitchen renovation of an existing home, the proposed ordinance requires the installation of an electrical outlet at the location of the range so that the current or a future homeowner can easily install an electric device at a time of their choosing.

APPEAL PROCESS

With regard to the Building Officials' authority to grant modifications, the City of Piedmont Building Code has a provision for appeals of code interpretation decisions made by the Building Official. R112.1 General states in order to hear and decide appeals of orders, decisions or determinations made by the building official relative to the application and interpretation of this code, there is a board of appeals. In accordance with the Health and Safety Code sections 17920.5 and 17920.6, the board of appeals shall be the City of Piedmont Planning Commission. The board will adopt rules of procedure for conducting its business, and will render decisions and findings in writing to the appellant with a duplicate copy to the building official.

This provision has yet to be invoked in Piedmont. If such an appeal was submitted, in writing to the City Clerk, the Planning Commission would act as the Appeals Board and conduct a public hearing. Prior to the hearing, the Planning Commission, in its role as Appeals Board, would establish the rules for the hearing. The Appeals Board would hear presentations from the

appellant as well as the Building Official. Once the Board makes a decision, that decision would be final and binding on both parties.

CONSTRUCTION PROJECTS REQUIRING AN INSULATION OR ELECTRIFICATION IMPROVEMENT

A construction project on a residential building will need to include one of the listed insulation or electrification improvements if the cost of the project is $25,000 or more. Several options on the proposed list have low upfront costs, and large cost savings – they will pay themselves back within 3 - 10 years through increased energy savings. A flow chart indicating the list of improvement choices and information on cost and payback periods is provided as Attachment 5 to this report (pages 32-33).

Projects Not Affected by the Proposed Ordinance
Projects that do not affect a residential structure, or projects that do affect a residential structure but cost less than $25,000, will not be required to include an insulation/electrification improvement under the proposed ordinance. Projects that will not have to include an insulation/electrification improvement include:

- Most furnace replacements
- Fence or sidewalk repairs
- Landscape projects
- Many window replacements
- Most roof replacements
- Simple bathroom renovations
- Simple additions of a half bathroom
- Seismic foundation upgrades
- Drainage projects
- Termite work
- Electrical re-wiring

Implementation and Exceptions
Planning and Building Department staff will assist residents and their design professionals to find the most appropriate improvement on the list that is commensurate with the scope and budget of the project. As previously mentioned in this report, staff proposes that in accordance with Section R104.10 Modifications, the Building Official shall not require the installation of R106.6 Energy Efficient Measures E. and/or F. if one or more of the following conditions apply: The unique features of the construction of the low-rise residential structure including, but not limited to, existing heating and/or cooling system(s), are not configured for conversion to forced air systems. The installation of the measures is not commensurate with the project's scope and budget, as determined by the Building Official, because the cost of those measures would exceed 20% of the total project cost or require substantial construction in areas of the residential structure that would otherwise not be part of the project.

For example, consider a home in which the attic has already been insulated and sealed, the underside of raised floors has been insulated, all light fixtures have LED bulbs, all the toilets are

1.28 gal/flush, and the simple measures of a home audit or score have been implemented. A new $30,000 project on the home might require the installation of an electric heat pump furnace and/or water heater, but if that requirement was determined to be excessive of the original nature or scope of the project, it would be appropriate for the Building Official to exercise the authority provided in the California Residential Building Code to modify compliance with this code requirement.

On the other hand, if a renovation project is estimated to cost above $500,000 – and in the unlikely event that all that is left on the list is the heat pump furnace, which is in the $15,000 range – Staff would have a serious discussion with the homeowner about including that in the scope of the work.

The following two examples provide more information on upfront costs and cost savings related to potential renovation projects that would trigger the inclusion of an insulation or electrification improvement. The examples also include suggestions for how the project could be altered to meet the Reach Code requirement. Each suggestion for how to meet the requirement includes an estimate of upfront incremental cost of the required improvement and expected annual cost savings. Homeowners could spend as little as $200 to meet the requirement.

Example 1: Bathroom Remodel
Scenario: A building permit application for a $27,000 bathroom remodel. Under the proposed Ordinance, the permit application must include in the scope of work one of the insulation or electrification improvements on the list in section R106.

Low-cost options to fulfill requirement:

- **List item C**: Insulate all accessible hot water piping and make sure plumbing fixtures meet low flow standards. This list item will add relatively little to the project cost, since the remodel will already expose water piping in the bathroom and since all new fixtures automatically meet the low flow standards. For a home with 4 sink facets, 3 toilets, and 2 showerheads, adding this list item to a bathroom remodel will:
    - Increase upfront costs approximately $1,200.00 (4% of project costs), and
    - Decrease energy bills $165.00 per year and 15,000 gallons of water per year, and
    - Result in an estimated 30-year cost savings of $3,750.
- **List item D**: Replace incandescent light bulbs with LED bulbs and install vacancy sensors. Both bulb replacement and vacancy sensors are inexpensive (less than $10 each), and under the state code the renovated bathroom must already include a vacancy sensor. For a home with 15 total light fixtures and 20 incandescent bulbs, adding this list item to a bathroom remodel will:
    - Increase upfront costs approximately $200 (1% of project costs), and
    - Decrease energy bills $240 per year, and
    - Result in an estimated 10-year cost savings of $2,400.
- **List item G**: Have a Home Energy Score report created for their home and implement a recommendation from the report. These reports cost less than $500 and there are often rebate programs available through BayRen and PG&E that reduce the costs. The recommendations in those reports include simple items like weatherstripping exterior doors, which:

- Increase upfront costs approximately $1,200.00 (4% of project costs), and
- Decreases energy bills $99 per year, and
- Result in an estimated 30-year cost savings of $1,770.

Example 2: Extensive renovation of kitchen, dining room, and bathroom
Scenario: A building permit application to open a cramped bungalow kitchen to the dining room and adding a half bathroom, for an approximate cost of $135,000. (This is a very common project in Piedmont.) Because the project costs more than $100,000 in value, the permit application must include in the scope of work two of the insulation or electrification improvements on the list in section R106.

Low-cost options to fulfill requirement:

- **List items C, D, or G**, described above.
- **List item A**: Attic insulation and air and duct sealing. The state energy code already requires that a project like the one described improve insulation for part of the attic directly above the altered rooms. The list item would add the incremental cost of insulating and air sealing the remainder of the attic. If the additional attic area is 1,000 square feet, the list item would:
  - Increase upfront costs approximately $2,500 (2% of project costs), and
  - Decreases energy bills $250 per year, and
  - Result in an estimated 30-year cost savings of $5,000.

Attachment 4, pages 30-31 of this report, provides a detailed list of the energy efficient improvements included in the proposed local amendments to the California Residential and Energy Codes, a copy of the building code section granting authority to the Building Official to make modifications to the Code requirements, and the reasons why the draft amendments were developed.

CONSTRUCTION PROJECTS REQUIRING SOLAR PANEL INSTALLATION

In 2006 the California Energy Commission was tasked by the Governor to create a regulatory pathway for all new homes to be Zero Net Energy (ZNE) by 2020: to reduce energy use and generate energy with a photovoltaic (PV) system, so the homes generate as much energy as they use. More generally, the state of California has embraced roof top PV systems as a means to increase the amount of renewable energy generated in California and, when paired with batteries, to provide backup power in case of a power outage. Batteries are currently expensive, but both the state and regional agencies such as BayREN and EBCE are developing programs to decrease battery costs.

The 2019 California Energy Code (CEC) moves towards ZNE construction by requiring that all new Low Rise Residential Structures be powered by photovoltaic systems – in most cases, solar systems on residential rooftops. The idea is that as homes are built anew or are torn down and replaced, the newly constructed homes will be built with solar panels. In this way, over time, solar panels will be installed on a large portion of all rooftops in California.

Houses in Piedmont tend to be well-maintained. So unlike homeowners in other jurisdictions, Piedmont homeowners have mostly chosen to retain and modify an existing house rather than tear down the house and construct a new one. For this reason and as compared with other jurisdictions, fewer homes in Piedmont will get solar panels as a result of the new statewide requirements. The proposed local amendment to the state code extends the requirement of solar energy systems on new residential buildings to existing residential buildings getting a new upper level or increasing roof area by 30% or more. This inclusion of major additions to existing residential buildings provides Piedmont the means to achieve local solar energy production on a level enjoyed by other California communities.

Residential rooftop solar energy systems have been demonstrated to be affordable upfront, with significant long term cost savings. Solar systems save homeowners money on electricity. The energy savings generally pay back the upfront costs within 7 to 10 years, after which solar systems provide monetary savings at no additional cost to the homeowner.

The CEC has a formula for determining the minimum size of PV systems that must be installed on new buildings. The formula takes into account both cost-effectiveness and the projected energy use of the home. Additionally, the CEC lists several exemptions to the solar requirement, including homes with roofs that have too much shade for PV systems to be effective. The proposed local amendments to the California Code in Ordinance 750, apply the same formula and exemptions the CEC requires for newly constructed housing units to Piedmont's existing residential buildings undergoing a significant expansion: those getting a new upper level or an expansion of roof area of 30% or more. Since 2015, the City received 14 projects which would have triggered this requirement.

Solar Exemption

The Reach Code uses the same formulas and exemptions that are in the Energy Code requirements for new home construction: if the new second story or large first floor addition is shaded by trees, other homes or buildings, hills or other permanent obstacles so that less than 80 square feet of roof space is available for solar panels, then the project is not required to install PV panels or solar shingle roofing. A licensed solar installer can provide a document stating that the solar access is less than 80 square feet due to shading by existing natural or manmade barriers, and the PV system will not be required. Attachment 3 to this report (pages 28-29) provides the formula and exceptions for rooftop solar energy systems found in the California Energy Code, and options to finance the installation of a PV system.

<u>In addition, the following information on solar energy system installations in Piedmont is provided</u>:

- Existing homes in Piedmont: 3,924
- Between May 2001 and July 2020, building permits for approximately 550 solar energy systems were issued, including PV, hot water and batteries.
- Approximately 15% of Piedmont homes currently have solar energy systems
- Average permit cost: $20,000 (before rebates and tax credits)
- Between July 2019 and July 2020, building permits for 125 PV systems (some with batteries) were issued: This is a 26% increase.

NEXT STEPS

A second and final reading of the Ordinances is required for adoption. Since the first reading, the ordinances have been posted at City Hall as well as on the City website.

- Any approved amendments to Title 24, Part VI ("Reach Codes") must be submitted to the California Energy Commission (CEC) for certification. That process is expected to take about three months from the date City staff submits the amendments to the CEC shortly after a second reading of the ordinance. Once the CEC approves the "Reach Code" amendments, City staff will file all the amendments to the California Electrical Code and the California Energy Code for certification by the California Building Standards Commission. The code amendments under Ordinance 750 N.S. can go into effect upon this filing.
- The code amendments to City Code division 8.08, Disclosures, under Ordinance 751 N.S. do not need certification by the State. Therefore, if passed this ordinance will become effective on March 3, 2021.

By: Kevin Jackson, Director of Planning & Building
Craig Griffin, Chief Building Official
Alyssa Dykman, Sustainability Program Manager
Nate Redinbo, Climate Action Fellow

ATTACHMENTS

	Pages	
1	16-24	Ordinance No. 750 N.S., amending Chapter 8 of the City Code regarding requirements for energy efficiency measures, photovoltaic systems, and all-electric construction in new or existing low-rise residential buildings
2	25-27	Ordinance No. 751 N.S., amending Division 8.08 of the City Code to include requirements for the preparation of a Home Energy Audit or Home Energy Score for low-rise residential buildings
3	28-29	California Energy Code, solar panel requirement formula and exceptions
4	30-31	Code Amendments for Energy Efficiency Improvements, Exception Authority and Reasons for Amendments
5	32-33	Flow Chart: Insulation & Electrification Improvements; Costs and Payback Periods
6	34-48	Frequently Asked Questions Regarding the Proposed Reach Codes

Supplemental and Referenced Documents

Public Engagement Summaries

- *Piedmont Resident Views of the City's Emissions Reduction Strategies: Key Findings from a Citywide Voter Survey Conducted November 21-December 3, 2020*, is available at: https://piedmont.ca.gov/UserFiles/Servers/Server_13659739/File/Government/Departments/Planning%20D

ivision/Reach_Codes/2021-01-19%20Survey%20Results%20Presentation.pdf

- *Piedmont Resident Views of the City's Emissions Reduction Strategies: Key Findings from a Citywide Voter Survey Conducted June 17-22, 2020*, is available at: https://piedmont.ca.gov/UserFiles/Servers/Server_13659739/File/Government/Departments/Planning%20Division/Reach_Codes/Survey_Results_Presentation.pdf

- A recording of the September 3, 2020 Reach Codes Town Hall Meeting is available at: https://piedmont.granicus.com/MediaPlayer.php?view_id=3&clip_id=2219

City of Piedmont Climate Action Plan 2.0 is available at: https://piedmont.ca.gov/Climate_Action_Plan

Piedmont City Code Chapter 8, Building, Construction and Fire Prevention is available at: https://piedmont.ca.gov/UserFiles/Servers/Server_13659739/File/Government/City%20Charter%20&%20Code/Chapter%208.pdf

The City of Piedmont General Plan is available at: https://piedmont.ca.gov/General_Plan

Cost-Effectiveness Studies

- *Cost-Effectiveness Study: Low-Rise Residential* (published March 2019), which finds that all-electric new construction is cost-effective, is available at: https://piedmont.ca.gov/UserFiles/Servers/Server_13659739/File/Government/Departments/Planning%20Division/Reach_Codes/Cost_Effectiveness_Study.pdf

- *2019 Cost-Effectiveness Study: Existing Low-Rise Residential Building Efficiency Upgrade* (published February 2020), which finds that the insulation list items and high efficacy internal lights with motion sensors are cost-effective, is available at: https://piedmont.ca.gov/UserFiles/Servers/Server_13659739/File/Government/Departments/Planning%20Division/Reach_Codes/Residential_Building_Efficiency_Upgrade.pdf

- *2019 Cost-Effectiveness Study: Low-Rise Residential Addendum – Cost Effectiveness Study for the City of Piedmont Requiring Photovoltaic (PV) Systems and Exterior Lighting Controls on Residential Additions* (published June 2020), which finds that solar panel installation and high efficacy external lights with motion sensors are cost-effective, is available at: https://piedmont.ca.gov/UserFiles/Servers/Server_13659739/File/Government/Departments/Planning Division/Reach_Codes/Cost_Effectiveness_Study_Lighting_Addendum.pdf

Attachment 1 – Ordinance 750 N.S.

ORDINANCE NO. 750 N.S.

AN ORDINANCE AMENDING CHAPTER 8 OF THE CITY CODE REGARDING REQUIREMENTS FOR ENERGY EFFICIENCY MEASURES, PHOTOVOLTAIC SYSTEMS, AND ALL-ELECTRIC CONSTRUCTION IN NEW OR EXISTING LOW-RISE RESIDENTIAL BUILDINGS.

The City Council of the City of Piedmont hereby ordains as follows:

SECTION 1. PURPOSE AND INTENT

It is the purpose and intent of the City Council of the City of Piedmont in adopting this Ordinance to expressly enact local amendments to Residential Code Section R106, Energy Code Sections 100.0, 100.1, 140.1, 150.0 and 150.1, and Electrical Code Sections 210.52 and 220.83 of the 2019 California Building Code applicable to new construction and additions and alterations to existing buildings to provide standards for new and renovated buildings to improve community health and safety while reducing greenhouse gas emissions.

SECTION 2. FINDINGS

Pursuant to Sections 17922, 17958, 17958.5, and 17958.7 of the California Health and Safety Code, the City may make amendments to the provisions of the 2019 California Residential Code, the 2019 California Electrical Code and the 2019 California Energy Code which are reasonably necessary to protect the health, welfare and safety to the residents of Piedmont because of local climatic, geological and topographical conditions.

The City Council hereby makes the following findings with respect to local geological, topographical, and climatic conditions relating to the amendments to the California Building Standards Code for each of the below amendments, to the extent such findings are required:

A. The San Francisco Bay area region is densely populated and located in an area of high seismic activities. The City is bounded by the Hayward and San Andreas faults capable of producing major earthquakes; and

B. Concern for fire-life safety associated with gas appliances and associated piping located in the ground and in the buildings increase the risk of explosion or fire if there is a structural failure due to a seismic event considering the increasing density of buildings in the region; and

C. Severe seismic events could disrupt communications, damage gas mains, cause extensive electrical hazards, and place extreme demands on the limited resources of the Fire Department resulting to meet the fire and life safety needs of the community; and

D. Solar infrastructure on buildings reduces the need for pipelines and electrical transmission lines; and

E. The local geographic, topographic, and climatic conditions pose an increase hazard in acceleration, spread, magnitude and severity of potential fires in the City, and may cause a delayed response from emergency responders, allowing further growth of the fire; and

F. Over the next century, increasing levels of atmospheric greenhouse gas concentrates are expected to result in global temperature increases, and based on scientific literature and studies are likely to cause a variety of local changes, including extreme weather conditions, sea level rise, more frequent heat waves and extended period of drought. Local geographic, topographic and climatic conditions include risk of the following:

   a. Fires. Piedmont is a hillside community and most of the structures are single-family dwellings built on sloping terrain. The 1991 Oakland/Berkeley Hills fire had a devastating impact on those communities in the fire zone which experienced significant loss of life and property. The fire zone of this event crossed into the Piedmont city limits but did not damage any structures. Piedmont has the same climatic and topographical conditions as those areas affected by the nearby 1991 fire. In most areas of Piedmont, the dwelling units are located in close proximity to one another and in many cases are less than 8 feet apart. Fires can easily spread from house-to-house and are more readily spread upslope in the direction of prevailing winds. As referenced by CalFire's Fire and Resource Assessment Program (FRAP), Wildland Urban Interface Map, all of Piedmont is within or immediately adjacent to an Interface or Influence Zone. All areas of Piedmont are located in a Wildland-Urban Interface (WUI) zone, which allows for heightened construction and regulatory standards to mitigate the spread of wildfires. In addition, wildfires located outside the area in 2018 and 2019 created a blanket of toxic smoke over the City, causing the worst air quality on record by the Bay Area Air Quality Management District for two consecutive weeks; and

   b. Landslides. Extreme storms as a result of climate change increases the chance of rainfall-induced landslide; fire and drought may kill vegetation in the City's WUI zone increasing runoff and potential for landslide; and

   c. Heat: Increased heat as a result of climate change can have a local impact on the health, safety and welfare of the City's population, especially those without resources to purchase air conditioning, the elderly, disabled, or those with children; and

G. Failure to address and substantially reduce greenhouse gas emissions creates an increased risk to the health, safety and welfare of the City residents, the City Council considers and adopts as findings the analysis contained in the staff report; and

H. Amendments to the California Codes have been adopted in the past by the City Council based on specific findings of local geographic, topographic and climatic

conditions; and the City Council hereby reaffirms such findings and confirms that the facts on which such findings were based continue to exist; and

I. The provisions of this Ordinance establish more restrictive standards than the California Building Standards Code which will better serve to prevent or minimize structural damage and other impacts resulting from such local conditions; and

The City Council hereby also makes the additional following findings with respect to cost effectiveness for each of the below amendments, to the extent findings are required:

A. A March 15, 2019 study prepared by Frontier Energy, Inc. and Misti Bruceri & Associates, LLC, funded by California utility ratepayers, and submitted to the California Energy Commission – "Cost-effectiveness Study: Low Rise Residential" – found the proposed all-electric new construction amendment to the Building Energy Efficiency Standards to be cost-effective.

B. A February 6, 2020 study prepared by Frontier Energy, Inc. and Misti Bruceri & Associates, LLC, funded by California utility ratepayers, and submitted to the California Energy Commission – "2019 Cost-Effectiveness Study: Existing Low-Rise Residential Building Efficiency Upgrade" – found the proposed list items related to insulation are cost effective. This study also found that a requirement for non-high efficacy internal lights be replaced with high efficacy internal lights, with motion sensors, was cost-effective.

C. A June 19, 2020 Addendum to the original study for low-rise residential buildings, prepared by Frontier Energy, Inc. and Misti Bruceri & Associates, LLC, funded by California utility ratepayers, and submitted to the California Energy Commission, found that the proposed solar installation requirement, and the proposed external lighting element to the lighting electrification list item, were also cost-effective.

D. Based on the foregoing studies, staff reports, and testimony of staff, the Ordinance's amendments to the Building Energy Efficiency Standards are cost-effective; and

E. The Department of Energy sets the minimum efficiency standards for equipment and appliances; none of the provisions in this Ordinance change minimum efficiency standards or regulations for covered products under the Energy Policy and Conservation Act, and therefore this Ordinance is not preempted by federal appliance regulations; and

F. This Ordinance's amendments to the Building Energy Efficiency standards will require buildings to achieve increased energy reductions.

SECTION 3. AMENDMENT TO SECTION 8.02.020

Section 8.02.060 of the Piedmont City Code is hereby amended to add the following as subsection D, with the existing subsection D to be renumbered as subsection E and all subsequent subsections to be renumbered sequentially:

D. Section R106 – Construction Documents. Section R106 is amended to add the following subsection R106.6:

"R106.6 Renovation Energy Efficiency Upgrades
A renovation of a low-rise residential building, with a stated project value of $25,000 or more, is required to submit documentation that one item from the following list of energy efficient measures is included in the scope of work. A housing renovation of a low-rise residential building with a stated project value of $100,000 or more shall require the inclusion of two items from the energy efficient measures below in the scope of work.

Energy Efficient Measures:

A. Install R-38 attic insulation, and apply air sealing practices in all accessible areas of the building. Seal ducts to meet the requirements of Section 150.2(b)1E of the 2019 California Energy Code.
B. Install R-19 insulation at raised floor assemblies meeting standards of 2019 California Energy Code Section 150.0(d).
C. Install R-3 insulation on all accessible hot water piping. Install low flow water fixtures meeting standards set forth in the 2019 Green Building Standards Code, Section 403.3.
D. Replace all screw in incandescent and CFL lamps with screw in LED lamps in all light fixtures. Install manual on vacancy sensors in all locations per 2019 California Energy Code Section 110.9(b)4.
E. Replace Fuel Gas furnace with an electric heat pump system meeting the Requirements of the 2019 California Energy Code Section 150.2(b)C or with other high efficiency electric space heating system per approval of the Building Official.
F. Replace Fuel gas water heater with a heat pump water heater meeting the requirements of 2019 California Energy Code Section 150.2Hiii(b) or 150.2Hii(c), or with other high efficiency electric water heating system per approval of the Building Official.
G. Implement one or more recommendations specified in a Home Energy Score or Home Energy Audit report that has been completed within five years and that is submitted with the application for a building permit, with the approval of such recommendation by the Building Official.

Exceptions:

1. A Home Energy Score Report for the low-rise building, completed within 5 years, demonstrating that the building already has a minimum Home Energy Score of 7, is submitted to the Building Official.

2. In accordance with Section R104.10 Modifications, the Building Official shall not require the installation of R 106.6 Energy Efficient Measures E. and/or F. if one or more of the following conditions apply:

a. The unique features of the construction of the low-rise residential structure, including, but not limited to existing heating and/or cooling system(s) that are not configured for conversion to forced air systems preclude installation of those measures.
b. The installation of the measures is not commensurate with the project's scope and budget, as determined by the Building Official, because the cost of those measures would exceed 20% of the total project cost or require substantial construction in areas of the residential structure that would otherwise not be part of the project."

SECTION 4. AMENDMENT TO SECTION 8.02.060

Section 8.02.060 of the Piedmont City Code, subsection G (as renumbered from subsection F by Section 3 of this Ordinance) is hereby amended to read as follows:

"G. Section R202 – Definitions. Section R202 – Definitions is amended to replace the definition of crawlspace with the following, and add the following definition of Home Energy Score:

"CRAWL SPACE. An underfloor space with a maximum height of 5 feet that is not a basement.

"HOME ENERGY SCORE. Home Energy Score means the score provided by a Home Energy Score Certified Assessor following an assessment of a property, using the Home Energy Score Scoring Methodology developed by the U.S. Department of Energy."

SECTION 5. AMENDMENT TO SECTION 8.02.060

The following subsections are hereby added to Section 8.02.060 of the Piedmont City Code.

"B. Subsection 210.52(F) Laundry Areas. Section 210.52(F) is replaced in its entirety as follows:

"(F) Laundry Areas. In dwelling units, at least one receptacle outlet shall be installed in areas designated for the installation of laundry equipment. At least one 120/240v, 30 ampere circuit shall be installed within 6 feet of appliance location in accordance with Section 210.50(C).

Exception No. 1: A receptacle for laundry equipment shall not be required in a dwelling unit of a multifamily building where laundry facilities are provided on the premises for use by all building occupants.

Exception No. 2: A receptacle for laundry equipment shall not be required in other than one-family dwellings where laundry facilities are not to be installed or permitted."

C. Section 210.52 Dwelling Unit Receptacle Outlets. Section 210.52 is amended to add the subsection:

"(J) Kitchen Cooking Appliances. At least one 240v 50 ampere circuit shall be installed within 6 ft. of the appliance location, in accordance with Section 210.50(C)."

D. Section 220.83 Existing Dwelling Unit. Section 220.83 is replaced in its entirety as follows:

"220.83 Existing Dwelling Unit. This section shall be used to determine if the existing service or feeder is of sufficient capacity to serve additional loads. Where the dwelling unit is served by a 120/240-volt or 208Y/120-volt, 3-wire service, calculate the total load in accordance with Section 220.83(B).

(A) **Where Additional Air Conditioning Equipment or Electric Space-Heating Equipment Is Not to Be Installed.** *This section is deleted in its entirety*.

(B) **Where Additional Air Conditioning Equipment or Electric Space Heating Equipment Is to Be Installed.** The following percentages shall be used for existing and additional new loads. The larger connected load of air-conditioning or space-heating, but not both, shall be used.

Load	Percent of Load
Air-conditioning equipment	100
Central electric space heating	100
Less than four separately controlled space-heating units	100
First 8 kVA of all other loads	100
Remainder of all other loads	40

Other loads shall include the following:

(1) General lighting and general-use receptacles at 33 volt-amperes/m^ or 3 volt-amperes/ft^ as determined by 220.12

(2) 1500 volt-amperes for each 2-wire, 20-ampere small appliance branch circuit and each laundry branch circuit covered in 210.11(C)(1) and (C)(2)

(3) The nameplate rating of the following:

- a. All appliances that are fastened in place, permanently connected, or located to be on a specific circuit
- b. Wall-mounted ovens, counter-mounted cooking units
- c. Water heaters

(4) One 30 ampere circuit for clothes dryers per Section 210.52(F)

(5) One 50 ampere circuit for induction range per Section 210.52 (J).""

SECTION 6. AMENDMENT TO SECTION 8.02.070

Section 8.02.070 of the Piedmont City Code is hereby amended in its entirety to read as follows:

"**8.02.070 2019 California Energy Code – Amendments**

This section amends the 2019 California Energy Code as adopted in Section 8.02.010, as set forth below.

A. Section 100.0 – Scope. Section 100.0(e)(2)(D) is amended to add a new subsection section (ii) as follows:

"(ii) New construction low-rise residential buildings shall be an All-Electric Building or All Electric Design as defined in Section 100.1(b)."

B. Section 100.1(b) – All Occupancies – General Provisions. Section 100.1(b) is amended to include the following definition:

"**ALL-ELECTRIC BUILDING** or **ALL-ELECTRIC DESIGN** is a building or building design that uses a permanent supply of electricity as the only source of energy for space conditioning (including heating and cooling), water heating (including pools and spas), cooking appliances, and clothes drying appliances, and has no natural gas or propane plumbing installed at the building."

C. Section 140.1 – Performance Approach: Energy Budgets. Section 140.1 is amended to add the following sentence after the first paragraph:

"A newly constructed All-Electric Building complies with the performance approach if the energy budget calculated for the Proposed Design Building under Subsection (b) is no greater than the energy budget calculated for the Standard Design Building under Subsection (a)."

D. Section 150.0 – Mandatory Features and Devices. Section 150.0 is amended to replace the introductory sentence and note in their entirety as follows:

"Low-rise residential buildings shall comply with the applicable requirements of Sections 150(a) through 150(s).

NOTE: The requirements of Sections 150.0 (a) through (s) apply to newly constructed buildings. Sections 150.2(a) and 150.2(b) specify which requirements of Sections 150.0(a) through 150.0(r) also apply to additions or alterations."

E. Section 150.0(e) – Installation of fireplaces, decorative gas appliances and gas logs. Section 150.0(e) is amended to add the following sentence to the beginning of the section:

"In any low rise residential building required to be an All-Electric Building or All Electric Design under this code, fireplaces shall be electric, not fueled by Fuel Gas."

F. Section 150.0(h) – Space-conditioning equipment. Section 150.0(h) is amended to add the following sentence to the beginning of the section:

"In any low rise residential building required to be an All-Electric Building or All Electric Design under this code, construction space-conditioning equipment shall be electric, not fueled by Fuel Gas."

G. Section 150.0(n) – Water heating system. Section 150.0(n) is amended to add the following sentence to the beginning of the subsection:

"In any low rise residential building required to be an All-Electric Building or All Electric Design under this code, heating systems and equipment shall be electric, not fueled by Fuel Gas."

H. Section 150.0(s) – Clothes Drying and Cooking Appliances. Section 150.0 is amended to add a new subsection (s):

"(s) **Clothes Dryers and Cooking Appliances.**
1. Clothes Dryers. Clothes dryers shall be electric, not fueled by Fuel Gas.
2. Cooking Appliances. Cooking appliances shall be electric, not fueled by Fuel Gas."

I. Subsection 150.2(a) – Additions. Section 150.2(a) is amended to add the following language after the first sentence:

"Requirements for installation of all-electric water heating systems, space conditioning equipment, fireplaces and decorative gas appliances, and clothes drying appliances, and cooking appliances as specified for new construction in Sections 150.0(e), 150.0(h), 150.0(n), and 150.0(s) do not apply to additions."

J. Section 150.2(a) – Additions. Section 150.2(a) is amended to replace Exception 7 in its entirety as follows:

"**Exception 7 to Section 150.2(a):** Photovoltaic systems, as specified in Section 150.1(c)14 including the exceptions listed therein, are not required for additions, except that additions of an entirely new upper level or that increase the building's total roof area by thirty percent (30%) or more shall meet the photovoltaic requirements of Section 150.1(c)14."

K. Section 150.2(b) – Alterations. Section 150.2(b) is amended to add the following language after the first sentence:

"Requirements for installation of all-electric water heating systems, space conditioning equipment, fireplaces and decorative gas appliances, and clothes drying appliances, and cooking appliances as specified for new construction in Sections 150.0(e), 150.0(h), 150.0(n), and 150.0(s) do not apply to alterations.""

SECTION 7. CALIFORNIA ENVIRONMENTAL QUALITY ACT

The City Council finds that the adoption of this Ordinance is not a project under the requirements of the California Environmental Quality Act, together with related State CEQA Guidelines (collectively, "CEQA") because it has no potential for resulting in a physical change to the environment. In the event that this Ordinance is found to be a project under CEQA, it is subject to the CEQA exemption contained in CEQA Guidelines section 15061(b)(3) because it can be seen with certainty to have no possibility that the action approved may have a significant effect on the environment. CEQA applies only to actions which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. In this circumstance, the proposed action would have no or only a de minimis effect on the environment. The Ordinance is also exempt from CEQA under CEQA Guidelines section 15308, because it is a regulatory action for the protection of the environment. The foregoing determination is made by the City Council in its independent judgment. Staff shall prepare and file a notice of exemption in accordance with this determination and the requirements of CEQA.

SECTION 8. SEVERABILITY

The provisions of this Ordinance are severable and if any provision, clause, sentence, word or part of it is held illegal, invalid, unconstitutional, or inapplicable to any person or circumstances, the illegality, invalidity, unconstitutionality, or inapplicability will not affect or impair any of the remaining provisions, clauses, sentences, sections, words or parts of the Ordinance or their applicability to other persons or circumstances.

SECTION 9. POSTING, FILING, AND EFFECTIVE DATE

This Ordinance shall be posted at City Hall after its second reading by the City Council for at least 30 days and shall become effective after the approval of such amendments by the California Energy Commission. The City Clerk shall cause a copy of this Ordinance to be filed with the California Energy Commission and the California Building Standards Commission in the manner required by law.

[End of Ordinance]

Attachment 2 – Ordinance 751 N.S.

ORDINANCE NO. 751 N.S.

AN ORDINANCE AMENDING DIVISION 8.08 OF THE CITY CODE TO INCLUDE REQUIREMENTS FOR THE PREPARATION OF A HOME ENERGY AUDIT OR HOME ENERGY SCORE FOR LOW-RISE RESIDENTIAL BUILDINGS.

The City Council of the City of Piedmont hereby ordains as follows:

SECTION 1. PURPOSE AND INTENT

It is the purpose and intent of the City Council of the City of Piedmont in adopting this Ordinance to provide prospective buyers of residential properties important information regarding the energy use, and the costs associated with that energy use, of the building(s) offered for sale. In addition, the information provided will assist the purchaser in determining how best to improve a home's energy use in order to reduce long term expenses and greenhouse gas emissions, a goal of the City of Piedmont Climate Action Plan.

SECTION 2. FINDINGS

The City Council hereby makes the following findings in association with the adoption of this ordinance:

A. The receipt of a Home Energy Score or Home Energy Audit will assist homeowners in their efforts to reduce their home's energy use and any greenhouse gas emissions from fossil fuels used to generate that energy;

B. Over the next century, increasing levels of atmospheric greenhouse gas concentrates are expected to result in global temperature increases, causing a variety of local changes, including extreme weather conditions, sea level rise, more frequent heat waves and extended period of drought; and

C. Failure to address and substantially reduce greenhouse gas emissions creates an increased risk to the health, safety and welfare of the City residents, the City Council considers and adopts as findings the analysis contained in the staff report.

SECTION 3. AMENDMENT TO SECTION 8.08.010

Section 8.08.010 Property Records, of the Piedmont City Code is hereby amended in its entirety to read as follows:

"8.08.010 Property records.

A. Purpose. The purpose of this section is to fairly notify future property owners of important requirements concerning property in the city. Furthermore, the City has determined that prospective buyers of residential properties should be provided with important information regarding the energy use, and the costs associated with that energy use, of the building(s) offered for sale. In addition,

the information provided will assist the purchaser in determining how best to improve a home's energy use in order to reduce long term expenses and greenhouse gas emissions, a goal of the City of Piedmont Climate Action Plan.

B. Required Information. Each person who sells or transfers an interest in real property located in the City of Piedmont must provide the following information to a prospective buyer:

1. A property records search provided by the Planning & Building Department for a nominal fee established by the City Council. This report shall show the building permit history for the property, including which improvements have been approved.

2. A disclosure statement prepared by the Planning & Building Director.

3. For any low-rise residential building, either a Home Energy Score or a Home Energy Audit prepared no more than five years prior to the date the property is advertised or listed for sale, unless the home was constructed within ten years prior to the date of such advertising or listing.

C. Timing of Disclosure. For any sale, transfer, or other transaction of a residential property that is subject to a disclosure requirements under Civil Code section 1102, et seq., the additional information required to be provided to the purchaser by this section shall be provided at the time such disclosures are made, and for all transactions not subject to a disclosure requirements under Civil Code section 1102, et seq., such additional information shall be provided not less than 10 days before close of escrow.

D. Exemption. The requirements specified in this section shall not apply to those sales or transfers listed in Civil Code section 1102.2, subdivisions (a) through (j), and subdivision (l).

E. Definitions. In this section, the following words shall be given the below meanings:

Home Energy Audit means a detailed report resulting from a whole-house evaluation, including diagnostic testing using specialized equipment, prepared by a Building Performance Institute, Inc. (BPI) certified Building Analyst to identify and prioritize proposed treatments for improving a home's energy use.

Home Energy Score, means a score and associated report, using the metrics developed by the U.S. Department of Energy and its national laboratories, prepared by a certified Home Energy Score Assessor that provides

homeowners, buyers, and renters directly comparable and credible information about a home's energy use.

Low-rise Residential Building means a building, other than a hotel/motel that is Occupancy Group: R-2, multifamily, with three habitable stories or less; or R-3, single family; or *U*-building located on a residential site."

SECTION 4. CALIFORNIA ENVIRONMENTAL QUALITY ACT

The City Council finds that the adoption of this Ordinance is not a project under the requirements of the California Environmental Quality Act, together with related State CEQA Guidelines (collectively, "CEQA") because it has no potential for resulting in a physical change to the environment. In the event that this Ordinance is found to be a project under CEQA, it is subject to the CEQA exemption contained in CEQA Guidelines section 15061(b)(3) because it can be seen with certainty to have no possibility that the action approved may have a significant effect on the environment. CEQA applies only to actions which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. In this circumstance, the proposed action would have no or only a de minimis effect on the environment. The Ordinance is also exempt from CEQA under CEQA Guidelines section 15308, because it is a regulatory action for the protection of the environment. The foregoing determination is made by the City Council in its independent judgment.

SECTION 5. SEVERABILITY

The provisions of this Ordinance are severable and if any provision, clause, sentence, word or part of it is held illegal, invalid, unconstitutional, or inapplicable to any person or circumstances, the illegality, invalidity, unconstitutionality, or inapplicability will not affect or impair any of the remaining provisions, clauses, sentences, sections, words or parts of the Ordinance or their applicability to other persons or circumstances.

SECTION 6. POSTING, FILING, AND EFFECTIVE DATE

This Ordinance shall be posted at City Hall after its second reading by the City Council for at least 30 days and shall become effective 30 days after the second reading.

[End of Ordinance]

Attachment 3

Formula and Exceptions Related to Residential Rooftop Solar Energy System Requirements in the California Energy Code; and Financing Options

Formula and Exceptions:

2019 California Energy Code Section 150.1(c)14:

"14. Photovoltaic Requirements. All low-rise residential buildings shall have a photovoltaic (PV) system meeting the minimum qualification requirements as specified in Joint Appendix JA11, with annual electrical output equal to or greater than the dwelling's annual electrical usage as determined by Equation 150.1-C:

EQUATION 150.1-C ANNUAL PHOTOVOLTAIC ELECTRICAL OUTPUT

kW_{PV} = (CFA x A)/1000 +(NDwell x B)

WHERE:

kW_{PV} = kWdc size of the PV system
CFA = Conditioned floor area
NDwell = Number of dwelling units
A = Adjustment factor from Table 150.1-C
B = Dwelling adjustment factor from Table 150.1-C

Table 150.1-C
CFA and Dwelling adjustment Factors

Climate Zone	A – CFA	B – Dwelling Units
3	0.628	1.12

EXCEPTION 1 to Section 150.1(c)14: No PV is required if the effective annual solar access is restricted to less than 80 contiguous square feet by shading from existing permanent natural or manmade barriers external to the dwelling, including but not limited to trees, hills, and adjacent structures. The effective annual solar access shall be 70 percent or greater of the output of an unshaded PV array on an annual basis.

EXCEPTION 2 to Section 150.1(c)14:(does not apply to our climate zone)

EXCEPTION 3 to Section 150.1(c)14: In all climate zones, for dwelling units with two habitable stories, the PV size shall be the smaller of a size that can be accommodated by the effective annual solar access or a
PV size required by the Equation 150.1-C, but no less than 1.0 Watt DC per square foot of conditioned floor area

EXCEPTION 4 to Section 150.1(c)14: In all climate zones, for low-rise residential dwellings with three habitable stories and single family dwellings with three or more habitable stories, the

PV size shall be the smaller of a size that can be accommodated by the effective annual solar access or a PV size required by the Equation 150.1-C, but no less than 0.8 Watt DC per square foot of conditioned floor area.

EXCEPTION 5 to Section 150.1(c)14: For a dwelling unit plan that is approved by the planning department prior to January 1, 2020 with available solar ready zone between 80 and 200 square feet, the PV size is limited to the lesser of the size that can be accommodated by the effective annual solar access or a size that is required by the Equation 150.1-C.

EXCEPTION 6 to Section 150.1(c)14: PV sizes from Equation 150.1-C may be reduced by 25 percent if installed in conjunction with a battery storage system. The battery storage system shall meet the qualification requirements specified in Joint Appendix JA12 and have a minimum capacity of 7.5 kWh."

Financing Options for Residential Rooftop Solar Energy Systems

There are several ways to finance the installation of a PV system. The homeowner can pay cash for the system. An average system is in the $15,000- $25,000 range before tax credits.

Homeowners who install solar panels can currently use the Federal Tax Credit to recover about 20% of the cost of purchasing and installing solar panels. Usually the systems are sized and priced so the system pays for itself in 7 - 10 years.

Other financing options include:

1. Programs in which the solar company will lease solar system to the owner of the home on which it is installed.
2. Programs in which the solar company owns and maintains the PV system but sells the power to the homeowner for a flat fee -- called a Power Purchase Agreement (PPA).

Both the PPA and lease arrangements will also save homeowners money on energy. Neither of these options is as cost effective as the purchase of a solar energy system, but they have the benefit of avoiding the large upfront cost of solar panels.

Attachment 4

Detailed List of Proposed Energy Efficient Improvements
Included in the Proposed
Local Amendments to the California Residential and Energy Codes;

Building Code Section Granting Authority to the Building Official to Make Exceptions;
And

Reasons Why the Draft Amendments were Developed

Proposed renovation amendment, with list of options:

D. Section R106 – Construction Documents. Section R106 is amended to add the following subsection:

"R106.6 Renovation Energy Efficiency Upgrades
A renovation of a low-rise residential building, with a stated project value of $25,000 or more, is required to submit documentation that one item from the following list of energy efficient measures is included in the scope of work. A housing renovation of a low-rise residential building with a stated project value of $100,000 or more shall require the inclusion of two items from the energy efficient measures below in the scope of work.

Energy Efficient Measures:

A. Install R-38 attic insulation, and apply air sealing practices in all accessible areas of the building. Seal ducts to meet the requirements of Section 150.2(b)1E of the 2019 California Energy Code.
B. Install R-19 insulation at raised floor assemblies meeting standards of 2019 California Energy Code Section 150.0(d).
C. Install R-3 insulation on all accessible hot water piping. Install low flow water fixtures meeting standards set forth in the 2019 Green Building Standards Code, Section 403.3.
D. Replace all screw in incandescent and CFL lamps with screw in LED lamps in all light fixtures. Install manual on vacancy sensors in all locations per 2019 California Energy Code Section 110.9(b)4.
E. Replace Fuel Gas furnace with an electric heat pump system meeting the Requirements of the 2019 California Energy Code Section 150.2(b)C or with other high efficiency electric space heating system per approval of the Building Official.
F. Replace Fuel gas water heater with a heat pump water heater meeting the requirements of 2019 California Energy Code Section 150.2Hiii(b) or 150.2Hii(c), or with other high efficiency electric water heating system per approval of the Building Official.
G. Implement one or more recommendations specified in a Home Energy Score or Home Energy Audit report that has been completed within five years and that is submitted with the application for a building permit, with the approval of such recommendation by the Building Official."

Please find, below, the state building code section that authorizes the Building Official to grant exceptions.

California Building Code section granting authority to make exceptions:

R104.10 Modifications. Where there are practical difficulties involved in carrying out the provisions of this code, the building official shall have the authority to grant modifications for

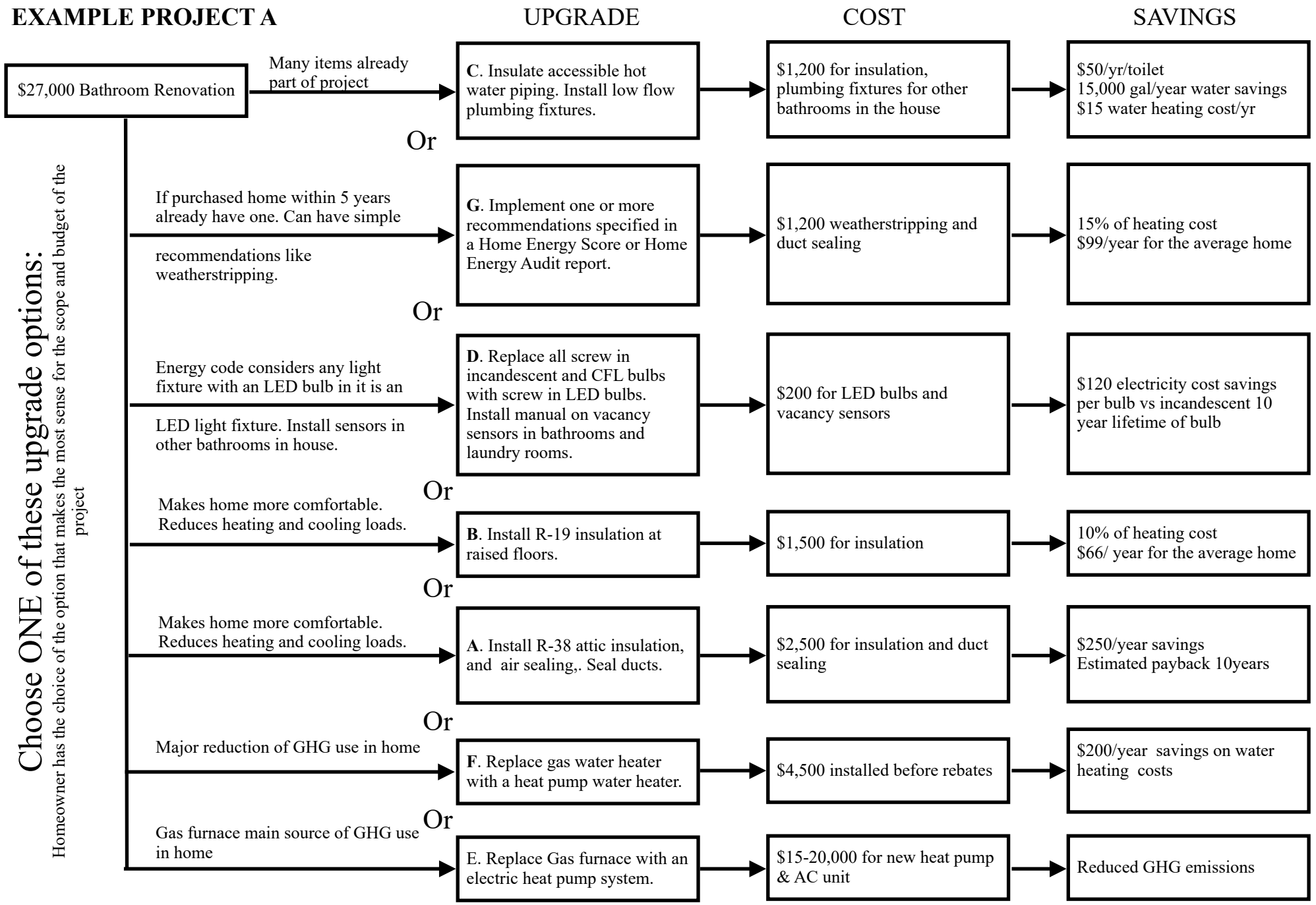
individual cases, provided the building official shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety or structural requirements. The details of action granting modifications shall be recorded and entered in the files of the department of building safety.

Reason for Code Amendments were Developed and the Code Development Process:

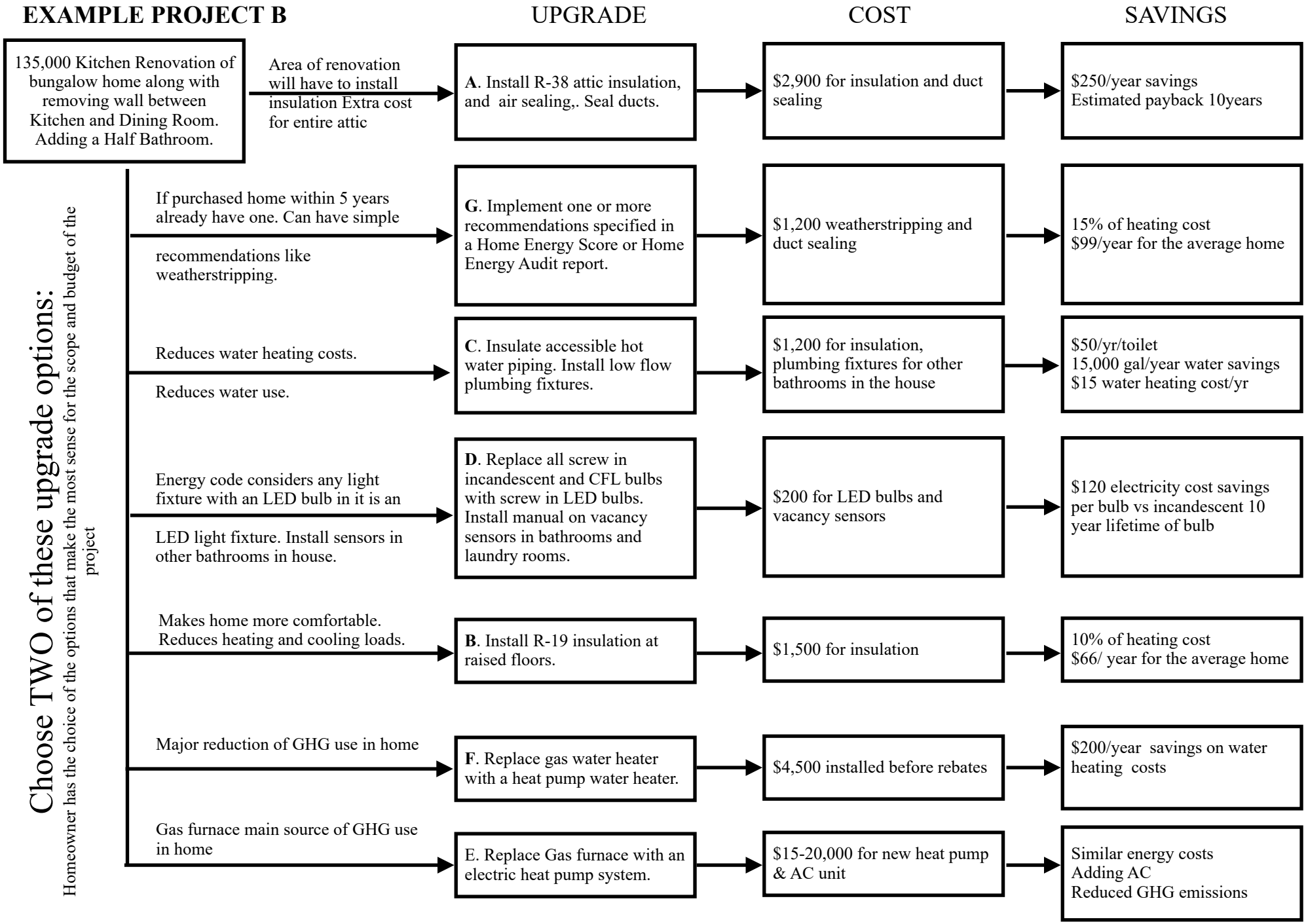
To meet Piedmont's 2030 and 2050 emissions reduction goals, the Piedmont community must reduce emissions from gas appliances in buildings, by insulating buildings so they use less energy (especially natural gas) for heating and by replacing natural gas appliances in buildings with electric equivalents.

Staff held several meetings for residents and building contractors in January and February to discuss possible local amendments to the California Buildings Standards to facilitate insulation and electrification of buildings at the point of renovation. At these meetings, attendees stressed the diversity of the Piedmont housing stock, and the importance of crafting amendments that gave residents a variety of insulation and electrification options, varying in type of renovation, expected cost and return on investment. These suggestions were incorporated into the proposed code amendments in Ordinance 750 N.S. As determined by a random sample survey of 400 Piedmonters carried out in June 2020, 66 percent of the City's voters support amendments to the building code that encourage less use of natural gas in buildings.

Ordinance 750 N.S.Section D Renovation Energy Efficiency Upgrades



Ordinance 750 N.S.Section D Renovation Energy Efficiency Upgrades



Frequently Asked Questions
Regarding Proposed Reach Codes
Piedmont Amendments to the California Building & Energy Codes

The FAQs are sectioned into the following categories. To jump directly to a section, click on section title.

General Questions

Q-1: What is this Climate Action Plan 2.0? Where did the emissions reduction goals come from?

A: Piedmont's original Climate Action Plan was adopted in 2010 and set a GHG emissions reduction goal for the year 2020. The City developed and adopted its second version of its Climate Action Plan (CAP) in 2018, which City Council adopted unanimously. The CAP 2.0 states that "climate change is a human-induced global crisis that is currently causing environmental and social misfortune. Ever mindful of the consequences this crisis poses for future generations, the residents of Piedmont recognize that we must all take action to reduce greenhouse gas (GHG) emissions through electrifying homes, driving gasoline cars less, purchasing goods and services responsibly and more. By acting locally, our small city can make a contribution to a worldwide effort." The purpose of the CAP 2.0 is to support current statewide climate efforts, by providing a pathway for Piedmont to reduce annual in-territory GHG emissions 40% below 2005 levels by 2030 and 80% below 2005 levels by 2050. In 2018, Piedmont's in-territory emissions totaled 34,340 metric tons of CO2 equivalent , a 26% reduction relative to 2005 levels; however, as of now the community has achieved most of the emission reduction through "low hanging fruit" such as warmer winters and the 2018 switch to 100% renewable energy. The community will have to take significant action, such as amending the City's building codes, to meet the CAP 2.0's 2050 emissions reduction goal.

Q-2: How much public engagement for the proposed reach codes did city staff provide before bringing them to the City Council?

A: On January 29, 2020, staff hosted a town hall style "Reach Code Forum" at Community Hall to present the initial Reach Code concepts and receive community comments and recommendations. In February, staff held four follow up "focus group" style public engagement meetings with residents, business owners and contractors to continue discussing possible code ideas and get more detailed feedback. Staff also consulted with the firm FM3 to create a survey to evaluate residents' opinions on potential Reach Codes. The survey was publicly available to be completed from early February to mid-March. The survey was sent out to multiple City email lists, posted on social media, and uploaded to the city website. 186

people participated. The public comments and responses gained through the forum, focus groups and survey were quite informative and led to a revised set of reach codes that were publicized in June 2020. In order to determine if Council and the public could have confidence that the proposed Reach Codes are the right choice for the community, staff engaged opinion research firm FM3 to carry out a random-sample public survey in June to assess the community's opinions on the proposed reach codes along with other climate action topics and measures. That survey of approximately 400 Piedmont voters found that 72% of Piedmonters believe that immediate action is necessary to respond to climate change and that two-thirds (66%) support revising the City's building codes to reduce natural gas use.

Q-3: Is it true that I am more vulnerable during power outages if my home has all electric rather than natural gas appliances?

A: No. You are virtually in the same circumstance during a power outage having either of the two types of appliances. Many natural gas appliances also require electricity to run fans, motors and electronic ignitions. For this reason, most natural gas appliances will not work properly in a power outage. Some gas appliances can light with matches, but it is important to remember that gas lines can also be cut off entirely during an emergency.

The City partners with East Bay Community Energy (EBCE) to offer residents a fully renewable energy portfolio. The group also offers consultations to determine if a backup solar or battery system would be the right decision for residential customers.

Q-4: Why is the City focusing on changes in residential areas instead of businesses or lager utilities?

A: The City is pursuing a change in the building code in order to meet the Climate Action Plan goals passed in 2018. Piedmont uses a method of Greenhouse Gas inventory that focuses on emissions coming from within the city limits. Although focusing on utilities and businesses is tempting, they don't produce a large percentage of GHG within the city. One of Piedmont's largest sources of GHG emissions is natural gas stemming from homes. The City decided to initiate its efforts to reduce emissions from buildings by focusing on residential buildings as they make up a much larger percentage of community emissions. The next step is to develop regulations for the reduction of emissions from commercial and civic buildings.

Q-5: Why doesn't the City offer tax incentives or lower permit fees instead of this proposed code?

A: The City relies on taxes in order to offer services and infrastructure that Piedmonters enjoy every day. Lowering taxes could encourage some people to make the necessary changes, but it would also remove City services that residents rely on. These changes must happen if Piedmont is going to reach its climate goals, and the proposed method is designed to bring about the necessary changes without unnecessarily burdening households or reducing City services.

Q-6: How much is this proposed change going to cost me?

A: As with so many things, the answer depends! The proposed code will only come into effect if a renovation project costs over $25,000. Only 22% of projects currently exceed this threshold. The requirements are designed to offer residents a range of options to meet all budgets. The options include installing attic insulation, replacing all incandescent bulbs with LED bulbs, or completing a home energy audit or home energy score and implementing at least one recommendation from the resulting report. These options are not expected to significantly add to a projects up front cost, while still offering sustained savings over the longer term.

Q-7: **Isn't electricity more expensive than natural gas? Is this going to make my monthly electricity bill increase drastically?**

A: Comparing electricity and natural gas rates is difficult, especially when the future of gas is far from certain. However, the energy savings brought about by a switch to electricity is typically assumed to bring about long term savings, something that natural gas is unlikely to provide. Additionally, natural gas prices are predicted to increase in the near future, something that a switch to electric will protect CA homeowners from.

The expected change in price due to more electrical appliances is expected to be small and should not have a noticeable effect on monthly electric bills. For an in-depth guide to new residential building construction and the expected cost-effectiveness of electrification, here is a 2019 PG&E report.

Q-8: I thought natural gas was a "clean fuel"? Why is Piedmont moving away from it?

A: Natural gas has long been considered a cleaner fuel as compared to other fossil fuels, such as coal and oil. Compared to those fuels, natural gas emits less airborne particle pollution. However, natural gas is made up primarily of methane, a greenhouse gas that captures over 30 times as much heat as an equivalent amount of carbon dioxide (CO2) molecules. Gas lines can leak, explode, and can lead to fires. Additionally, natural gas escapes from water heaters and stoves when used. Burning natural gas releases carbon monoxide, formaldehyde and other undesirable emissions into homes. City staff is proposing the reach code ordinance in order for the City to meet its greenhouse gas reduction goals, but moving away from gas stoves and other gas appliances can also result in a healthier home.

Q-9: **This reach code goes beyond what California state law requires! Is that allowed? Why is Piedmont doing this?**

A: Yes, it is allowed. Reach codes "reach" beyond the state minimum requirements provided in the California Building Standards Code. Both the state of California and the city of Piedmont have adopted climate action plans and strategies to reduce greenhouse gas emissions. One of Piedmont's solutions is the proposed reach codes. Without the proposed reach codes, it is going to be next to impossible to reach the Piedmont community's emissions reduction targets.

The requirements for "reach codes" include:

- Being at least as stringent as the state code
- Being cost effective
- Approved by the California Energy Commission
- Must be reapproved with each Energy Code Update

Q-10: I have heard the energy upgrades and efficiency improvements in the proposed Reach Code Ordinances are "Cost Effective." Does that mean they will save me money on my utility bill?

A: Yes. Most of the measures in the Reach Code Ordinance will save you money on your utility bill. There is a wide variety of homes and families in Piedmont, so it is hard to quantify the specific savings for each situation, but staff estimate the cost savings on your utility bill will likely pay back the cost of the improvement fully within about ten years, after which they will continue paying back cost savings. Other FAQ's and information provided in Attachment 5 on pages 25 and 26 of the *Draft agenda Report for the 2nd Reading of Ords.750 &751 N.S.* detail estimated energy and cost savings of many of the upgrades and improvements, based on an average Piedmont home.

Staff also had statewide cost-effectiveness analysts conduct official studies on the proposed all-electric new construction, solar panel installation, and renovation insulation/electrification Reach Codes. Like staff, these analysts found that all-electric new buildings, solar panel installation on existing buildings, and improving building insulation will all save homeowners money over a thirty year period.

Additionally, the proposed insulation and energy efficiency improvements are not going to significantly add to your electric bill in the long term. Electrification improvements will likely add to the bill initially, but insulation and efficiency upgrades will reduce the amount of energy your home needs.

Hyperlinks to the cost effectiveness studies underlying the proposed Reach Codes can be found in the Attachments section on page 15 of the *Agenda Report for the 1st reading of Ords. 750 & 751 N.S* which can be accessed on the City website (under documents).

Q-11: If I switch from natural gas to electric appliances, the amount of electricity I use will increase and that additional electricity will be priced at the costlier tiers. How can I go all-electric without paying for electricity at the higher rates?

A: Electrifying your home will use more electricity, but this increase should be largely offset by the reduction in gas usage. This can depend on household and existing energy improvements, but electrification is more energy efficient, and higher tiers of energy use should not drastically change your bill. Additionally, adding solar panels can help offset any increase in electricity use.

Return to Top

NEW HOUSING UNITS

Q-12: Why is it important for new housing units to be all-electric, with no natural gas supplied to the home?

A: In 2018, natural gas appliances in Piedmont buildings emitted 14,043 tons of CO2e. This is approximately 40.89% of Piedmont's annual in-territory emissions and has remained essentially unchanged year-to-year since 2005. The City Council set a total in-territory emissions target of 9,336 tons of CO2e for the year 2050 to mirror the goal set by the State of California. Even if we miraculously eliminated all emissions from all other sources in Piedmont, including vehicles, solid waste, and water transportation and treatment, we would still need to reduce emissions from natural gas appliances in buildings by 4,707 tons of CO2e, a reduction of 33.52%, something we have been unable to achieve during the past fifteen years. If Piedmonters are serious about reducing emissions from our building stock, there is an argument to be made that we should reduce emissions whenever possible and avoid adding any new sources of natural gas emissions, including those from buildings, so that the Piedmont community has means to achieve its Climate Action Plan emissions reduction goals.

Q-13: I am planning on building a detached accessory dwelling unit (ADU) in our backyard. My mother is planning on living there. She is a great cook and loves her gas stove. Is it true that we can't install a gas stove in the ADU?

A: Yes. All **new** homes constructed in Piedmont, including new detached ADUs, will be prohibited from having natural gas supplied to them. All the appliances, including the stove, will need to be electric. Many Piedmont residents have switched to induction (electric) stoves and many report great satisfaction with the performance of the appliances. Other cities in Northern California are requiring new buildings to be "all-electric," including Mountain View, Santa Rosa, Palo Alto, Windsor, Los Gatos, Brisbane, Healdsburg, Hayward, San Jose, Menlo Park, San Mateo, Berkeley, Arcata and San Luis Obispo. The intent is for the City to take every reasonable step to reduce emissions related to natural gas use. Otherwise, the Piedmont community will never be able to attain its 2050 emissions target as noted in the answer directly above.

Building a new, all-electric ADU is expected to be less expensive than one with gas. Installing a new gas line can cost thousands of dollars, which an all-electric ADU doesn't require.

Q-14: Do prefabricated homes or ADU's need to comply with the ordinance?

A: Yes, any new low-rise residential building or detached ADU will need to comply with the ordinance whether the building is built on site or at a factory.

Back to the top

GENERAL ALTERATIONS

Q-15: We are a couple in our 90s who are currently living in assisted living with 24 hr/day care who require a major bathroom modification and upgrade and various other small improvements to make our home habitable and safe so that we are able to move back into it. It is likely that our expenses would exceed the $25,000 limit. Tagging additional expenses on top of all we are currently paying would be a hardship. How will this work for us?

A: If either of you have a disability and the bathroom or other alterations are necessary to accommodate the disability, you can submit a request for Reasonable Accommodation, which provides disabled persons flexibility in the application of land use and zoning regulations and procedures, or even waiving certain requirements, when necessary to eliminate barriers to housing opportunities.

If you don't have a physical disability, you would only need to select one insulation, LED light, or heater electrification improvement from a list of improvmement options that could be reasonably included in the scope and cost of your project. Even without the Reach Codes, the current California Building Code requires that building alterations like those you describe include most of the energy efficiency improvements on the Reach Codes list. Furthermore, all the insulation options listed in the proposed renovation Reach Code, as well as the LED light option, are expected to save residents money on energy bills. Savings on utility bills will pay back the upfront cost of the improvement in one to ten years, after which the homeowner will continue to save more money on utility costs. In addition, the insulation and building sealing improvements will make the home more comfortable. They will also reduce your exposure to dangerous pollutants natural gas appliances emit, such as carbon monoxide and fine particulate matter. See the question Q-7 and answer on page 3 for more information on cost effectiveness.

Q-16: I have seen heat pump water heaters (HPWH) range in cost from $3,000 - $7,000, depending if they require an electric service upgrade for installation. Are there any rebates available for Piedmonters to help pay for these upgrades?

A: As of June 2020, residents of Piedmont may qualify for up to $5,000 in energy efficiency upgrades from different soures when bundled together.

- The Bay Area Regional Energy Network (BayREN) offers a $1,000 Home+ incentive, as well as other local and federal rebates and credits. Learn more on the BayREN website: https://www.bayrenresidential.org/get-rebates.
- East Bay Community Energy (EBCE) offers a $1,000 HPWH incentive. Learn more on the EBCE website: https://ebce.org/clean-power-appliances/.
- PG&E provides a $300 rebate per unit as part of thier Save Energy and Mondy Program. Learn more on their website: https://www.pge.com/en_US/residential/save-energy-money/savings-solutions-and-rebates/rebates-by-product/rebates-by-product.page.

Q-17: Are the heat pump AC units noisy? Is the City doing anything to make it easier to locate the units on our smaller lots?

A: The outdoor condenser units are subject to the same requirements as all outdoor equipment in Piedmont, 50 db maximum measured at the nearest property line. As a part of the Reach code process, City staff contracted with Charles Salter and Associates (CSA), a well-known acoustical engineering firm, to give us advice on noise issues with the AC units. They surveyed noise ordinances in other Bay Area communities. They found that while Piedmont's 50 db limit was at the low end of the range of the survey, it is a reasonable limit. Their conclusion is that the 50 db limit is a good balance between allowing the installation of available equipment and impacts on neighbors. CSA noted that in response to sound ordinances around the country, HVAC manufacturers are working on quieter models.

The current Planning and Building ordinances related to the location and installation of outdoor HVAC equipment have been in place for several years. If the location is more than five feet from the side or rear property line or more than 20 ft from the front property line (outside the setbacks), only a Building Permit is required. The Piedmont Building Code governs the sound requirement. If the location is inside the setbacks, approval is required by the Planning Department. Working the City Staff, Residents have been able to find a location on their property for an HVAC unit that meets the planning guidelines as well as the Building Code requirements. Some residents have decided not to pursue the installation of an HVAC unit because the location that would allow them to meet the sound requirement otherwise compromised the use of their yards. As more and more homes in Piedmont become electrified, City Staff will continue working with contractors, residents and neighbors to facilitate the installation of the exterior equipment.

Q-18: Why does the Ordinance direct many of its provisions at the alteration of existing homes?

A: Houses in Piedmont tend to be well maintained, even those that are more than 100-years-old. So unlike property owners in other jurisdictions, Piedmont homeowners have mostly chosen to retain and modify an existing house rather than tear down the old house and build a new one. Therefore energy efficiency provisions that apply only to the construction of new housing units will have a limited effect on the housing stock in Piedmont. Existing homes must be modified to be more energy efficient and use less natural gas if the City has any chance of meeting our Climate action goals of reducing Green House Gas emissions by 80% by 2050.

Q-19: We have lived in our home since 1974. We live on a fixed income. We have saved up to do a few alterations to our home so we can continue to live here safely, but we're concerned about the extra costs of energy efficiency improvements to our tight budget. Would it be possible to defer the improvements to the next buyer as a part of the sale?

A: If your project has a value of less than $25,000 your project would not be subject to the Reach Code ordinance. Depending upon the nature of your project it is a good time to discuss with your contractor or architect things you could do as a part of the project that fits into your

budget to increase the energy efficiency of your house. It could save you money on your utility bills and make your home more comfortable to live in. If your project has an estimated value of $25,000 or more there are several inexpensive options that may be included as part of your project and that have been shown to save energy costs. These low-cost improvements include replacing incandescent light bulbs with LED light bulbs, or weather stripping doors and windows. See the answers to question Q-10 on page 4 and Q-15 on page 6 for more information.

The impetus for the new Reach Codes is to help meet the Climate Action Plan goal to reduce the greenhouse gas emissions of Piedmont homes by 2050 or sooner. Deferring the improvements delays the actions needed to reach the goals. As homes are renovated it is a good time to incorporate energy efficiency improvements into the scope of work. Homes generally aren't renovated more than a few times in a 30 year period, so there won't be that many opportunities to incorporate energy efficiency improvements as a part of a project before 2050.

If the project has a value between $25,000 and $100,000 only one improvement needs to be included in the project. Two energy efficiency improvements are required if the project is over $100,000.

Q-20: Why isn't the City requiring these energy efficiency and electrification improvements when a home is sold to a new owner?

A: The proposed Reach Codes and other amendments to the building codes in the Ordinance apply only when a building permit is issued for a construction project of a specified scope or cost. Normally, there are no building permits issued at the time of sale. The Ordinance does require a Home Energy Score Report or Home Energy Audit Report at the time of sale. Those reports will provide the new owner valuable information on the condition of the home as well as a roadmap for increasing the energy efficiency of the home when they are planning renovations.

Q-21: I am doing a $10,000 alteration to my home, and I can't afford to significantly increase project costs. Will the Ordinance require an expensive additional expense?

A: No. Under the proposed Ordinance, a home renovation of less than $25,000 would not be required to include an energy efficiency improvement. If the $10,000 renovation involves replacing the electrical panel, the Ordinance would require the electrical panel to include space for future electrification (upfront cost $400). If the renovation included a kitchen or laundry area remodel, the Ordinance would require electrical outlets to be installed in the kitchen/laundry area (upfront cost $200). These are the only additional requirements for home renovations of less than $25,000.

Q-22: I have been very diligent about improving the energy efficiency and comfort of my home over the years. I have insulated my attic, had a high efficiency furnace installed and the ducts sealed. We don't have crawlspaces. During the drought we installed low flow fixtures and toilets everywhere and put in a tankless water heater. I have switched all the light bulbs to LED. I would now like to do one last improvement so I can "age in place." I

am going to be bumping out a little space on the ground floor bathroom to put in a shower for $78,000. Do I have to tear out my fairly new furnace or water heater to put in heat pump units? Do I have to put in solar panels?

A: No. Your addition is less than 30% of the existing roof area, so you do not have to install solar panels. Since you have been so diligent about upgrading your home over the years, all the "low hanging fruit" of energy efficiency improvements have already been implemented. Replacing your water heater or furnace is well beyond the scope of work of your project. There is a section in the Building Code that allows the Building Official to take note of the circumstances of your project and grant modifications for individual cases when the strict letter of the code is impractical and the modification is in compliance with the intent and purpose of the code and the modification does not lessen health and safety requirements.

Q-23: I am upgrading my main electrical service panel from the current 100 amp service to 200 amp service. What do I have to do to meet the requirements of the amended electrical code?

A: Your electrician will perform electrical load calculation to make sure the service panel is adequate for you needs. Under this requirement the electrician will have to include the loads for future electrical appliances such as stoves, furnaces and water heaters. The intent is to make sure your home is ready for electrification. It is fairly simple at this point to include that capacity so you can upgrade your appliances at a future date without having to also upgrade your service panel again.

Q-24: What sort of improvements to increase a home's energy efficiency are generated when a Home Energy Score or Home Energy Audit are completed?

A: According to Advanced Home Energy, there are several different major energy loss areas that happen in a home. All of these can be improved after home energy audits and visualizing a home's score. A few examples include duct leakage and insulation, which can all be replaced to dramatically improve in-home air quality amongst other things. Another example is attic insulation, which can be added where none exists or replaced if the home has outdated ineffective insulation. This can keep your home warmer on colder nights and cooler on hot summer days. One last example is energy loss through windows, which can be improved through the installation of weather stripping (a low-cost option), or the replacement of window. There are several other things that can be pointed out during an energy audit, including, but not limited to: energy loss from wall insulation, air leakage, and floor leakage and insulation. More information can be found here: http://advancedhomeenergy.com/.

Q-25: Why did the City choose $25,000 as the trigger point for the Energy Improvement list? Doesn't that discourage people from getting permits for renovating their homes? Shouldn't it be $50,000?

A: To determine the break off points for the improvement categories under Section D of the Ordinance, Staff reviewed the breakdown of the stated Construction Values for projects issued a building permit in recent years. The breakdown is that about 80% of the projects are under $25,000. 10% are between $25,000 and $50,000. 5% have a project cost between $50,000 and $100,000. The remaining 5% of projects are above $100,000.

The $25,000 value excludes most repair type projects such as roof replacements, furnace replacements, simple bathroom renovations and electrical rewiring, while requiring the largest 20% of renovation projects per year to incorporate a home energy efficiency measures. This is approximately the percentage of renovation projects that must reduce energy use in order for the Piedmont community to make significant progress towards Piedmont's Climate Action Plan 2.0 greenhouse gas emissions reduction goals. Raising the exclusion level to $50,000 would reduce the number of projects affected by the Ordinance in half, to just 11% of renovation projects. Thus, a $50,000 threshold would make it unlikely that Piedmont would achieve its emissions reduction goals.

2019 Building Permits:	**Percentage of total permits**
737 – less than $25,000 Construction Value	78%
101 – $25,000 to $50,000 Construction Value	11%
57 – $50,000 to $100,000 Construction Value	6%
48 – more than $100,000 Construction Value	5%
943	

Q-26: I am going to do an extensive renovation of my 1920's home. We are renovating the kitchen, moving the laundry upstairs, creating a playroom in the basement and renovating the bathrooms. Do I have to take out all my gas appliances and go "all electric?"

A: No. Although it would certainly be a great opportunity to reduce your greenhouse gas emissions by upgrading all your appliances to electric models and purchasing 100% carbon free electricity from East Bay Community Energy, the new Ordinance does not require you to do so. The Ordinance does have provisions that make your home ready for conversion to electric appliances. If you upgrade the electric service panel, it must be sized to accommodate new electric appliances. Also your renovated kitchen and laundry room must have electrical outlets installed for a future electric dryer and stove.

Back to the top

ROOFING AND SOLAR PANELS

Q-27: Are there any exceptions to solar photovoltaic installation requirements?

A: Yes. Under the Ordinance the only renovation projects that are required to install solar panels are projects that add a second story to the house or that increase a house's total roof area 30% or more. However, if your roof installer can provide a document that states that solar access is less than 80 square feet due to shading of existing natural or manmade barriers, PV will not be required. Other exceptions are listed in Attachment 3, page 21, of the *Draft Agenda Report for the 2nd Reading of Ordinances 750 & 751 N.S.* on the City Website.

Q-28: Will the city provide financial incentives for solar panels?

A: Currently the Building Permit Fees for solar systems are a flat $300 rather than based on the project value as are the fees for other projects. That program will remain in place. The City of Piedmont will continue to participate in the SunShares Program which provides

group discounts on solar energy systems and electric vehicles for residents of the greater Bay Area.

Additionally, EBCE now has a solar & storage program for residential customers in its service area, including Piedmont. You may qualify for preferential pricing with the vendor, SunRun, and an additional $1,000 incentive if you include a battery. For more information go to the EBCE website: https://ebce.org/resilient-home/.

Q-29: Why is the City encouraging the installation of Solar Panels?

A: In 2006 the California Energy Commission was tasked by the Governor to create a regulatory pathway for all new homes to be Zero Net Energy (ZNE) by 2020: to reduce energy use and generate energy with a photovoltaic (PV) system, so the homes generate as much energy as they use. More generally, the state of California has embraced roof top PV systems as a means to increase the amount of renewable energy generated in California and, when paired with batteries, to provide backup power in case of a power outage. Batteries are currently expensive, but both the state and regional agencies such as the Bay Area Regional Energy Network (BayREN) and East Bay Community Energy (EBCE) are developing programs to decrease battery costs.

The 2019 California Energy Code (CEC) moves towards ZNE construction by requiring that all new Low Rise Residential Structures be powered by photovoltaic systems – in most cases, solar systems on residential rooftops. The idea is that as homes are built anew or are torn down and replaced, the newly constructed homes will be built with solar panels. In this way, over time, solar panels will be installed on a large portion of all rooftops in California.

Q-30: What are the benefits to having solar panels other than meeting Piedmont's Climate action goals?

A: Besides helping green the California energy grid and (when paired with a battery) providing backup power in the case of an outage, solar panels also save the owner money over time. Generating your own electricity means that you will be using less from the utility supplier. This will immediately translate to savings on you energy bill. The energy savings generally pay back the upfront costs within 7 to 10 years. After that, solar systems continue to provide monetary savings at no additional cost to the homeowner. Although the upfront cost can be expensive, battery backup systems are also easy to add to a solar system to provide electrical energy during nighttime hours and resilience against Public Safety Power Shutoffs and other outages.

Q-31: I am going to replace the roof material of my home. Will I need to prepare my roof to be solar ready or install solar panels at that time?

A: No, under the Ordinance the only renovation projects that are required to install solar panels are projects that add a second story to the house or have an addition to the house with 30% more roof area.

Q-32: I am going to be replacing the composition shingle roof on my home. The contractor says it is going to cost $18,000. Do I have to install solar panels on my roof?

A: No. Under the Ordinance the only renovation projects that are required to install solar panels are projects that add an entire new upper level to the house or that increase the house's total roof area by 30% or more.

Q-33: I am going to be taking the Spanish tiles off of my roof, installing new underlayment and reinstalling the tiles. The contractor has given me an estimate of $87,000. Do I have to install solar panels on my roof?

A: No. Under the Ordinance the only renovation projects that are required to install solar panels are projects that add an entire new upper level to the house or that increase the house's total roof area by 30% or more. Since your project value is more than $25,000, you will have to do one of the improvements on the list of items in the Energy Upgrade section of the Ordinance.

Q-34: I am adding a second story master suite. I have some wonderful redwood trees that shade my home and make it impractical to put solar panels on the roof. What are my options?

A: The new Ordinance incorporates the existing section of the California Energy Code for solar panels on new homes. That section has an exemption for shading from trees, neighboring buildings, etc. If you submit information from a licensed solar contractor indicating there is too much shade to make the solar system practical, you will be exempted from the solar panel requirement by the Building Official.

Q-35: Now that we are all working and schooling from home, we need more space! I am planning on adding an 800 square foot family room/home office onto the rear of our home. The current roof area of our two story home is about 1500 square feet. Will we need to install solar panels?

A: Yes. The Ordinance requires that projects which increase the home's total roof area by 30% or more also install solar panels. The Ordinance extends the provisions of the California Energy Code requiring solar panels on new homes to larger additions. There is a formula in the code for sizing the system.

Back to the top

FURNACE AND SPACE HEATING SYSTEMS

Q-36: Can the ordinance require that a homeowner replacing their old natural gas furnace with a new natural gas furnace install a more energy efficient natural gas furnace than required by state codes?

A: No. The U.S. Department of Energy (DOE) sets minimum efficiency standards for equipment and appliances including heating, cooling, and water heating equipment. State and

local governments are prohibited from adopting higher minimum efficiencies than the federal standards.

Q-37: My old natural gas furnace stopped working last night. I have a contractor coming to install a new one next week. Do I have to install an electric heat pump furnace?

A: No. Most furnace replacements are less than $10,000. If your furnace replacement project is less than $25,000 it would be exempt from the energy upgrade requirements of the Ordinance. If your furnace replacement happened to be for a cost greater than $25,000, there are several other options on the list in the Energy Upgrade section of the Ordinance other than installing a heat pump furnace.

Q-38: My 100-year-old house is heated by a boiler/circulating hot water system that is powered by natural gas. Do I have to install an electric heat pump furnace if I have a renovation that costs more than $25,000?

A: No. The ordinance has several options for energy efficiency improvements in addition to installing a heat pump furnace that apply to projects with a value of $25,000 or more. When you have decided on the type and scope of your project, you and/or your design professional can have a discussion with the Planning and Building Department staff regarding which of the options would work best for your home.

Q-39: My house is constructed with a concrete foundation imbedded with copper piping providing warm floors for radiant heat throughout the house, fed by a natural gas boiler system that also provides hot water to the kitchen and bathrooms. If we want to add on a bedroom to the rear of the house, will we need to abandon the radiant heating and boiler and install an electric heat pump furnace and run vents throughout the house?

A: No. Your existing heating system does not lend itself to conversion to a heat pump. The ordinance has several options for energy efficiency upgrades other than the installation of a heat pump furnace that apply to projects with a value of $100,000 or more. You and/or your design professional can have a discussion with the Planning and Building Department staff regarding which of the options would work best for your home. If your addition's roof area is adding more than 30% of the existing roof, you will need to install solar panels as a part of the project.

Q-40: We are going to be developing our basement/crawlspace area into a family room with a half bath at a cost greater than $100,000. We will be relocating the furnace and water heater. Do we have to get a new electric heat pump water heater and furnace?

A: The Ordinance does not specifically require you to install a heat pump water heater (HPWH) or heat pump furnace. A project of that size will be required to incorporate two energy efficient improvements or electrification improvements into the project scope. There are other options in addition to HPWH and furnaces. Your type of project is a great time to consider upgrading to heat pump appliances, which over time would save you money. You can take advantage of the rebate programs for those products. In so doing, you will be able to enjoy the energy savings and increased comfort of your home in addition to the increased living area in your home.

Q-41: Why doesn't the City provide incentives for installing heat pump furnaces and water heaters and the other items in the Ordinance?

A: The main source of City revenue comes from homeowners in the form of property taxes and transfer taxes. Thus, the City doesn't have the financial resources to offer a significant financial incentive for the installation of heat pump furnaces or water heater or other items. However, there are many rebate and discount programs available from regional agencies. Currently there are rebate programs from East Bay Community Energy (EBCE) for heat pump water heaters and solar energy and battery systems. PG&E has rebates for appliances. The Bay Area Regional Energy Network (BayRen) and PG&E have rebate programs for Energy Home Score reports. PG&E's Energy Upgrade California rebates can save you up to $6,500 or more on efficiency improvements. The City is a participant in the SunShares solar energy program that offers discounted solar systems. More information about rebates is provided in the answer to question Q-16.

Back to the top

KITCHEN AND BATHROOM REMODELS

Q-42: Does the ordinance make me get rid of my gas range and install an electric stove?

A: No. There is no requirement to remove an existing gas range in the Ordinance. That is an option left to the owner of an existing home to decide. However, if you are renovating your kitchen, the Ordinance does require the installation of an outlet near the stove, so you or future owners can easily install an electric induction stove. If you are building a new detached ADU or home, you will be required to install an electric stove.

Q-43: We just moved in to our new mid-20th Century home. Two of the bathrooms haven't been touched since 1953. They need an upgrade. The estimated work is about $37,000. What energy efficiency improvements are required by the new Ordinance?

A: Since your project is more than $25,000, you will have to incorporate at least one of the improvements from the list. You can choose one of the recommendations from those reports to include in the scope of your project. Item C on the list, includes low flow plumbing fixtures and insulating hot water piping. Most of that work is already part of your project because it is required by the California Building and Energy Codes. The inclusion of new water efficient plumbing fixtures and insulating accessible piping in rooms other than these two bathrooms will fulfill the upgrade measures.

Q-44: We are planning on renovating our kitchen. The project is estimated to cost $85,000. Will the new Ordinance apply to our renovation?

A: Yes. There are a couple of sections of the Ordinance that will apply to your project. If you are not installing an electric stove, you will be adding an electrical outlet near your stove for a future electric stove. Adding an additional outlet during a construction project, costs a few hundred dollars. Since the project has a value greater than $25,000, you will incorporate one energy efficiency improvement into your project from a list of options. Several of the options should be easily added into your type of project.

Back to the top

LANDSCAPE IMPROVEMENTS

Q-45: We are going to be renovating the landscaping of my backyard, installing an outdoor kitchen and reconfiguring the swimming pool to add a spa. I have an estimate for the project of $175,000. Do I have to insulate my attic, too?

A: No. Projects that do not involve alterations to the home (the building) are not subject to the Ordinance.

Back to the top

Correspondence for Item #3 – 2nd Reading of Ords. 750 & 751 N.S. - Reach Codes
Received Before 12:00 Noon on Monday, February 1, 2021

Dear City Council,
The Reach Codes are over ambitious and above and beyond regular building codes.
The survey did not reach all, a city wide vote of home owners would be a more truthful measure.

Sylvia Fones

Dear Mayor King and Council,

The ultimate goal to reduce GHG is all electric homes. However during a power outage the all electric home means no heat, no cooling, no cooking, no lights, no charging the Tesla, etc. Staff has incorrectly stated during the Town Hall that gas furnaces, water heaters and stoves still need electricity. This is false as gas sourced appliances can still be manually lit and many units still use gas powered pilots. With gas during a power outage cooking, heating and hot water remain. Electric power outages are not uncommon; gas outages are unheard of. Additionally Reach Codes place a disproportionately greater cost burden on those in older homes.

Reject the Reach Codes. Create monetary incentives or reduced cost permits rather than forcing homeowners to specific technologies. I prefer a more flexible approach that allows residents to make a decision based on their specific situation.

While the matter of Reach Codes might best have gone before the Planning Commission before the 1st reading, the City noted the divided nature in town concerning Reach codes and created a lengthy delay between the 1st and 2nd readings which allowed a Town Hall and FM3 survey so that more input could be gathered for an informed Council decision. I suggest that the 2nd reading for the proposed Art Center lease be postponed and the same Town Hall and survey type input be provided to Council. Remanding this to the Recreation Commission is a viable option. Whether 801 Magnolia remains in private hands for $1 or becomes a broadly available community asset is a question many are struggling with. Use the same comprehensive process for 801 Magnolia as you are using for Reach Codes.

Respectfully,

Rick Schiller

Dear City Council,

I am writing to voice my voice my concern about the reach codes. Forcing more homes to run on electricity when our California grid system cannot support that is dangerous. As much as I am a left-leaning supporter of climate action, we have to have a safe and secure electrical grid that can support the demand. We already have rolling blackouts because the demand is higher than what the grid can support.

I support the reach goals but I think the timeline is too ambitious for the safety of the residents in Piedmont.

The city should bear at the burden of any damages as a result of overloading the system.

Sincerely,

Eric Downing

Dear City Council members,

I am thrilled to hear that the City Council will be voting on amendments to building codes with the purpose to lower greenhouse gas emissions in Piedmont! I wish to go on record for supporting the "Reach Codes" which will encourage more energy efficient buildings. Residents need to transition from natural gas to electricity and be encouraged to install solar panels.

Climate change is one of our society's most pressing challenges. It is encouraging to see the City of Piedmont taking concrete steps to address this challenge and meet the targets of our Climate Action Plan. Thank you!

Sincerely,

Elizabeth (Betsy) King

Dear City Council,

I am writing to voice my strong support for the Reach Codes to promote more energy efficient buildings and help residents transition from natural gas to electricity. Climate change is one of our society's most pressing challenges. It is encouraging to see the city of Piedmont taking concrete steps to address this challenge and meet the targets of our Climate Action Plan.

Also, natural gas is a health and safety hazard in homes. It is one of the major indoor air pollutants. It is associated with explosions and fires, especially in the event of an earthquake.

Best Regards,
Marianne Mitosinka & George Wick

Dear City Council members,

I am writing to express my strong support for passing the proposed Reach Codes for the City of Piedmont. The Reach Codes are common sense and important changes to help reduce the climate impacts of the City of Piedmont by moving toward reducing reliance on natural gas and modernizing to electricity. The climate crisis is already affecting us, through more intense wildfires and resultant pollution, extreme heat events and increasing droughts.

I served as the chair of the Piedmont Climate Action Task Force, which involved a thorough and thoughtful public process to prioritize actions that the City of Piedmont can take to address the climate crisis via reduction of green house gas emissions. Policies to encourage movement toward increase electrification of housing stock in the city via improving city planning codes was identified as a priority.

There has been an extensive process of public input on the Reach Codes and they will appropriately require energy efficiency options on only those remodeling projects that are more than $25,000, which reasonable, achievable and necessary.

Thank you,

Tracey Woodruff

Dear City Council,

I am writing to voice my strong support for the Reach Codes to promote more energy-efficient buildings and help residents transition from natural gas to electricity.

Climate change is an existential threat that government at every level must take more action on immediately because we are already feeling the impacts today, in the form of more intense wildfires and droughts.

It is encouraging to see the city of Piedmont taking concrete steps to address this challenge and serve as a model for other cities. I urge you to support the Reach Codes at the second reading on Monday.

Sincerely,

Ronna Kelly

Correspondence for Item #3 – 2nd Reading of Ords. 750 & 751 N.S. - Reach Codes
Received Before 4:00 p.m. on Monday, February 1, 2021

To Members of the Piedmont City Council,

As some of you know, we are planning to build a new house on our site at 21 Sierra. We have now been in Piedmont 31 years, and plan to remain at this new house for "the duration", which we hope will be quite a while longer. We have submitted an application to the Planning Department and have been calendared for the February 8 hearing.

We are writing you today to register our objection to the proposed "reach" codes as currently drafted – specifically, to the proposed complete ban on natural gas.

We support the goal of reducing carbon emissions, and have done a number of things to reduce our own footprint over the years. 12 years ago, we put in what may be the largest solar installation in Piedmont (101 panels), and I've driven an electric car for over 10 years now.

We will be building a new house that will be more energy-efficient than virtually any existing house in town, simply by complying with current building codes, but also because we intend to exceed those codes in some respects. We also plan to use electric power for all significant power requirements, even though doing so is more expensive than using natural gas.

- Insulation will be in excess of Title 24 requirements;
- We will install as much solar capacity as possible, with the goal of generating 100% or more of our own overall electric demand;
- We intend to use electricity for heating, water heating, and clothes drying;
- We intend to install a battery plant to reduce peak load demand on the grid;
- Insulated, low-e windows and a tight building envelope will minimize thermal transmission and energy consumption; and
- Our landscape will have no grass, minimizing energy as well as water consumption.

I think our history and plans demonstrate that we actively support reducing energy use and carbon emissions in buildings. However, we vehemently oppose an absolute ban on natural gas.

Gas appliances are considered essential by many of us for cooking, both indoors and out. We also consider fireplaces and fire pits essential to the ambiance of a home. These occasional-use features contribute greatly to the quality of the living environment.

According to City staff at the first hearing on the proposed code, 95% of residential gas consumption is for heating and water heating – so everything else combined, including cooking, accounts for only 5%. Banning use of gas for cooking and tertiary uses, therefore, would save a trivial amount of gas – even if the proposed ban were to apply to all homes in Piedmont, which it would not, and even if those uses were to actually be displaced, which they will not, instead of being converted to propane, which many will.

The codes as currently proposed would be indefensibly inequitable in their application. The qualitative impact on the tiny quantity of new homes that will be built in Piedmont over the coming decades would be draconian, in exchange for an infinitesimal, and possibly zero, reduction in gas use. Yet the impact on the entire existing stock of housing would be virtually nonexistent:

- The code would not require electric heaters or water heaters upon replacement of existing gas units.
- The code would not require electric ranges, electric dryers, or other appliances upon replacement of existing gas units.
- Even when a major renovation is done, such as a complete new kitchen, the code would not require electric appliances! It would require only installation of an electrical circuit that may, or may not, ever be used.
- In short, the proposed codes would place essentially no burden on 99.97% of homeowners (based on 3358 owner-occupied housing units in town), but unsupportable impositions on the other 0.03% (based on the assumption that we are the only current residents planning to build a new house, which seems like a safe one).
- The dominant theme of the online session conducted by staff was that the code would have little effect on existing homeowners: even when something would be required, there would be low-hanging fruit on the list from which to choose (energy audits; wrapping water lines). Even when a requirement would be imposed in connection with a major renovation (installation of an electric circuit to a kitchen or furnace location, or an upgrade to electric service), you could still install a new gas range in your new kitchen.

There is no defensible basis for adopting an ordinance that has drastically inequitable consequences across the population to whom it applies. Any reach code ordinance adopted by Piedmont should not discourage new construction and expansion of the housing supply by prohibiting gas connections to new houses, and should allow gas ranges, grills, fireplaces, fire pits, and other incidental uses. If it does prohibit the use of gas for heating and water heating, then should that prohibition not also apply, within some timeframe, to the existing housing stock as well as the new? If it doesn't, the whole exercise would appear to be cosmetic. The actual impact on carbon emissions would certainly be meaningless.

We urge the Council, should you elect to adopt some version of reach codes, to ground your analysis and decision in factual information and to consider the impacts to all citizens of Piedmont. An ordinance that would call for electric heating, hot water, and drying but allow for the gas-powered appliances mentioned above would accomplish essentially 100% of the objective of the proposed codes while avoiding the unreasonable, inequitable, and pointless consequences of a complete ban.

Thank you for your consideration.

Tom and Karen Sullivan