City of Piedmont
COUNCIL AGENDA REPORT

DATE: To Be Determined

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.

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RECOMMENDATION

1. Conduct a second reading of Ordinance 750 N.S. (Attachment 1, pages 9-16) 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 17-19) 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 to create opportunities for residents to save money.

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 their roof.

- A housing renovation 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 housing renovation 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 application.

- 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 submitted - unless the residential building was constructed in the past 10 years.

Several options on the proposed list have low upfront costs, and large cost savings – they will pay themselves back within 3 - 7 years.

During its approval of the first reading, 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 27-32). Under the list of supplemental documents in the Attachments section on pages 6-8 of this report is a hyperlink to the key findings of a city-wide 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 Piedmonters support local amendments to the state building codes that result in less use of natural gas in buildings.

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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. 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 25-26).

Projects Not Affected by Ordinance
Projects that do not affect the body of the house, or projects that do affect the body of the house 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.

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, the Building Official could exercise the authority provided in the California Residential Building Code to waive compliance with this code requirement.

On the other hand, if a renovation is in the project value range 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

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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, and could expect annual cost savings of $12 as a result.

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 a 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 a 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 Pacific Gas & Electric 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 a 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.

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- **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 a 30 year cost savings of $5,000.

Attachment 4, pages 23-24 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 exceptions to the Code requirements, and the reasons why the draft amendments were developed.

<u>CONSTRUCTION PROJECTS REQUIRING SOLAR PANEL INSTALLATION</u>

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 <u>new</u> 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

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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.

Attachment 3 to this report (pages 21-22) 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.

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

- 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 September 16, 2020.

By: Kevin Jackson, Director of Planning & Building
Craig Griffin, Chief Building Official
Justin Szasz, Climate Action Fellow Emeritus

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ATTACHMENTS

	Pages	
1	9-16	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	17-19	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	21-22	California Energy Code, solar panel requirement formula and exceptions
4	23-24	Code Amendments for Energy Efficiency Improvements, Exception Authority and Reasons for Amendments
5	25-26	Flow Chart: Insulation & Electrification Improvements; Costs and Payback Periods
6	27-32	Frequently Asked Questions Regarding the Proposed Reach Codes

Supplemental and Referenced Documents

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

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
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*

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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

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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

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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

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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.

<u>SECTION 3. AMENDMENT TO SECTION 8.02.020</u>

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:

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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."

SECTION 4. 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).

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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

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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 5. 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 100.0(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

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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, 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

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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 6. 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 7. 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 8. 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]

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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,

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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

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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]

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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

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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.

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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

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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.

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

EXAMPLE PROJECT A

Choose ONE of these upgrade options:

Homeowner has the choice of the option that makes the most sense for the scope and budget of the project

$27,000 Bathroom Renovation

	UPGRADE	COST	SAVINGS
Many items already part of project	**C**. Insulate accessible hot water piping. Install low flow plumbing fixtures.	$1,200 for insulation, plumbing fixtures for other bathrooms in the house	$50/yr/toilet 15,000 gal/year water savings $15 water heating cost/yr
Or			
If purchased home within 5 years already have one. Can have simple recommendations like weatherstripping.	**G**. Implement one or more recommendations specified in a Home Energy Score or Home Energy Audit report.	$1,200 weatherstripping and duct sealing	15% of heating cost $99/year for the average home
Or			
Energy code considers any light fixture with an LED bulb in it is an LED light fixture. Install sensors in other bathrooms in house.	**D**. Replace all screw in incandescent and CFL bulbs with screw in LED bulbs. Install manual on vacancy sensors in bathrooms and laundry rooms.	$200 for LED bulbs and vacancy sensors	$120 electricity cost savings per bulb vs incandescent 10 year lifetime of bulb
Or			
Makes home more comfortable. Reduces heating and cooling loads.	**B**. Install R-19 insulation at raised floors.	$1,500 for insulation	10% of heating cost $66/ year for the average home
Or			
Makes home more comfortable. Reduces heating and cooling loads.	**A**. Install R-38 attic insulation, and air sealing,. Seal ducts.	$2,500 for insulation and duct sealing	$250/year savings Estimated payback 10years
Or			
Major reduction of GHG use in home	**F**. Replace gas water heater with a heat pump water heater.	$4,500 installed before rebates	$200/year savings on water heating costs
Or			
Gas furnace main source of GHG use in home	E. Replace Gas furnace with an electric heat pump system.	$15-20,000 for new heat pump & AC unit	Reduced GHG emissions

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

EXAMPLE PROJECT B		UPGRADE	COST	SAVINGS
135,000 Kitchen Renovation of bungalow home along with removing wall between Kitchen and Dining Room. Adding a Half Bathroom.	Area of renovation will have to install insulation Extra cost for entire attic	**A**. Install R-38 attic insulation, and air sealing,. Seal ducts.	$2,900 for insulation and duct sealing	$250/year savings Estimated payback 10years
Choose TWO of these upgrade options: Homeowner has the choice of the options that make the most sense for the scope and budget of the project	If purchased home within 5 years already have one. Can have simple recommendations like weatherstripping.	**G**. Implement one or more recommendations specified in a Home Energy Score or Home Energy Audit report.	$1,200 weatherstripping and duct sealing	15% of heating cost $99/year for the average home
	Reduces water heating costs. Reduces water use.	**C**. Insulate accessible hot water piping. Install low flow plumbing fixtures.	$1,200 for insulation, plumbing fixtures for other bathrooms in the house	$50/yr/toilet 15,000 gal/year water savings $15 water heating cost/yr
	Energy code considers any light fixture with an LED bulb in it is an LED light fixture. Install sensors in other bathrooms in house.	**D**. Replace all screw in incandescent and CFL bulbs with screw in LED bulbs. Install manual on vacancy sensors in bathrooms and laundry rooms.	$200 for LED bulbs and vacancy sensors	$120 electricity cost savings per bulb vs incandescent 10 year lifetime of bulb
	Makes home more comfortable. Reduces heating and cooling loads.	**B**. Install R-19 insulation at raised floors.	$1,500 for insulation	10% of heating cost $66/ year for the average home
	Major reduction of GHG use in home	**F**. Replace gas water heater with a heat pump water heater.	$4,500 installed before rebates	$200/year savings on water heating costs
	Gas furnace main source of GHG use in home	E. Replace Gas furnace with an electric heat pump system.	$15-20,000 for new heat pump & AC unit	Similar energy costs Adding AC Reduced GHG emissions

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.

New Housing Units
General Alterations
Roofing and Solar Panels
Furnace and Space Heating Systems
Kitchen and Bathroom Remodels
Landscape Improvements

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NEW HOUSING UNITS

Q: **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 the buildings within Piedmont 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. 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 from buildings so that the Piedmont community has any hope of achieving its Climate Action Plan emissions reduction goals.

Q: **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. They report great satisfaction with the performance of the appliances. Many cities in the Bay Area are requiring new buildings to be "all-electric" as well.

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GENERAL ALTERATIONS

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

A: The Reach Codes and other amendments to the building codes in the Ordinance apply only when a building permit is issued for a construction project. There are no building

permits issued at the time of sale. Also Staff research has shown that work done by sellers in response to pre-sale requirements in other jurisdictions is not always of the highest quality. The Ordinance does require a Home Score Report or 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: **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: **I have owned my home for several decades. Over the years I have been very diligent about improving the energy efficiency and comfort of my home. I have insulated my attic. A few years ago, we had a high efficiency furnace installed and the ducts sealed. We don't have crawlspace. 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. The contractor will do it 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 upgrades have already been implemented. Replacing your water heater or furnace isn't in 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 exempt you from having to replace your furnace or water heater.

Q: **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: The electrical load calculation your electrician will perform to make sure the service panel is adequate for you needs 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.

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Q: **Why did the City choose $25,000 as the trigger point for the Energy Upgrade 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 upgrade 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 10% 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: **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.

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ROOFING AND SOLAR PANELS

Q: **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 a second story to the house or have an addition to the house with 30% more roof area.

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Q: **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 a second story to the house or have an addition to the house with 30% more roof area. Since your project value is more than $25,000, you will have to do one of the upgrades on the list of items in the Energy Upgrade section of the Ordinance.

Q: **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: **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 additions that are adding more than 30% of the roof area to 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.

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FURNACE AND SPACE HEATING SYSTEMS

Q: **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. Your project 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: **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 upgrades 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.

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Q: **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 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: **We are going to be developing our basement/crawlspace area into a family room with a half bath. 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 upgrades 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. You can take advantage of the rebate programs for those products. You will be able to enjoy the energy savings and increased comfort of your home those provide in addition to the increased space in your home.

Q: **Why doesn't the City provide incentives for installing Heat Pump Furnaces and Water Heaters and the other items in the Ordinance?**

A: The City doesn't have the financial resources to make a significant financial incentive for the installation of Heat Pump Furnaces or Water Heater or other items. There are many rebate and discount programs available. 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. The City is a participant in the SunShares solar energy program that offers discounted solar systems.

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KITCHEN AND BATHROOM REMODELS

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

A: No. 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. There is no requirement to remove an existing gas appliance in the Ordinance.

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Q: **We just moved in to our new home. Two of the bathrooms haven't been touched since 1953. They need an upgrade. The estimated work is about $37,000. What upgrades are required by the new Ordinance?**

A: Since your project is more than $25,000, you will have to incorporate one of the upgrades from the list. Since you just bought your home, you should have a copy of the Energy Score or Home Audit from the point of sale. 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: **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 upgrade into your project from a list of options. Several of the options should be easily added into your type of project.

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LANDSCAPE IMPROVEMENTS

Q: **We are going to be renovating the landscaping 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.

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