Existing Home Energy Sustainability Ordinance

Chula Vista City Council

October 6th, 2020

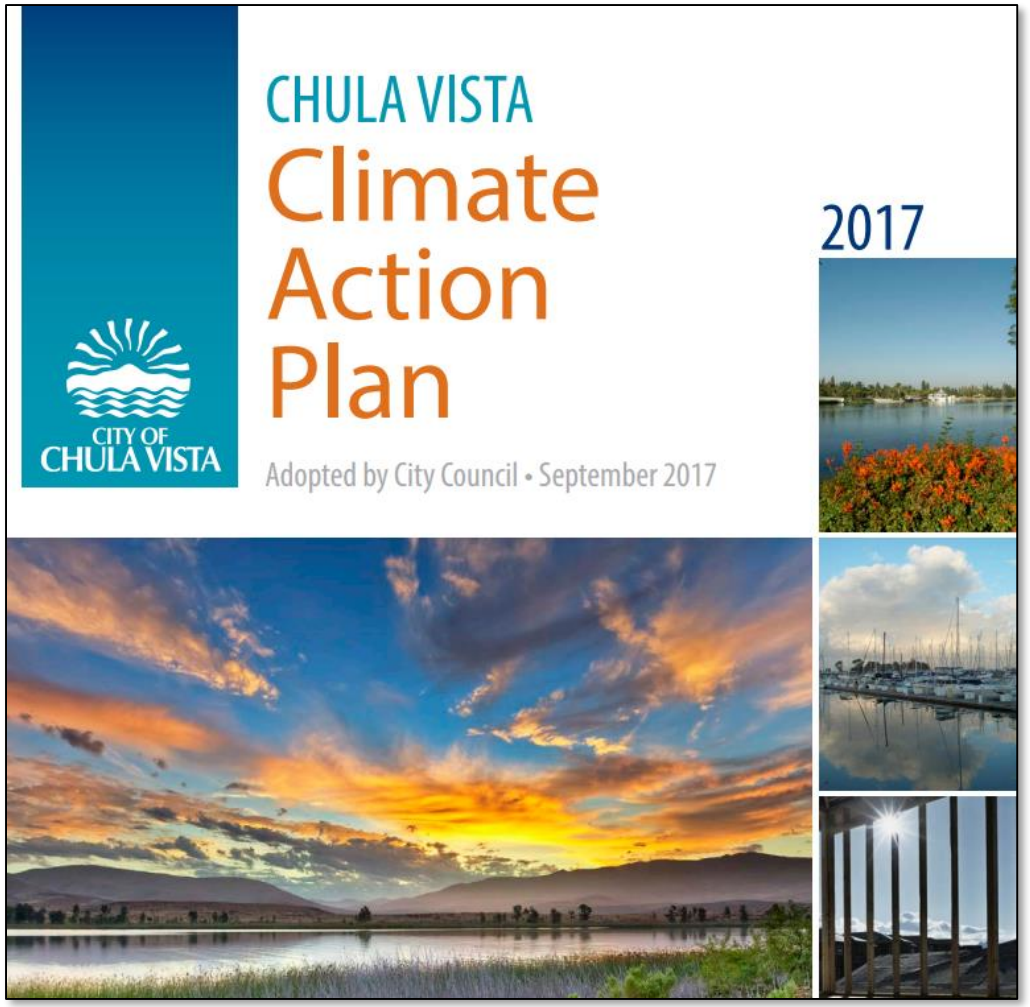
Department of Economic Development

Office of Sustainability
Conservation Section

Overview

- Implementation item of 2017 Climate Action Plan
- Older residential buildings have the biggest opportunity to reduce GHG and utility bills
- Flexibility provided through measure selection with information about additional potential energy savings
- A part of existing project review and inspection by staff
- Exemptions for low income and homeowners who have already implemented similar measures

Background



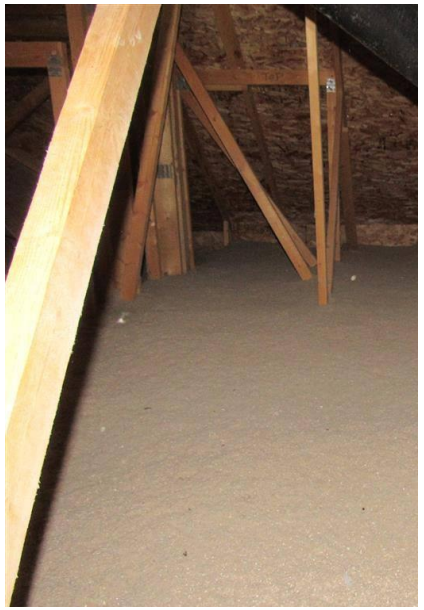
Strategy 3 - Require energy-savings retrofits in existing buildings at a specific point in time.

Performance Metric: Retrofit 13% of single family & multifamily homes

Benchmarking ordinance being created will address commercial buildings

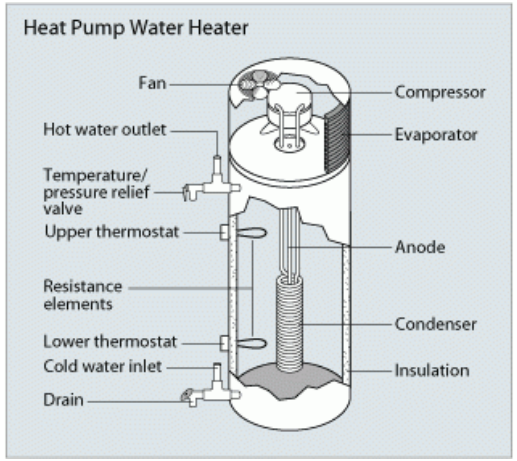
Policy Overview

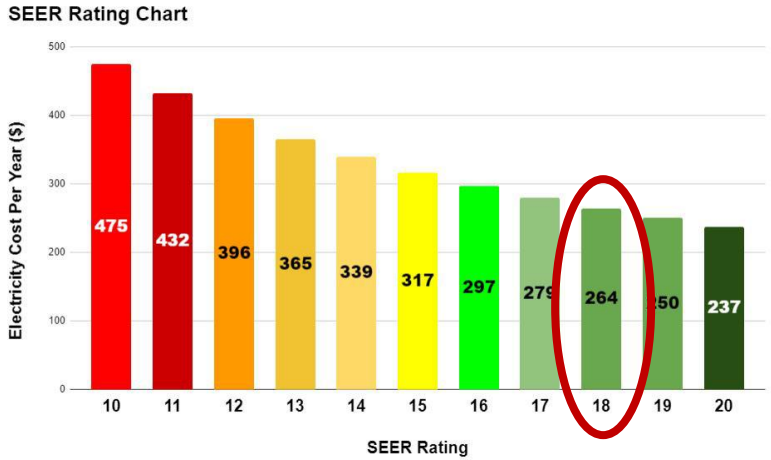
- Require homes built **before 2006** that are performing additions or major remodels to also perform energy efficiency upgrades in existing portion of the home



Updates

Allow for energy efficiency measure selection





Updates

Location	Year Home Was Built	Required Energy Efficiency Measures
All City	2006 or newer	0
All zip codes except 91914	2005 to 1979	2
All zip codes except 91914	1978 or older	3
91914	2005 or older	4

Estimated compliance cost reduced by

up to 60%

Updates

Low-income exemption – exemption added for low-income homeowners.

Website:
www.chulavistaca.gov/departments/clean/retrofit

Policy Flexibility

Allow flexibility for homes to take more effective paths to efficiency or for homes that are already efficient. Includes exemptions where:

- Similar measures have already been completed
  - Participation in low-income weatherization program
  - An alternative, voluntary, set of energy measures is concurrently being completed that will achieve equivalent of greater energy savings than the prescriptive packages.
- Home achieves a Department of Energy (DOE) Home Energy Score (HES) of at least 8 out of 10
- Home has on-site photovoltaics in place offsetting at least 95% of the annual electricity and gas-equivalent usage

Policy Flexibility

Unique Homes

- Prescribed measures would be technically infeasible or not be cost-effective due to unique characteristics of home or other special circumstances

Projects exempt if consisting solely of:

- Medically necessary improvements
- Accessory Dwelling Unit (ADU)

Policy Overview

Energy Efficiency Measure	Benefit
LED Lighting	LED lights can use up to 75% less energy than incandescent bulbs
Water Heating Package	Water heating can account for up to 50% of an average home's natural gas usage, insulating the tank and exposed piping you can minimize the amount of heat that is lost on its way to you.
Attic Insulation	Attic insulation helps your home maintain a stable temperature.
Duct Sealing	Duct leakage can be as high as 30% in average California homes. This means that up to 30% of the air you are paying to heat or cool is being lost before it reaches its destination. Additionally, leaky ducts can allow a pathway for dust or other indoor air quality concerns to enter your rooms.
Air Sealing	Houses built over the past five years are over 20 percent tighter than those built a decade earlier. This means the air you paid to heat or cool can escape and increases your energy bills and outside pollutants to enter your home.
Cool Roof	Cool roofs help save energy by increasing the amount of solar energy that get reflected away from your home and minimize the need for cooling on hot summer days.

Policy Overview

New Potential Credits:

Energy Efficiency Measure	Benefit
Windows	Energy efficiency windows not only reduce heating and cooling costs they can also reduce the ability of moisture and noise to enter your home.
Water Heater Replacement	About 18% of average homes energy is used for heating water. Heat Pump Water heaters are on average 200% to 300% more efficient than traditional water heaters while tankless units are 8% to 34% more efficient. Additionally, because heat pump water heaters store their hot water, they can minimize energy usage during peak periods.
Air Conditioner Replacement	When running, air conditioners can be the biggest energy user in a home so installing high efficiency units can prevent higher bills. It is also important to ensure ducting is sealed and installed and filters are regularly changed.

Policy Overview

- Recommended cost-effective upgrade measures based on home age and climate zone

Year Built	Climate Zone 7	Climate Zone 10 (91914)
Pre-1978	1) LED Lighting 2) Water Heating Package 3) R38 Attic Insulation 4) Duct Sealing	1) LED Lighting 2) Water Heating Package 3) R38 Attic Insulation 4) Duct Sealing 5) Air Sealing
1978-2005	1) LED Lighting 2) Water Heating Package	

Support Resources

- MAAC Weatherization
- Go Green Financing
- Home Energy Score
- SDG&E
    - Energy Saving Assistance Program
    - Energy Marketplace
    - Rebates

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MAAC

Benefits of the Ordinance

If all recommended energy measures are installed in the estimated **3,800 units** that the ordinance will affect over 10 years,

- GHG Reductions - **3,200 metric tons**
- Utility Cost Savings **$559,000 per year in 2030 and more than $1 million per year in 2040**

Combined with outreach to encourage non-covered homes to voluntarily make retrofits

Next Steps

Task / Milestone	Date
Present to City Council (first reading)	10/6/20
City Council (second reading)	10/20/20
Submit California Energy Commission (CEC) Application	10/7/20
Receive CEC Response (expected)	12/10/20
File with California Building Standards Commission (expected)	12/10/20
Effective Date (30 days following CEC approval)	1/10/21

Conclusion

- Implementation item of 2017 Climate Action Plan
- Older Residential buildings have the biggest opportunity to reduce GHG and utility bills
- Flexibility provided through measure selection with information about additional potential energy savings
- A part of existing project review and inspection by staff
- Exemptions for low income and homeowners who have already implemented similar measures

THANK YOU

"Together we can build a world we want, a world we're proud to leave our children and grandchildren."

– Ban Ki-moon

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Slides from March Presentation

Background

Climate Change Working Group Recommendation

WATER CONSERVATION & REUSE — Estimated Annual GHG Reductions: 6,000 MT CO_2e

#1 Water Education & Enforcement
Expand education and enforcement (through fines) targeting landscape water waste.

#2 Water Efficiency Upgrades
A) Use sewer ratepayer funds to incentivize indoor water conservation and provide on-bill financing opportunities.
B) Update the City's Landscape Water Conservation Ordinance to promote more water-wise landscaping designs.
C) Require water-savings retrofits in existing buildings at a specific point in time (not point of sale).

#3 Water Reuse Plan & System Installations
A) Develop a Water Reuse Master Plan to maximize the use of storm water, recycled water (such as indoor commercial use), and onsite water reclamation.
B) Promote graywater through a Laundry-to-Landscape installation program and by simplifying complex systems' permit review.

WASTE REDUCTION — Estimated Annual GHG Reductions: 32,000 MT CO_2e

#4 Zero Waste Plan
Develop a Zero Waste Plan (with special emphasis on zero waste events, business certifications, and building deconstruction) to supplement statewide green waste, recycling, and plastic bag ban efforts.

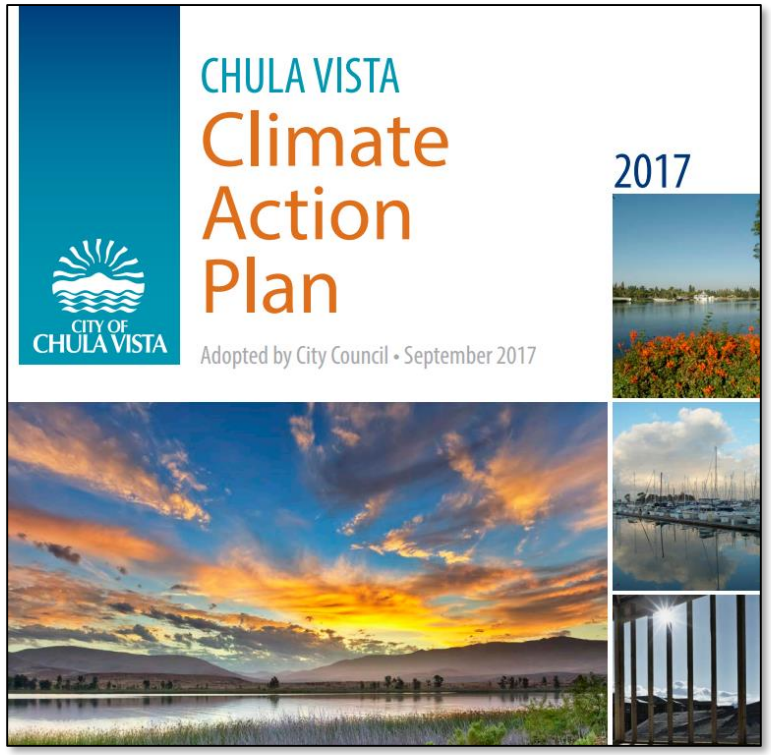
RENEWABLE & EFFICIENT ENERGY — Estimated Annual GHG Reductions: 79,000 MT CO_2e

#5 Energy Education & Enforcement
A) Expand education targeting key community segments (ex. DIY & Millennials) and facilitating energy performance disclosure (ex. Green Leases & Home Energy Ratings).
B) Leverage the building inspection process to distribute energy-related information and to deter unpermitted, low performing energy improvements.

Climate Change Working Group Recommendations - 11/6/14 1 of 4

"Require energy-savings retrofits in existing buildings at a specific point in time (not at point of sale)"

Background



Objective 3.3 - Energy Efficiency Upgrades

Performance Metric: Retrofit 13% of single family & multifamily homes

Benchmarking ordinance being created will address commercial buildings

Other Objective Actions

- Financing
  - Go Green
- Residential and commercial no-cost evaluations
  - Home Energy & Water Check-Ups
  - Free Resource & Energy Business Evaluation
- Chula Vista Climate Action Challenge

  www.cvclimatechallenge.com

Background

CALIFORNIA ENERGY CODES & STANDARDS

A STATEWIDE UTILITY PROGRAM

California Building Energy Efficiency Standards Title 24, Part 6
Local Energy Efficiency Ordinances

Existing Building Efficiency Upgrade Cost-Effectiveness Study

State-wide study created by utilities for local governments

Policy Overview

Required measures are cost effective:

- Upgrades estimated to payback within 7.9 to 10.7 years with an average of 8.3
- Average home expected to save approximately $170 per year in utility costs

If unique considerations are found:

- **Project Value Cutoff** - If the cost of completing energy efficiency measures required under this policy exceeds 20% of the overall project cost without those measures, permit applicants can propose a more limited set from among the required measures which does not exceed 20%

Energy Efficiency Measures

1) Lighting

Measure: Replace **screw-in** incandescent, CFL and Halogen lamps with LED bulbs

Notes: Not applicable to lights plugged into outlets, recommend Energy Star bulbs. Historic fixtures exempt if not compatible with LED bulbs

Benefits: Reduces energy use up to 70%, reduces waste heat, average bulbs last 25 times longer

Required in Homes: Mandatory measure required by all homes

Energy Efficiency Measures

2) Water Heating Package

Measure: A. Water Heater Blanket - Insulate exterior of storage water heaters without existing R-16 insulation (required on water heaters made after April 2015)

B. Hot Water Pipe Insulation - Insulate **all accessible** hot water pipes

C. Low Flow Fixtures - Upgrade sink and shower fittings to maximum flow rates of 1.8 gallons per minute (gpm) for showerheads and kitchen faucets, and 1.2 gpm for bathroom faucets

Notes: Only accessible hot water pipes need to be insulated. Historic fixtures exempt if not compatible with water efficiency measures

Energy Efficiency Measures

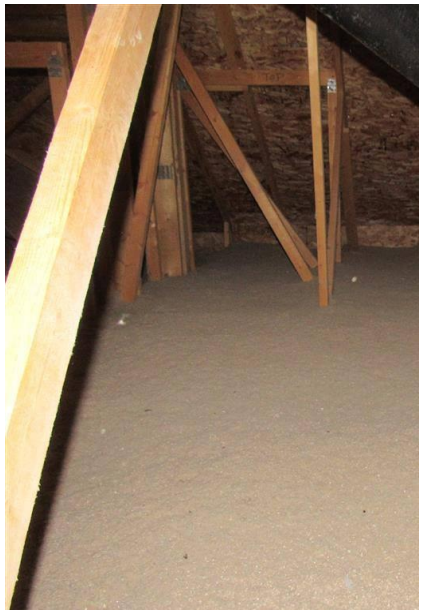
3) Attic Insulation

Measure: Add attic insulation in buildings with vented attic spaces to meet R-38

Notes: Homes with existing insulation greater than R-5 in Climate Zone 7 or greater than R-19 in Climate Zone 10 are exempt. Homes without vented attics are exempt.

Benefits: Helps home maintain stable temperature and reduces heating and cooling energy use and costs

Required in Homes: Pre 1978 homes in Climate Zone 7 and all homes in Climate Zone 10 (zip code 91914) – Approximately 47% of expected applications



Energy Efficiency Measures

4) Duct Sealing

Measure: Air seal all accessible ductwork with a goal of reducing duct leakage to be equal to or less than 15% of system airflow

Notes: Require photo of contractor gauge for compliance.

Benefits: Reduces energy lost from heating and cooling air distribution, increases indoor air quality

Required in Homes: Pre-1978 homes in Climate Zone 7 and all homes in Climate Zone 10 (zip code 91914) – Approximately 47% of expected applications

Energy Efficiency Measures

5) Air Sealing

Measure: Apply air sealing practices throughout all accessible areas of the building

Notes: Only accessible areas need to be sealed. Homes with one or more vented combustion appliances MUST have a BPI Combustion Appliance Safety Inspection performed after air sealing.

Benefits: Increases home comfort and reduces energy used to heat or cool homes

Required in Homes: Only Climate Zone 10 (zip code 91914) – Approximately 14% of expected applications

Energy Efficiency Measures

BPI Combustion Appliance Safety Inspection

- Only required when home does air sealing
- Only required where a home has a combustion appliance that vents to the home
- Ensures proper combustion appliance ventilation even under worst case scenario conditions
- If homes are sealed too tight it can impact combustion appliance ventilation and therefore indoor air safety

Energy Efficiency Measures

6) Cool Roof

Measure: Install a roofing product rated by the Cool Roof Rating Council (CRRC) with an aged solar reflectance of 0.25 or higher and thermal emittance of 0.75 or higher

Notes: Only for steep slope roofs (shallow slope roofs already covered)

Benefits: Reduces home heat gain and reduces energy used for cooling

Required in Homes: Only applicable if project **includes re-roofing**. Pre 1978 homes in Climate Zone 7 and all homes in Climate Zone 10 (zip code 91914)

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State Requirements

Local Energy Code Requirements

- Compliant with all state laws
- Updated for each new Title 24 cycle – Pre 2006 homes minimally effected.
- Filed with the State, and accessible to public
- Resulting in buildings using less energy - Must be more stringent than state requirements
- Must be cost effective
- May not specifically require high efficiency equipment that is regulated by the federal government (e.g., HVAC or Water Heating (DHW) equipment)

Policy Overview

- Prescribed upgrade measures depend on home age and climate zone

Year Built	Climate Zone 7	Climate Zone 10
Pre-1978	33%	NA
1978-2005	43%	14%

- Prescribed upgrades will apply to the remainder of the home <u>not</u> otherwise required to comply with current building code as a result of the addition or remodel