

# Statewide Codes and Standards

Simplified Flexible Path Policymaking  
with the Cost-Effectiveness Explorer

November 1, 2023



# Agenda

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- Welcome and Introductions
- FlexPath Overview and Approach
- Cost-Effectiveness Explorer
- Considerations
- Questions



# Questions for Participants

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Raise your hand



- Do you have a formal directive to investigate a reach code for existing buildings, e.g., a council referral, a part of your workplan, etc.?
- Have you used the Cost-Effectiveness Explorer in the past?
- Have you used the Explorer for the FlexPath?



# Reach Code Compliance Configurations for Existing Homes

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## Prescriptive Path

Permit applicants are required to install a specific set of measures



## FlexPath

Permit applicants choose the measures that work best for them from a menu provided they add up to a minimum energy savings (required flexible score)



# What is the FlexPath? Example

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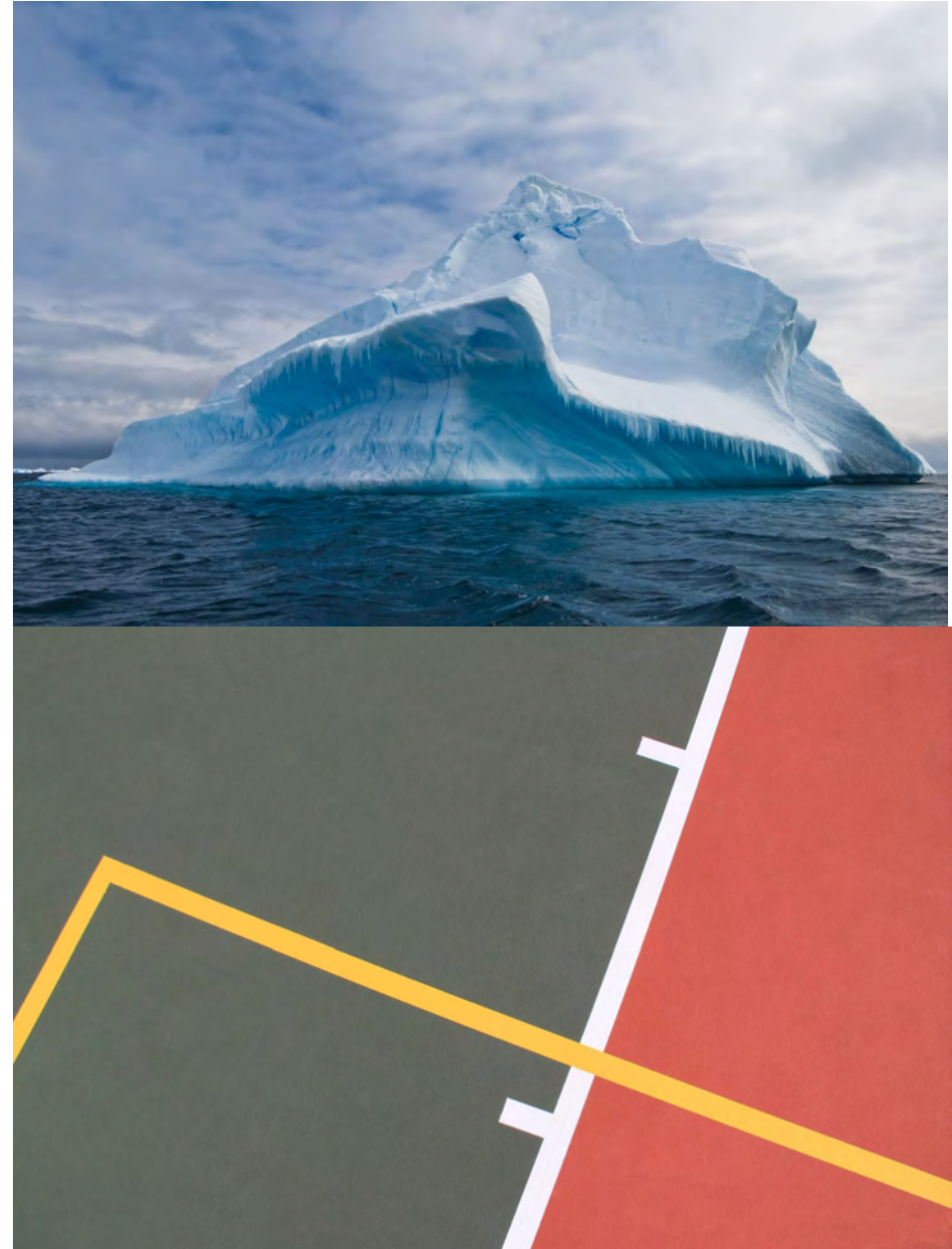
- Choose measures from a menu
- Many pathways to compliance
- High values for heat pumps and solar
- Applies to existing single family homes and duplexes

Measures	Value	Claimed
Lighting Measures	1	1
Water Heating Package	2	2
R-49 Attic Insulation	4	4
Windows	6	
New Ducts + Duct Sealing	8	
Duct Sealing	4	4
Air Sealing	2	
Heat Pump Water Heater (HPWH)	12	
High Eff HPWH	13	13
HVAC Heat Pump	15	
High Eff HVAC Heat Pump	17	
Heat Pump Clothes Dryer	2	
Induction Cooktop	1	
PV + Electric Ready Pre-Wire	14	
Total Points Claimed		24
<b>Target Score</b>		<b>24</b>
Pass/Fail		<b>Pass</b>

# FlexPath Purpose

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- Capture GHG reductions
- Meet Federal and State requirements
  - Based on energy consumption
  - Does not restrict use of Federally-approved appliances
  - Cost-effective compliance pathway
- Provide options for applicants
- Simple administration process



# Review of Cost-Effectiveness Study

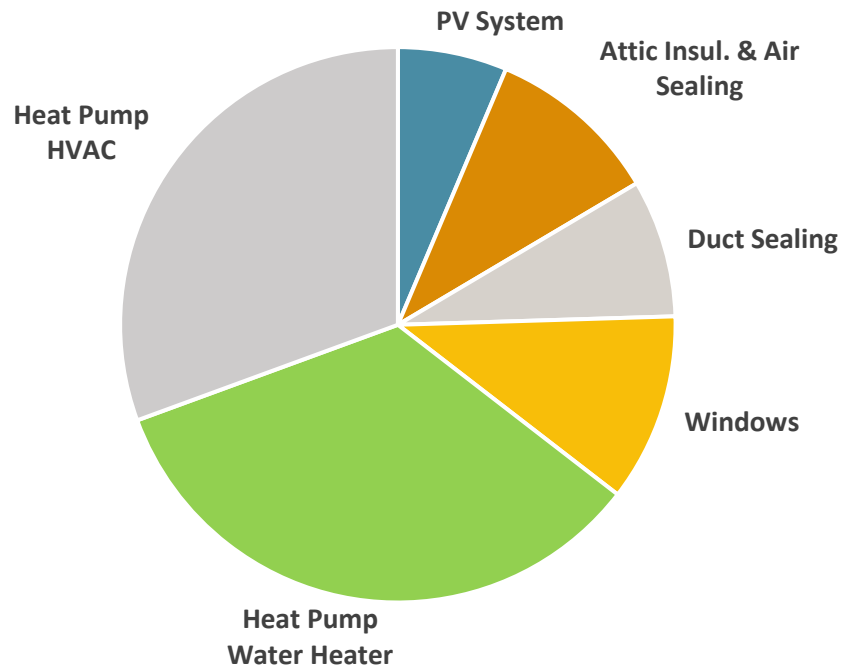
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- Applies to retrofits and appliance replacements
- Scope
  - Energy efficiency
  - PV and storage
  - Heat pumps
- Specific to climate zone and vintage
- Takeaways
  - Supports a range of cost-effective measures
  - Cost-effective measures are not necessarily the most logical choice for each project
  - Heat pumps are not cost-effective but have significant GHG reduction potential

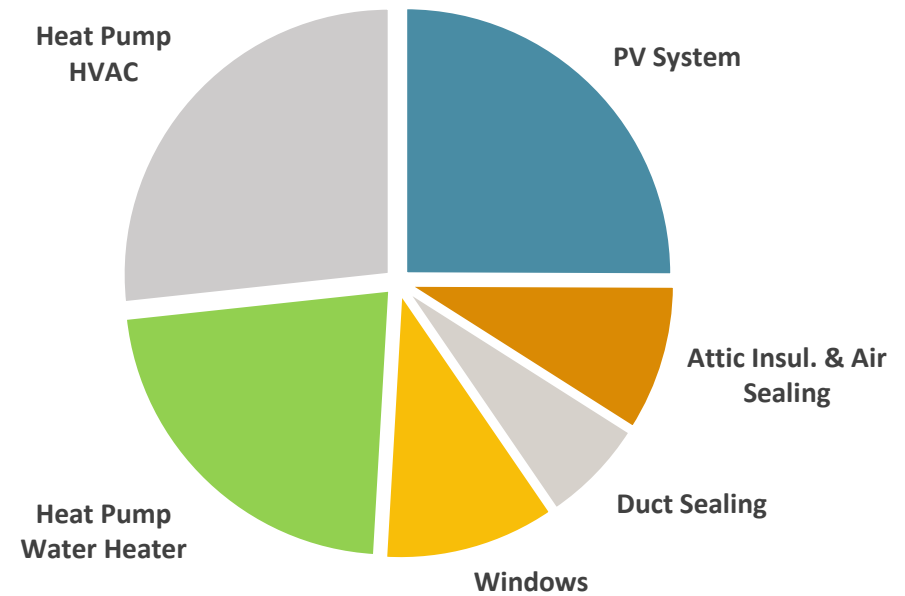
# GHGs and Energy Example

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GHG Reductions



Site Energy Savings





# Translating the Study to a Flexible Policy

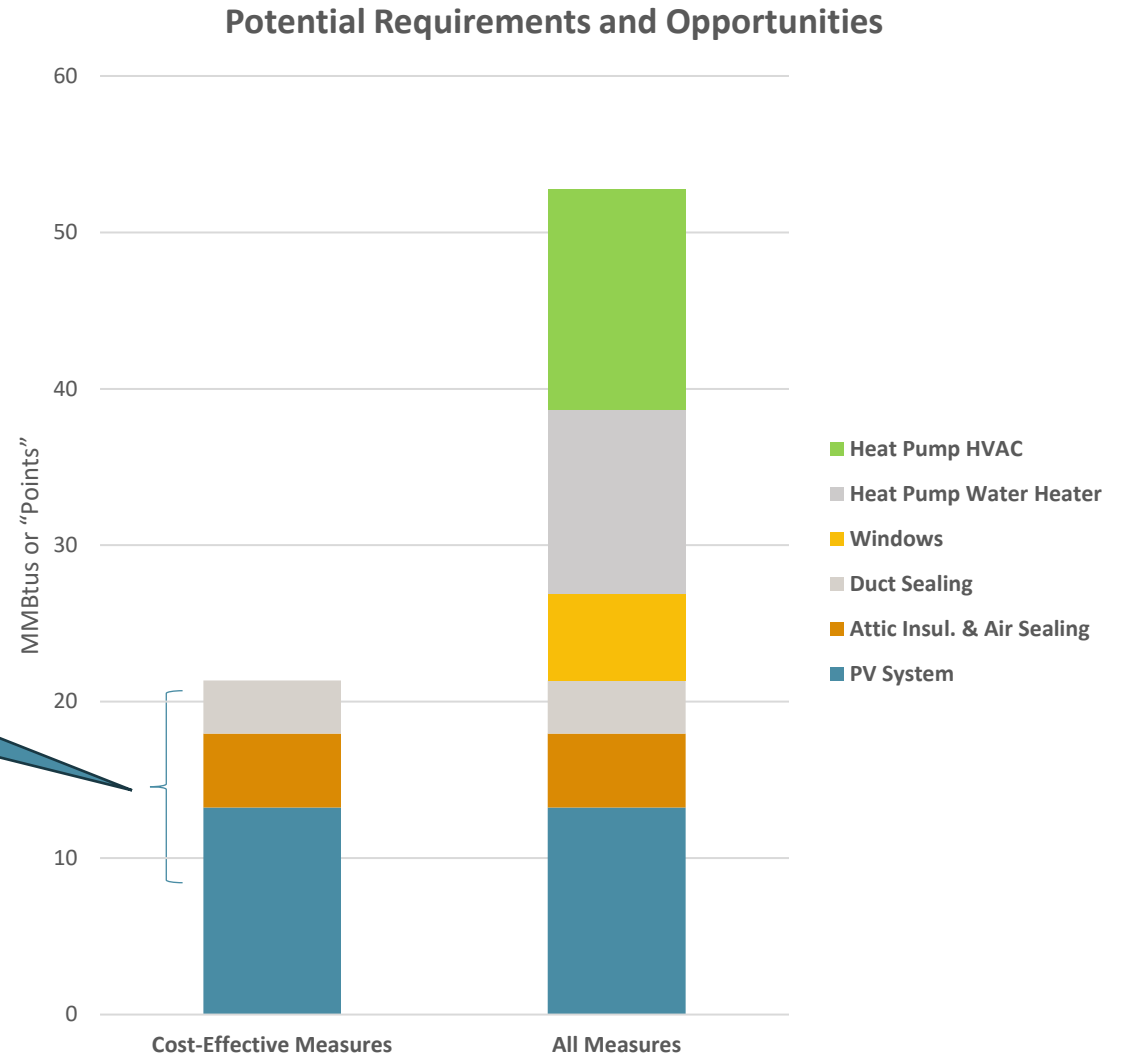
## Target Score

- May not exceed sum of cost-effective measures

+/- Target score range

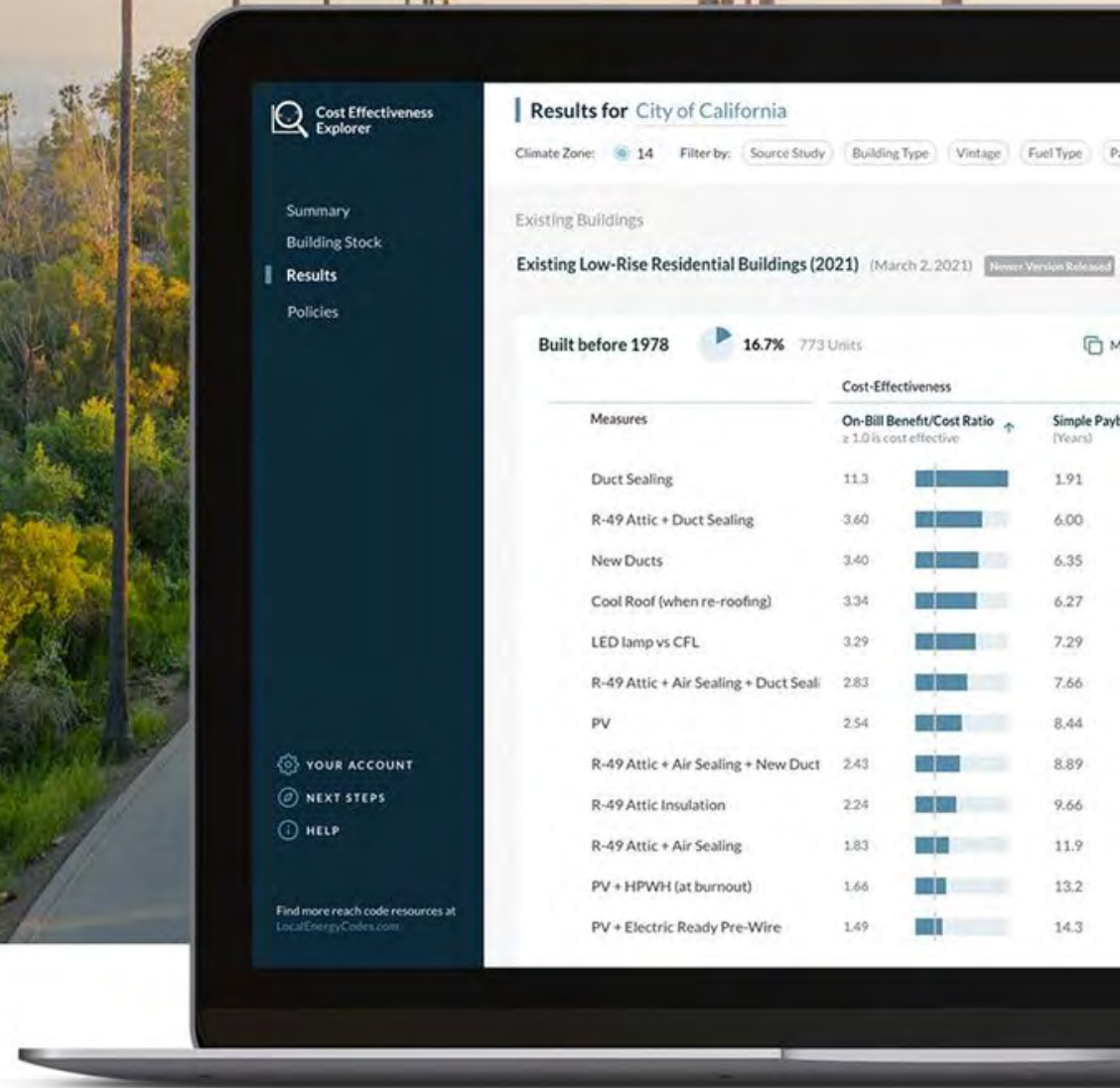
## Available measures

- Many other potential pathways



# The Cost-Effectiveness Explorer

[explorer.localenergycodes.com](http://explorer.localenergycodes.com)



# Overview

- The redesign
- Policy options choices
- Transitioning your old policies over
- Create a policy together

# The Original Layout

Requirements Impact Documents **Flexible Compliance**

### Policy Requirements

Edit the requirements of your policy

[Download tables](#) [Quick Tutorial](#)

Allow permit applicants to choose the measures that work best for them from a menu.

[Learn more](#)

Single Family Units

Multifamily Units

\*Please note that the Flexible Paths feature is still in beta. Please email us any feedback or corrections.

#### FLEXIBLE COMPLIANCE TABLES

### Multifamily

Source Study: Existing Multifamily Building Upgrades (2022) - March 7, 2022

#### Climate Zone 3

*Target Score Table*

	Pre-1978	1978-1991	1992-2005
Max Cost-Effective Score <input type="text" value="On-Bill"/>	10	10	19
Target Score	7	5	9

*Measure Score Table*

	Pre-1978	1978-1991	1992-2005
Efficiency			
LED + Exterior Photosensor	Mandatory	Mandatory	Mandatory
Water Heating Package	1	1	1
R-49 Attic Insulation	1	--	--
Air Sealing	1	--	--
Duct Sealing	--	Mandatory	--

Flexible Compliance could previously be found as a separate tab within your existing building policy.

At the same time, your prescriptive policy set up was housed under the Requirements tab.



# The Simplified Layout

Both policy configurations are on the same page

Use the toggles at the top of your page to set your desired compliance method, and set your requirements from the same page.

**EDIT REQUIREMENTS**

prescr test > Single Family > Climate Zone 1 > Pre-1978

**Configure your policy requirements**

Require specific measures ⓘ

Water Heating Package

Require a minimum flexible score ⓘ

Required flexible score: 46

Maximum cost-effective score: 46

Using available flexible measures: 46

Using any flexible measure: 47

Calculation method: On-Bill

Available Measures	Flexible Score annual energy savings	Mandatory	BENEFIT/COST RATIOS		PER HOME RESULTS			
			On-Bill ≥ 1.0 is cost effective	2022 TDV ≥ 1.0 is cost effective	Incremental Cost	Annual Bill Savings (on-bill)	Emissions Reductions (MTCO <sub>2</sub> e/year)	Lifecycle Savings (on-bill)
Efficiency								
<input type="radio"/> Water Heating Package	1	<input checked="" type="checkbox"/>	1.6	--	\$208	\$14	0.040 (0.8%)	\$384
<input type="radio"/> R-49 Attic Insulation	6	<input type="checkbox"/>	1.0	1.2	\$3,332	\$149	0.269 (5.2%)	\$3,727
<input type="radio"/> Windows	8	<input type="checkbox"/>	0.4	0.5	\$9,810	\$180	0.365 (7.0%)	\$4,534
<input type="radio"/> R-13 Wall Insulation	10	<input type="checkbox"/>	1.5	1.8	\$3,360	\$228	0.462 (8.9%)	\$5,746
<input type="radio"/> Cool Roof (when re-roofing)	-2	<input type="checkbox"/>	--	--	\$778	-\$41	-0.085 (-1.6%)	-\$1,025

Study Source: Existing Single Family Building Upgrades (2021) Release Date: August 27, 2021

# Your Policy Options

Policy Options for [City of San Diego](#)

[Share](#)

[Existing Buildings](#) [New Buildings](#)

Filter by [Building Type](#)

Below are some example policies designed by the Reach Codes Team for existing buildings. Select one as a starting point. Regardless of your choice, you will be able to review/edit your policy requirements in the coming steps.

## Require specific cost-effective measures (prescriptive)

[Learn More >>](#)

[Select >>](#)

This option sets up a policy where permit applicants will be required to install measures found to be cost-effective. Then, you can review these measures and edit which you would like to require.

[Single Family Units](#) [Multifamily Units](#)

## Require minimum energy savings with multiple paths to comply (flexible)

[Learn More >>](#)

[Select >>](#)

This option sets up a policy where permit applicants choose the measures that work best for them from a menu provided they add up to a minimum energy savings. Then, you can review the minimum energy savings (required flexible score) and adjust it as desired.

[Single Family Units](#) [Multifamily Units](#)

## Choose requirements later

[Learn More >>](#)

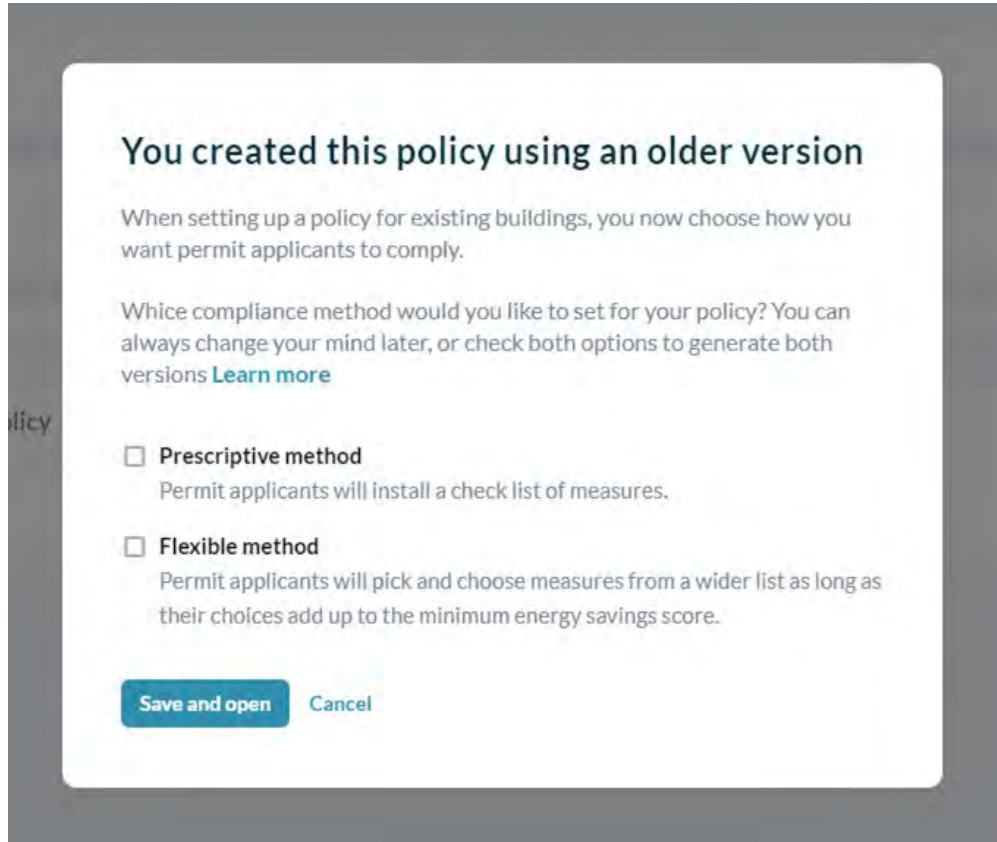
[Select >>](#)

Design your own existing building policy from scratch.

[Single Family Units](#) [Multifamily Units](#)

You are seeing 3/3 policy options.

# Transitioning your old policies over



If you've previously created an existing building policy with the Explorer, clicking on it will trigger this display.

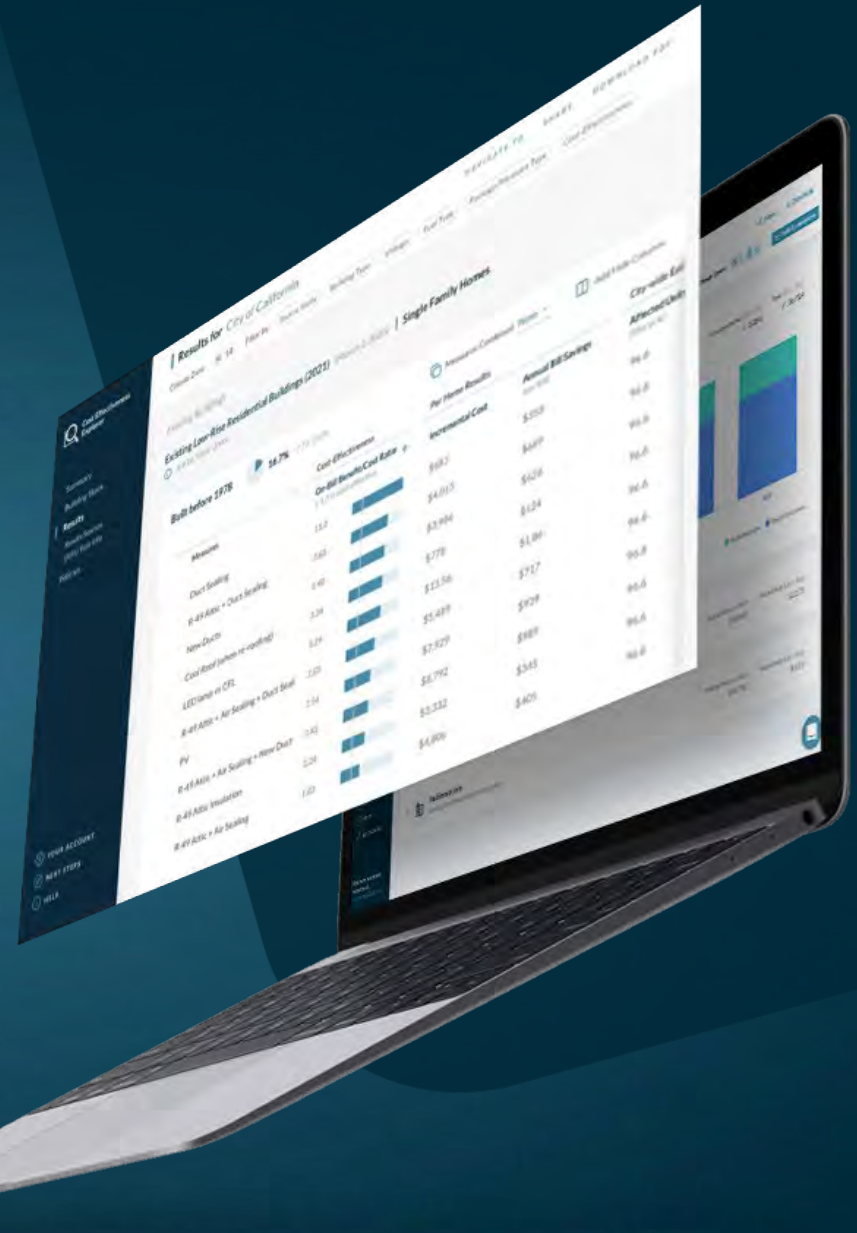
If you had previously focused on creating a policy of mandatory measures, select the prescriptive option.

If you had configured a flexible compliance policy, select the flexible option.

If you're unsure, select both options! You can then explore the two configurations and decide which works best for you. Any unwanted policies can be deleted later from your My Policies page.

WALKTHROUGH

# Create a Flexible Policy





# Study Update

- Cost-effectiveness study update in process
  - New tariffs
  - Updated measure costs
- Results expected ASAP

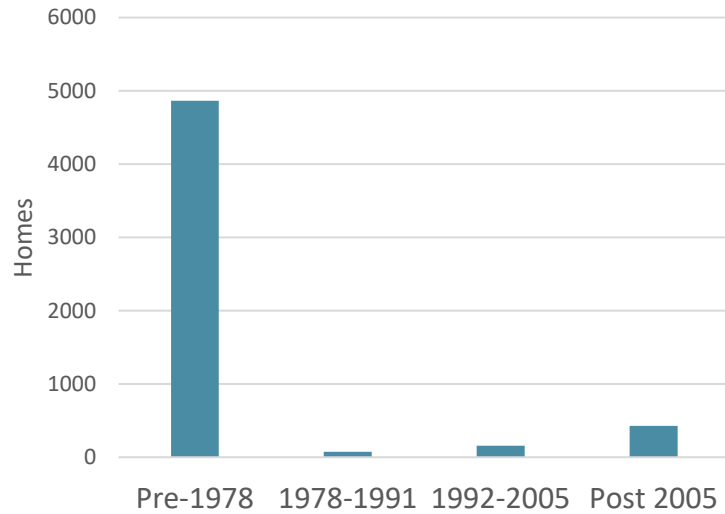
Climate Zone		CZ1	CZ2	CZ3	CZ4	CZ5	CZ6	CZ7	CZ8	CZ9	CZ10	CZ11	CZ12	CZ13	CZ14	CZ15	CZ16	
Utility		PG&E	PG&E	PG&E	PG&E CPAU	PG&E SCG	SCE	SDG&E	SCE	SCE	SCE SDGE	PG&E	PG&E SMUD	PG&E	SCE SDGE	SCE	PG&E	
R-49 Attic Insulation	Pre-1978	On-Bill	Both	N/A	Both	N/A	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	
	1978-1991	N/A	Both	N/A	Both TDV	N/A	N/A	N/A	Both	Both	Both	Both	Both	Both	Both	Both	Both	
	1992-2005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	TDV	N/A	On-Bill	N/A	TDV	N/A	
Duct Sealing	Pre-1978	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	
	1978-1991	Both	Both	Both	Both	Both TDV	Both	On-Bill	Both	Both	Both	Both	Both	Both	Both	Both	Both	
	1992-2005	Both	TDV	N/A	TDV	N/A	N/A	N/A	Both	Both	Both	Both	Both	Both	Both	Both	Both	
Cool Roof	Pre-1978	N/A	Both	N/A	Both	N/A	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	On-Bill
	1978-1991	N/A	TDV	N/A	Both TDV	N/A	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	N/A
	1992-2005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Both	Both	Both	Both	Both TDV	Both	Both	Both	Both	N/A
Insulate Walls	Pre-1978	Both	TDV	N/A	N/A	N/A	N/A	N/A	N/A	TDV	TDV	Both	Both TDV	Both	Both	Both	Both	
Windows	Pre-1978	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	TDV Both	Both	Both TDV	Both	Both	Both	Both	N/A
	1978-1991	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A On-Bill	Both	TDV	Both	TDV Both	Both	N/A	

# Other Considerations

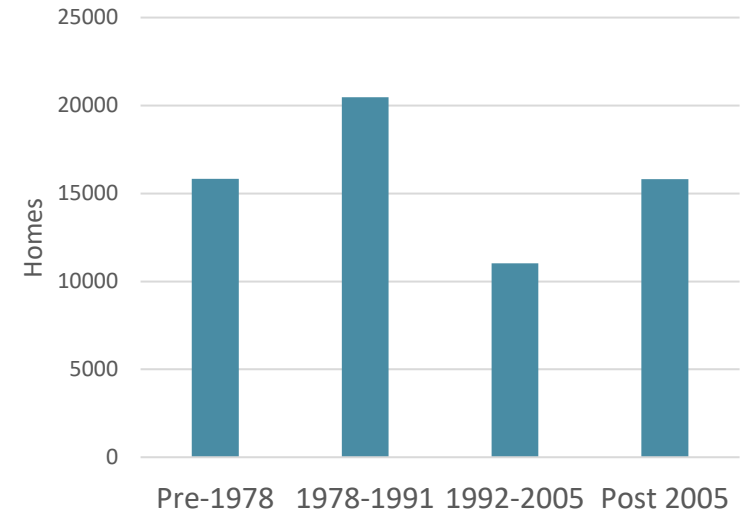
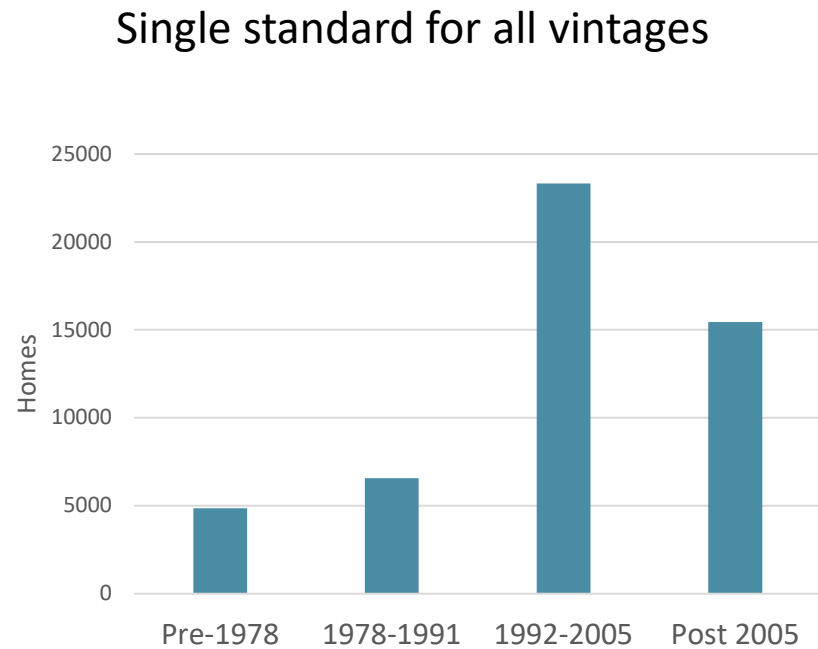
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- Vintages
- Trigger events
- Setting the target score
- Credits and exceptions
- Mandatory and conditional measures

# Vintages – A Tale of Three Cities



Limit to older vintages



# Other Considerations

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## √ Vintages

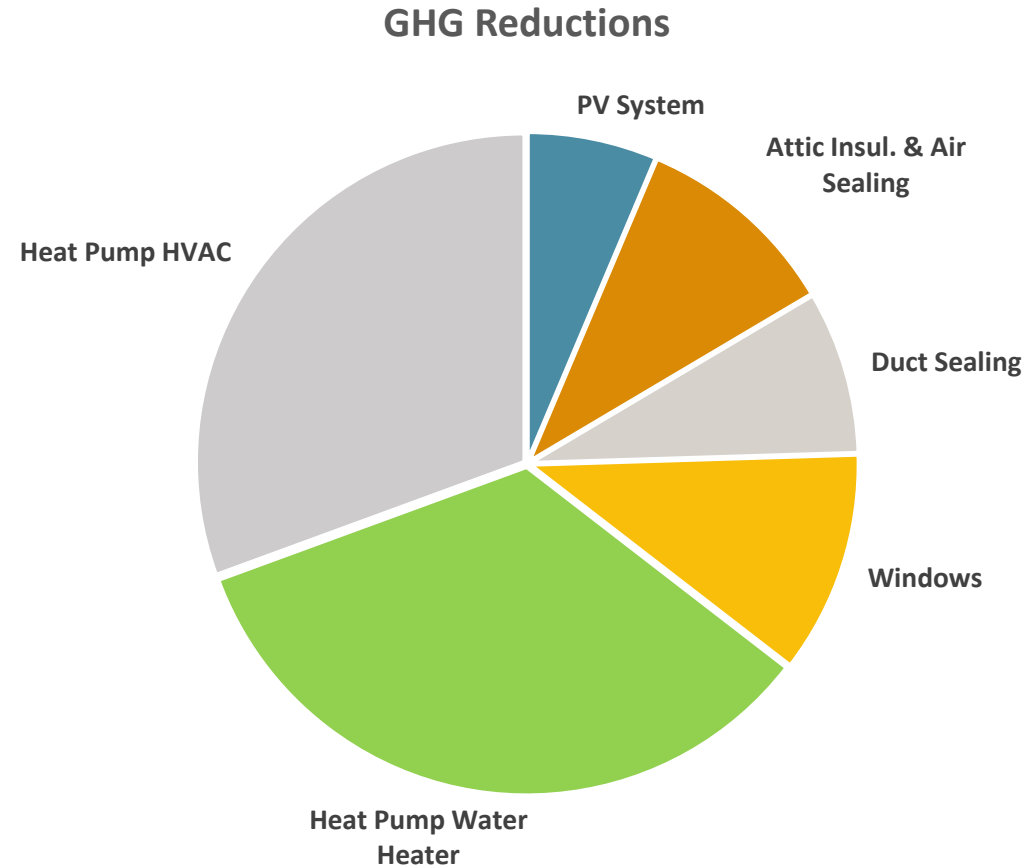
- Trigger events
- Setting the target score
- Credits and exceptions
- Mandatory and conditional measures



# Takeaways

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- Opportunity to achieve GHG reductions in existing homes
- [Cost-Effectiveness Explorer](#) enables users to create and assess potential policies specific to their climate zone and building stock
- [Model code](#) and [implementation materials](#) available at [LocalEnergyCodes.com](https://LocalEnergyCodes.com)
- Staff are available to walk you through the process



# Thank You!



We appreciate your time

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for additional information.



[explorer.localenergycodes.com](http://explorer.localenergycodes.com)

LocalEnergyCodes.com

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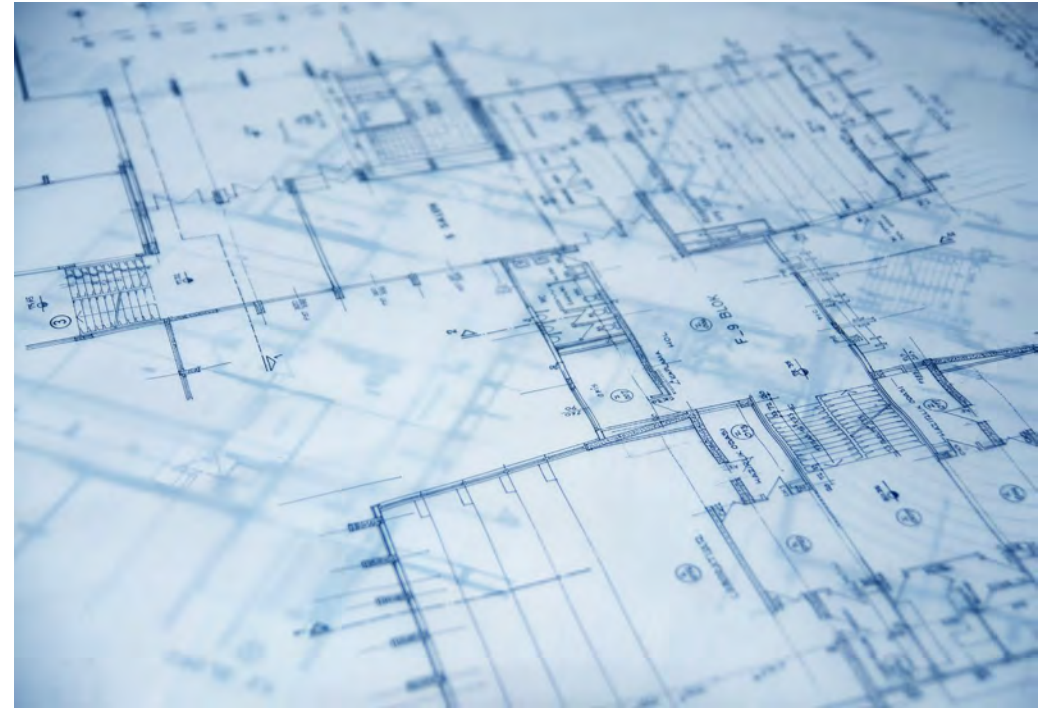
# Reference Slides

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# Trigger Events

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- Scope, e.g.,
  - Additions
  - Structural alterations
  - Combination of permit types (e.g., mechanical, plumbing and electrical)
- Valuation
- Hybrid – scope and valuation



# Vintages

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- Study supports three vintages
  - Pre-1978 (before Energy Code)
  - 1978-1991
  - 1992-2010
- Options
  - Different requirements for each vintage
  - Focus on older buildings
    - Apply only to Pre-1992 or Pre-1978
  - Same requirement for all vintages
    - Target limited to Pre-2010 vintage
- Best approach is highly dependent upon climate and existing stock





# Target Score

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- Must be no greater than sum of cost-effective measures
- Advisable to consider margin to accommodate range of existing conditions
- Appropriate level is highly dependent upon climate zone and vintage classifications
  - Consider effect of different levels
- Consider whether code-required measures can be credited to score





# Credit for Pre-Existing Measures

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- HERS verification recommended, especially for
  - Duct sealing
  - Air sealing
- Option for inspector verification for more apparent measures
  - PV
  - Heat pumps
  - Cooktops



# Exceptions

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- Allow credit for measures that are not applicable or infeasible
  - No solar access
  - No ducts (radiant heat)
- Limit credits to cost-effective measures only (those used to set target score)



# Mandatory and Conditional Measures

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- Consider
  - Mandatory lighting and water heating packages
  - Cool roof upon reroof (certain climate zones only)
  - Electric readiness for kitchen and laundry room remodels
  - Electric readiness for PV measure credit

