BUILD (SB1477) Public Workshop

Building Initiative for Low-Emission Development (BUILD) Program

September 15, 2021

Agenda

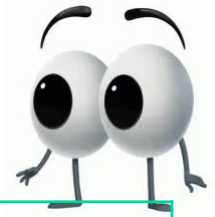
- Welcome – Commissioner McAllister
- Program Overview
- Eligibility Requirements
- BUILD Methodologies
- Program Participation
- Incentive Structure
- Technical Assistance
- Evaluation Metrics

Virtual Housekeeping

- Webinar conducted remotely via Zoom and is being recorded
- 3 ways to comment
  - Use the "raise hand" feature in Zoom
  - Over the telephone: dial *9 to "raise hand" and *6 to mute/unmute your phone line
  - Type your question in the Q&A window
  - Limit comment to 3 minutes per commenter or organization per topic
- Written comments due **September 30, 2021**
  - Submit through the e-commenting systems (20-DECARB-01) at: https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=20-DECARB-01
- Subscribe to the BUILD List Serve: https://www.energy.ca.gov/programs-and-topics/programs/building-initiative-low-emissions-development-program

Program Overview

BUILD Program: "At A Glance"



Goal	Deploy near-zero emission building technologies to reduce GHG emission -- while ensuring no negative bill impact for low-income occupants.
Eligibility	• All-electric new construction • Located in gas IOU territory
Budget	$80 million
LI/DAC Component	• ≥ $60 million for new low-income residential housing incentive • Technical assistance • Education and Outreach

Eligibility	• Multifamily:
	  • At least 2 deed-restricted units AND
	  • In DAC/LI community OR 80% of units are 60% or less AMI
	• Individual low-income residence *§2852(a)(3)(C) Public Utility Code*

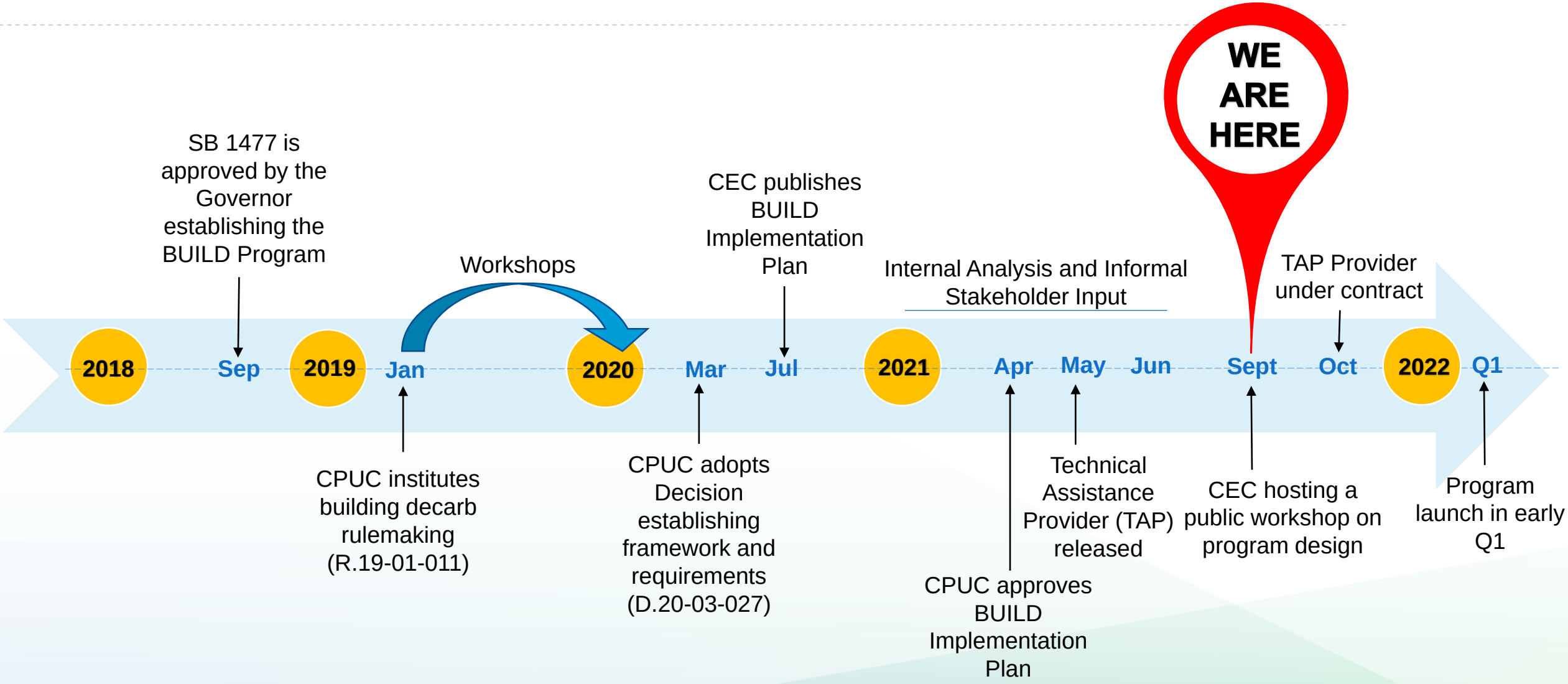
BUILD Budget

Budget Item	Amount
Program Costs: Incentives for Low-Income Housing Developments	$60 Million (no less than)
Program Costs Other • Technical assistance provider for low-income housing developments • Other	$10 Million (no less than)
Administrative Costs	$8 Million (no more than)
Joint Evaluation Cost Share	$2 Million (no more than)
Total	**$80 million**

Incentives must be proportional to each gas corp's Cap & Trade allowances:

Gas Territory	Percentages
SCG	49.26%
PG&E	42.34%
SDG&E	6.77%
SWG	1.63%

BUILD Review: Timeline



Program Designed to Address Barriers

- ✓ Provide technical assistance early in a project design phase; supports developer soft costs and absorbs perceived risk
- ✓ Provide surety, flexibility and patience to support applicant's navigation of long development timetables;
- ✓ Accommodate the various financing and incentive programs common in the industry (TCAC, HCD, AHSC etc.)
- ✓ Leverage existing building processes to streamline the application process for users
- ✓ Coordinate with TECH to ensure support of education to contractors and subcontractors

Eligibility Requirements

Eligibility

Applicant Eligibility	Project Eligibility	BUILD will include…
Building owners or developers of low-income housing • 5 years experience	• Low-income residential housing (single family and multifamily) • All electric and have no hookups to the gas distribution grid • Demonstrate Modeled Resident Utility Cost savings	• New residential buildings: SF, MF, triplexes, condos, dorms, residence hotels, assisted living, farm work housing, all electric mixed-use buildings • Tribal Areas

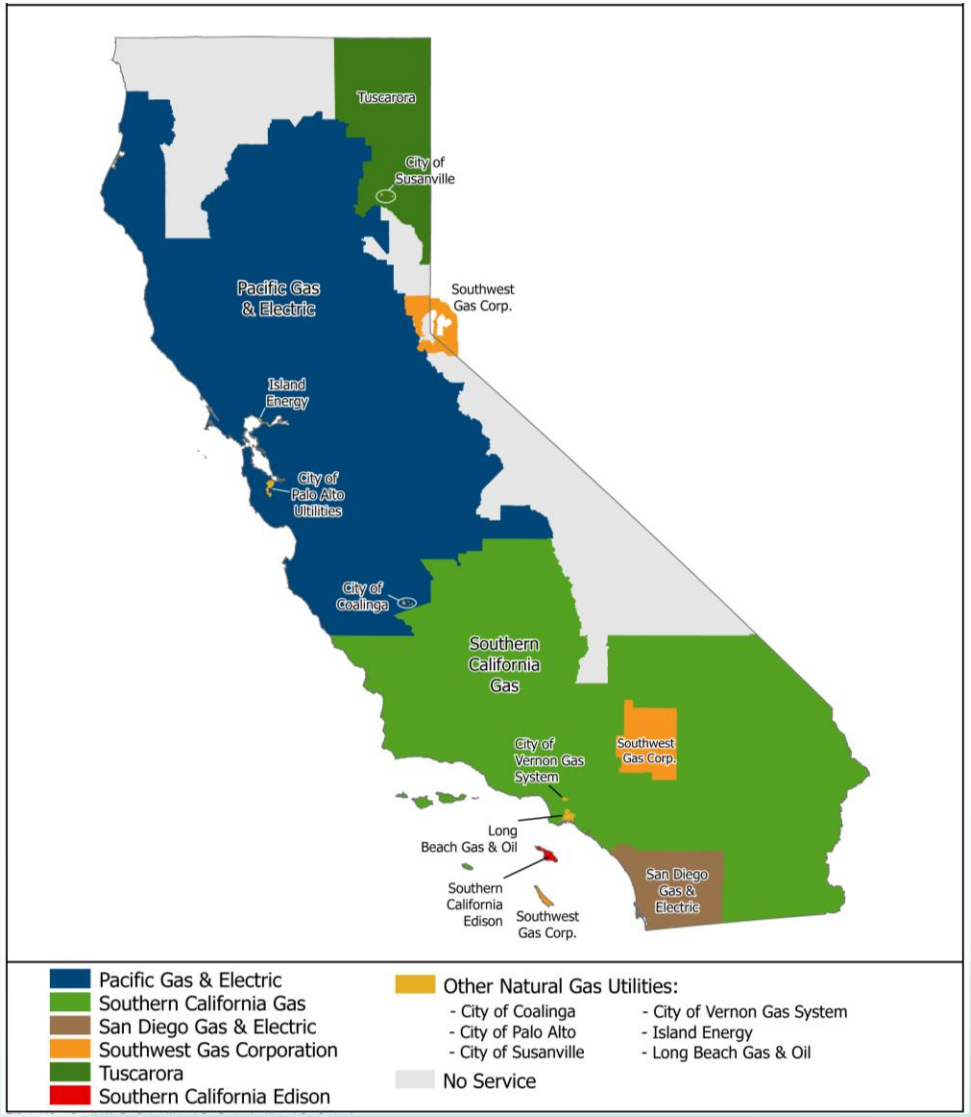
Ineligible Building Types

- Market rate residential buildings
  - $75 M for market rate housing authorized by AB 137 (Public Resources Code Section 25403.2)
  - Development will launch later this year
- Mobile and manufactured homes
  - May expand to include in the future
- Buildings without residents

Low-Income Residential Housing

Multifamily deed-restricted **low-income** residential rental building (2+ units)			Residential (condo or single-family)
Type 1	**Type 2**	**Type 3**	**Type 4**
Disadvantaged community	Low-Income community	80 % of the households with income at or below 60% AMI	- Sold to low-income buyers at an affordable cost - Resale restriction or equity sharing agreement
Flexibility in Affordability Limits 80% at AMI defined by PUC 2852 (a)(3)(A); low-income housing tax credits, tax-exempt mortgage revenue bonds, general obligation bonds, or local, state, or federal loans or grants,			

Gas Utility Service Area



Source: California Energy Commission

BUILD, Public Works Requirement & Green Jobs

Recipients – of technical assistance and incentives – are required to comply with public work requirements, including prevailing wage, pursuant to Labor Code Section 1720 et seq.

Q's & Comments: Project Eligibility

3 ways:

- Use the "raise hand" feature in Zoom
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Methodologies to Comply with Statutory Requirements:

GHG Reduction
Modeled Resident Utility Costs

Statutory Requirement: Incentives Based GHG Emissions

Provide incentives to eligible applicants for the deployment of near-zero-emission building technologies to significantly reduce the emissions of greenhouse gases from those buildings below the minimum projected emissions reductions that would otherwise be expected to result from the implementation of the prescriptive standards

Building-to-Building Comparison

Public Utilities Code §921.1 (a)(1)

Statutory Requirement: Resident Utility Savings

Ensure that new low-income residential housing projects receiving incentives through the BUILD Program **do not result in higher utility bills** for building occupants

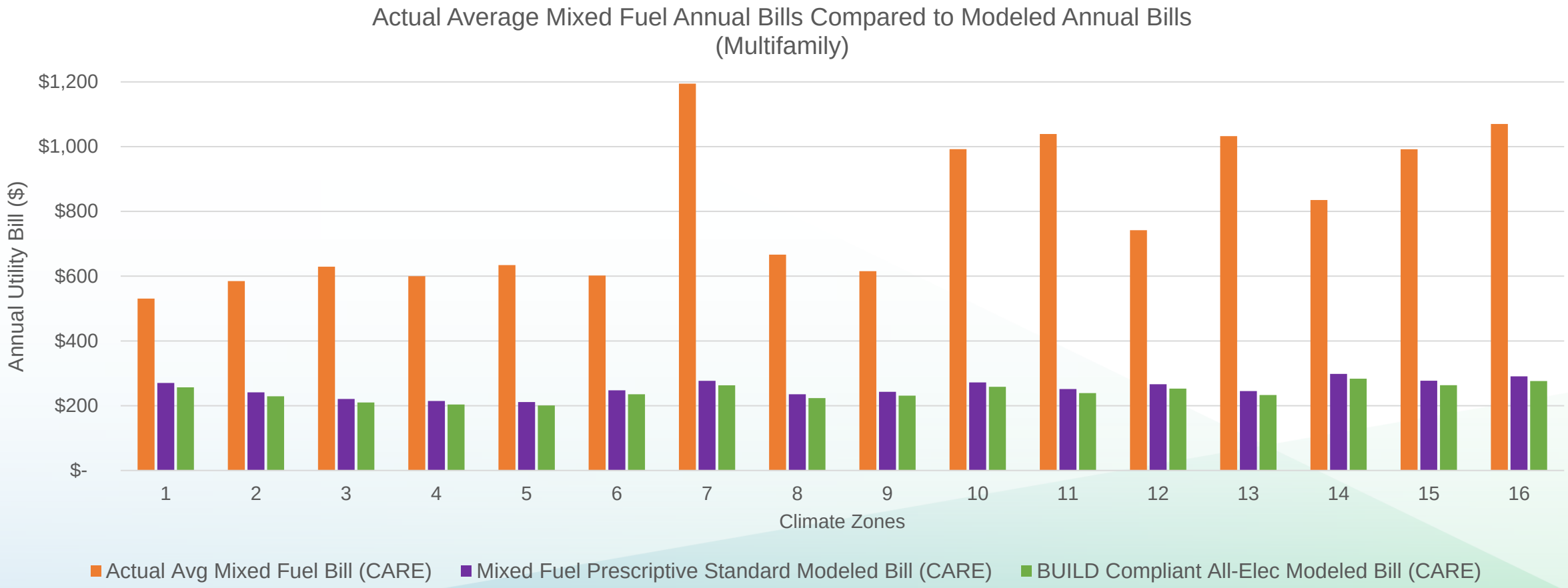
Public Utilities Code §921.1(c) and (d)(3)

Building-to-Building Comparison

Not a Review of any Specific Residents Actual Cost

Low-Income Residents Estimated to save 68% of Annual Energy Costs in a New BUILD Compliant All-Electric Building

An additional 5% of savings will increase resiliency against potential future rate fluctuations

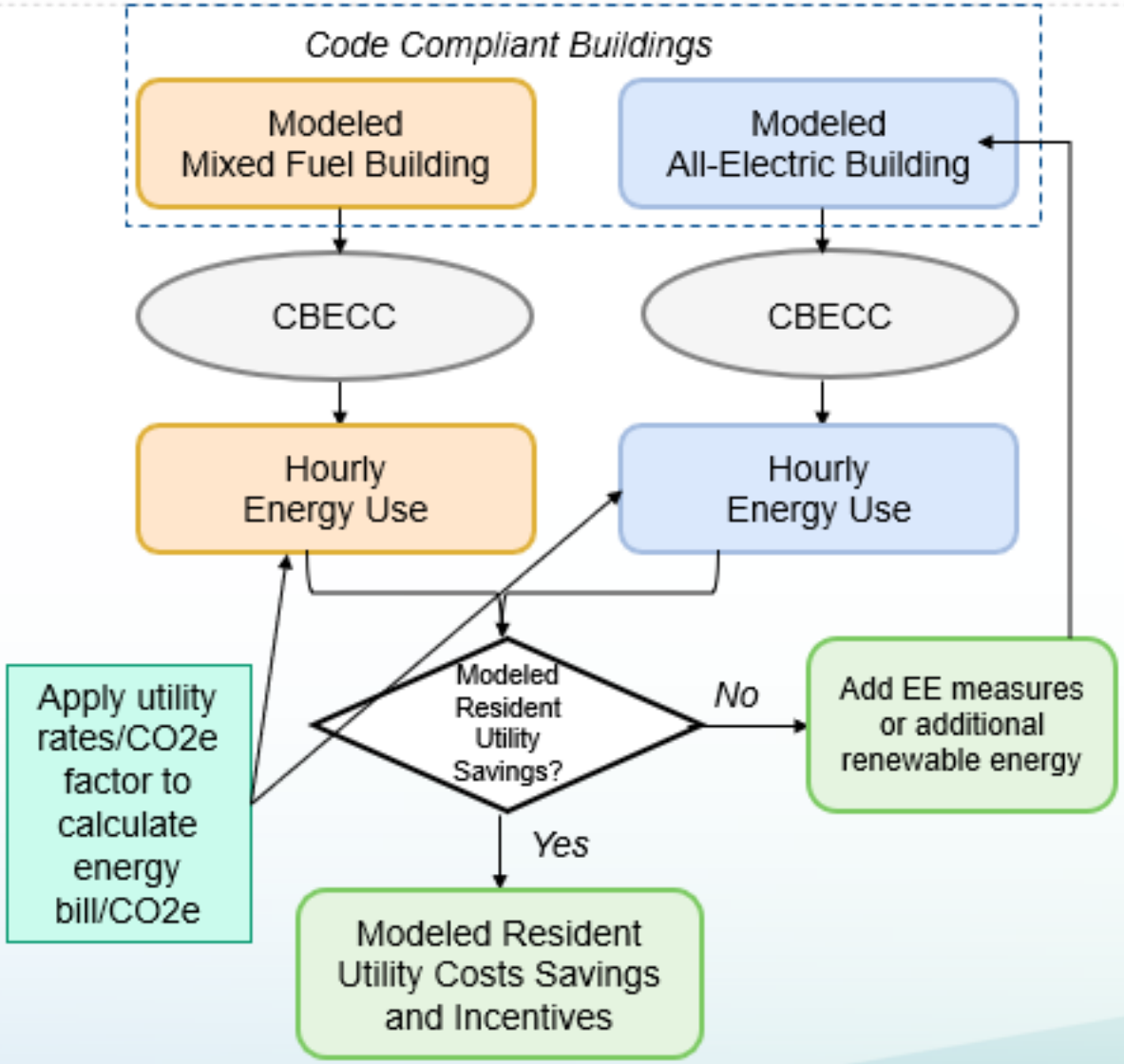


*Source of average mixed fuel bill from Resolution E-5105 (2019 data) provided by CPUC on April 6, 2021 and may be revised.

Californians Save Additional Costs from …

- Increased energy efficiency savings over the lifetime of the equipment
- Lowering a building GHGs and helping to reduce the risk to residents from loss of power
- Load flexibility reduces costs and demand on the grid
- Improved air quality
- Lower health costs

Methodology for Incentives & Modeled Resident Utility Costs



Modeled Resident Utility Costs

- Low income or CARE rates
- Used default low-income Time of Use (TOU) rates when applicable
- Requires savings year one
- Requires utility cost savings (at least 5%) and not just bill neutrality

GHG Incentive Values

- $150/MT CO2e over 30 yrs.
  - Consistent with CPUCs Integrated Resource Plan includes cost to utility only and does not include non-energy costs (e.g., societal cost)

Calculation will vary by building design, climate zone and utility territory and rates

Assumptions & Limitations with the Model

Assumptions

Rates

- Current TOU low-income or CARE rates are predominantly used
- Occupants do not exceed the baseline allowance
- California Climate Credit is not applied

Building Energy Use

- Central water heating & laundry is currently included in the Modeled Resident Utility Costs; future analysis will likely incorporate resident/owner split

Limitations

- While the Model represents a robust approach; it is only demonstrative, and does not reflect the numerous future residents' actual experience

Meeting the Modeled Resident Utility Costs; Solar Benefits for Residents

- Developers may choose a combination of efficiency and PV to meet Modeled Resident Utility Costs

- Many projects will benefit from additional solar installation
  - Low-Income residents must be the beneficiary of a projects' PV benefit to the extent feasible
    - If virtual net metering (VNEM) is unavailable, CEC exploring whether Applicant's can address this directly with residents

Seeking Feedback

- Given the likely need for increased efficiency and PV needed in many climate zones to meet the statutory required Modeled Resident Utility Costs:
  - How can developers demonstrate the PV benefit is provided to the residents?
  - In areas where VNEM is unavailable, how would PV allocation affect you?
  - Is it feasible for owners to address the Modeled Resident Utility Costs with residents directly? What could that look like?
- Is $150 per MT for GHG appropriate? Are there other estimates or projections that should be used for the price of carbon?

Q's & Comments: Compliance with Program Statute

3 ways:

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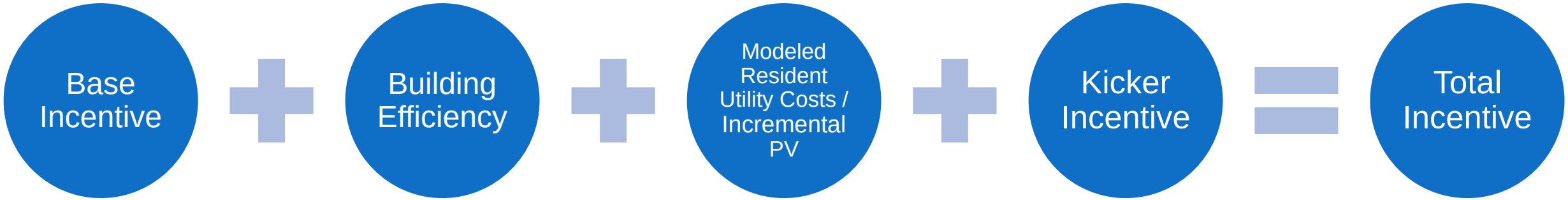
Incentive Structure

Incentive Types



- Based on GHG emissions
- *E.g., $150/MT CO2e*

- Based on % above code, Up to $1,000 per bedroom

- Based on a flat rate for PV above code
- *E.g., $1.3/watt (low rise) or $3/watt (mid/high rise)*

- Based on a flat rate (per equipment)
- *E.g., $50/smart thermostat*

Kicker Incentives

Grid Flexibility

- $50 / smart thermostat
- $100 / HPWH CTA-2045 wi-fi module

Lower-GWP Refrigerants

(GWP < 750)

- TBD*

(GWP < 150)

- $1,500/lb refrigerant

Induction Cooktop

- $300 / induction cooktop unit

Heat Pump Clothes Dryer

- $150 / heat pump clothes dryer

On-Site Energy Storage

- $250 / kWh

EV Charger

- $500 / charger

*The incentive amount for heating and cooling technologies using refrigerants of GWP 150-750 is in anticipation of these products becoming available and a signal to manufactures and building developers that BUILD will offer incentives for these technologies.

Balancing the Protection of Ratepayer Funds While Providing Flexibility

1. Incentivizing New Activity. Reservation applications must be submitted prior project receiving building permit
2. BUILD is proposing incentive caps to support broader market transformation
   - $3,000,000 of total incentives reserved or awarded per applicant (building owner or developer)
     - Incentive reservation applicants required to agree to liquidated damages if no good faith effort to proceed with project
3. Layering of incentives is permitted as long as the applicant isn't overcompensated for the project costs

Sample Project:
Mateo Valley Garden

Low-Rise: 2-story, 48 units, 72 bedrooms
Climate Zone 13
PG&E

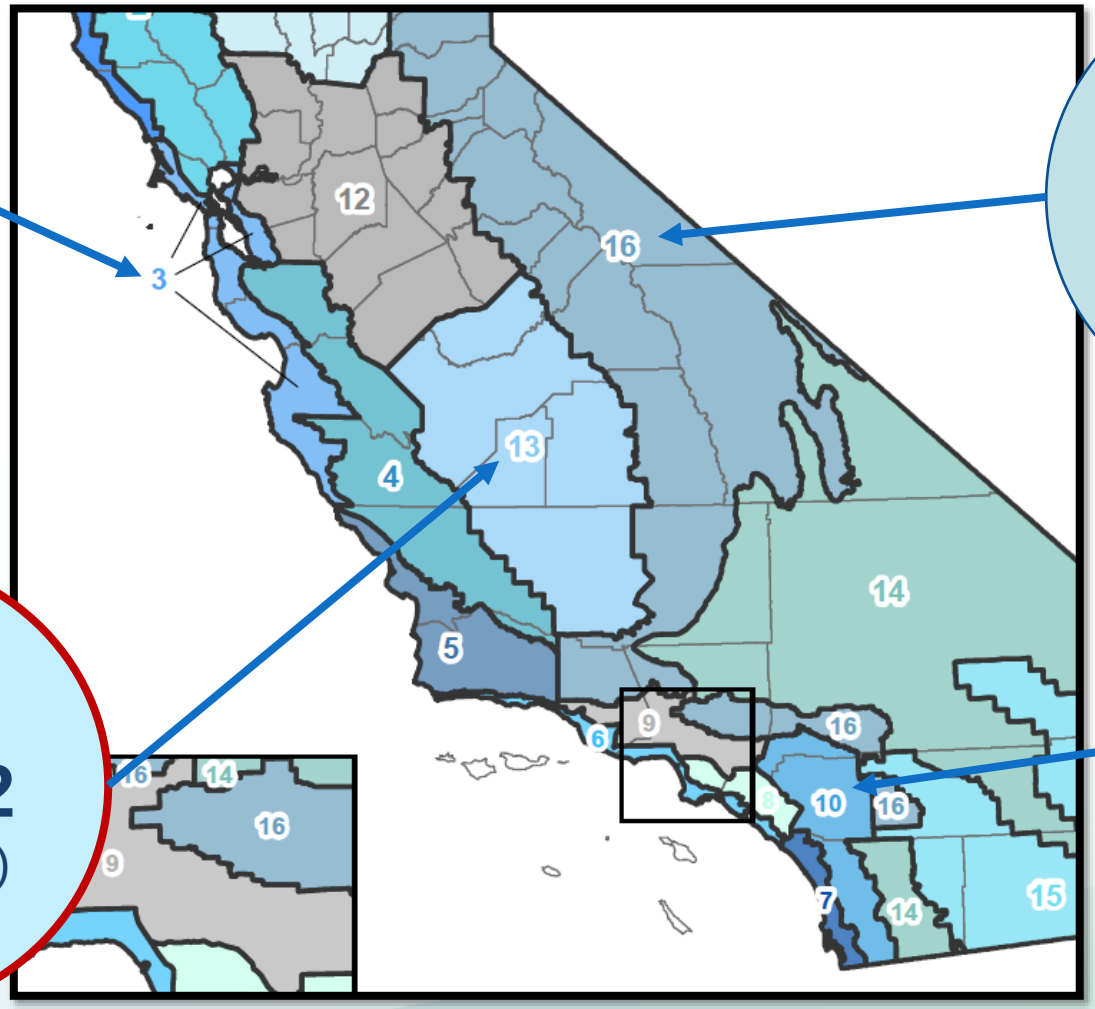
Incentive Type	Incentive Level	Project Incentives
Base Incentive (GHG-based)	$150/MT Avoided GHG	$150,312
Building Efficiency Incentive		(none)
Incremental PV Incentive	$1.30/W	$32,640
Kicker Incentives - Battery Storage (28 kWh) - Low-GWP HPWH (18.7 lb CO_2)	 $250/kWh $1,500/lb refrigerant	 $7,000 $28,050
	TOTAL	**$218,002** **($3,028 per bdrm)**

*Data evaluation is in progress.

Sample Project: Mateo Valley Garden

CZ 3:
$237,562
($3,299/bdrm)

CZ 16:
$278,746
($3,871/bdrm)



CZ 13:
$218,002
($3,028/bdrm)

CZ 10:
$194,008
($2,695/bdrm)

Sample Project:
Mateo Valley Garden (with more EE)

Low-Rise: 2-story, 48 units, 72 bedrooms
Climate Zone 13
PG&E

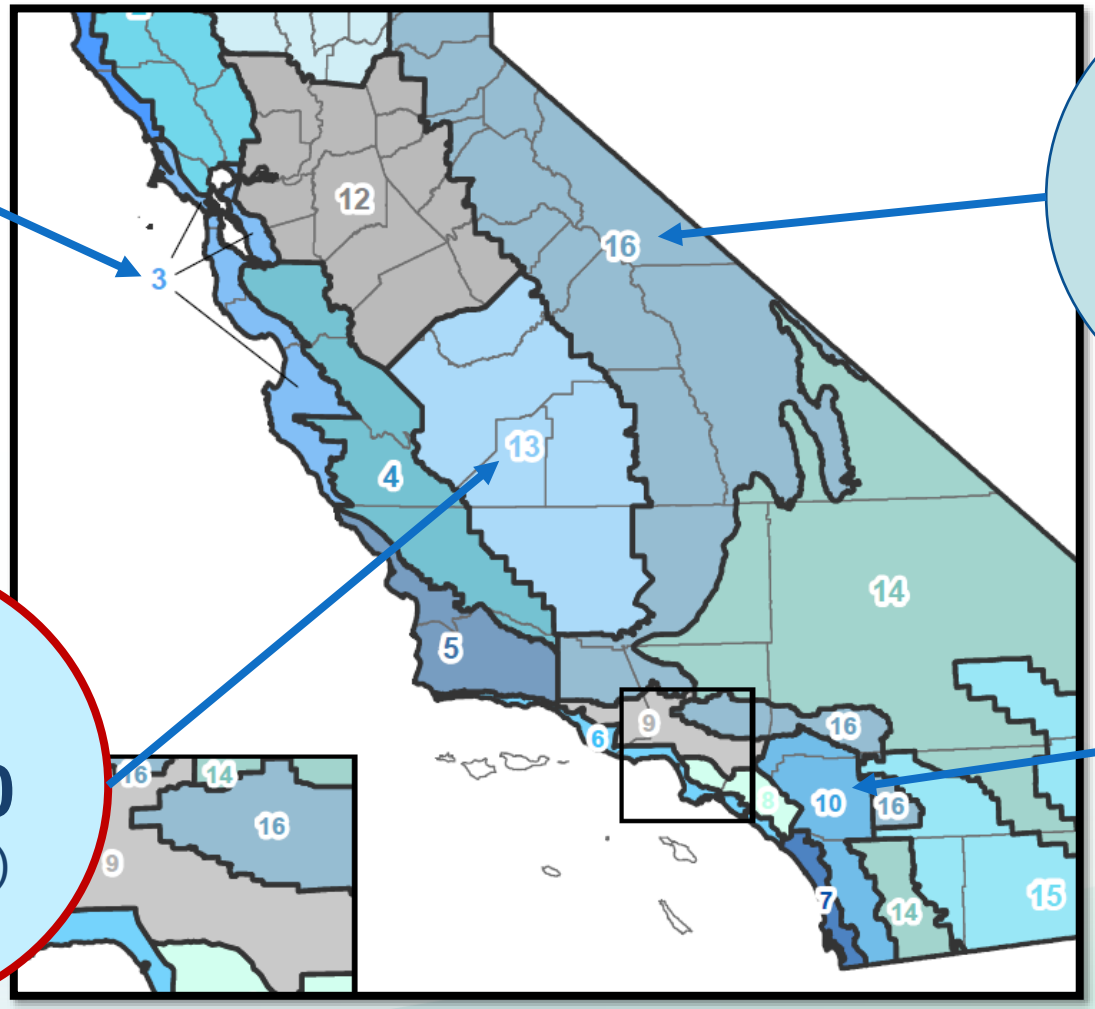
Incentive Type	Incentive Level	Project Incentives
Base Incentive (GHG-based)	$150/MT Avoided GHG	$161,904
Building Efficiency Incentive	$1000/bedroom	$72,000
Incremental PV Incentive	$1.30/W	$21,276
Kicker Incentives - Battery Storage (28 kWh) - Low-GWP HPWH (18.7 lb CO_2)	 $250/kWh $1,500/lb refrigerant	 $7,000 $28,050
TOTAL		**$290,230 ($4,031 per bdrm)**

*Data evaluation is in progress.

Sample Project:
Mateo Valley Garden (with more EE)

CZ 3:
$309,472
($4,298/bdrm)

CZ 16:
$359,332
($4,991/bdrm)



CZ 13:
$290,230
($4,031/bdrm)

CZ 10:
$263,362
($3,658/bdrm)

Sample Project:
ELC Senior Bay Community

Mid-Rise: 5-story, 176 units, 256 bedrooms
Climate Zone 3
PG&E

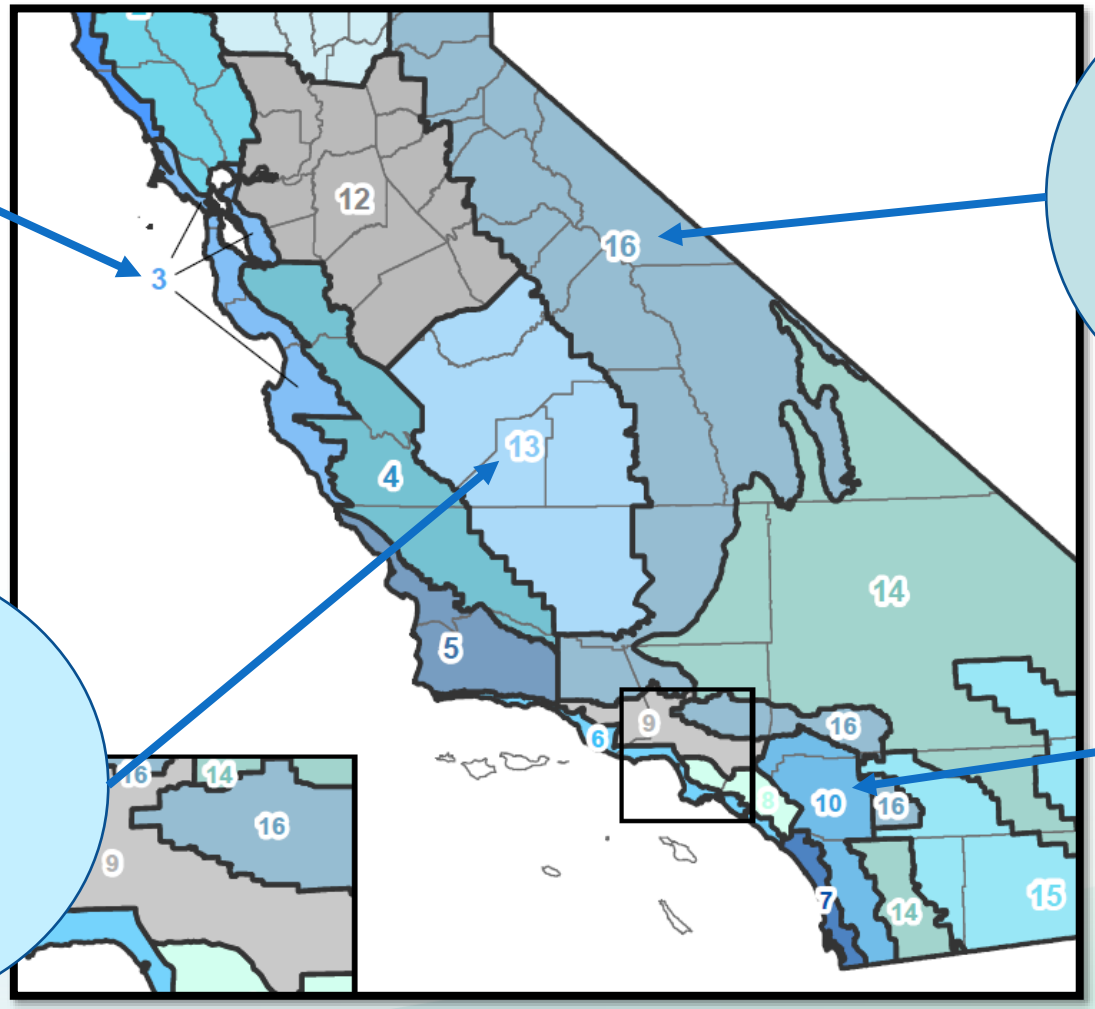
Incentive Type	Incentive Level	Project Incentives
Base Incentive (GHG-based)	$150/MT Avoided GHG	$736,200
Building Efficiency Incentive	$1000/bedroom	$256,000
Incremental PV Incentive	$3.00/W	$283,536
Kicker Incentives		(none)
	TOTAL	**$1,275,736** **($4,983 per bdrm)**

*Data evaluation is in progress.

Sample Project:
ELC Senior Bay Community

CZ 3:
$1,275,736
($4,983/bdrm)

CZ 16:
$1,500,052
($5,859/bdrm)



CZ 13:
$1,078,168
($4,211/bdrm)

CZ 10:
$1,171,312
($4,575/bdrm)

Seeking Feedback

- Are the incentive amount set appropriately?
- Should the CEC consider incentivizing other equipment?
- To better ensure applicants don't inadvertently lock-up program funding in reservations for unviable projects, the CEC is proposing Applicants agree to liquidated damages – 10% of Incentive Reservation – if there is no good faith effort in moving forward
  - Is this reasonable for industry?
  - What alternative approaches could we adopt to ensure that applicants are appropriately committed?

Q's & Comments: Incentive Structure

3 ways:

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Program Participation

Three Step Participation Process

1

Reservation
(Valid for 18 months)

Submit

- Reservation Application (project timeline, utilities, units and income limits, developer experience, project funding source)
- Calculation of Incentive Reservation (BUILD Calculator or Custom Energy Model)
- Preliminary Title 24 Certificates of Compliance (CF1R / PRF01)
- Low-income eligibility

Modeled Estimated Incentive Reservation

2

Applicant Project Confirmation
(Construction completed within 24 months)

Submit

- Updated project information (# of units, bedrooms, and income limits)
- Proof of Financing
- Updated Title 24 Certificate CF1R / PRF01 and energy model
- Building Permit

Energy Models Reviewed & Incentive Amount Updated

3

Project Completion & Funding

Submit

- Certificate of Occupancy
- Recorded Deed Restriction
- Permission to Operate PV
- Completed CF2R & CF3R

Payment to Applicant

Program Participation, Cont.

- Incentive Reservations. Applicants can request:
  - Extension of 6 month if project viability is demonstrated
  - Transfer of Incentive Reservation to other projects in portfolio
    - If funds are available
    - If new project meets all program requirements
- Annual reporting on progress toward project milestones
- Participation in the CPUC's Evaluation, Measurement and Verification (EM&V) Process

1 Step 1: Calculation of Incentive Reservation

Applicants can use one of the following pathways to reserve BUILD incentive dollars:

BUILD Calculator

Based on applicants' building design choices (e.g., type of HVAC, incremental PV), the calculator estimates the modeled GHG reduction, incentives values, and Modeled Resident Utility Costs.

Custom Energy Model

Applicants provide specific building model – created with CEC approved compliance software -- and energy performance data to demonstrate Modeled Resident Utility Costs and Incentive Values

CEC Confirms Calculations

CEC, with support from the Technical Assistance Provider, will explore approaches to further simplify this process

Approved compliance software: CBECC, EnergyPro, Right-Energy Title 24, IES VE

Example: BUILD Calculator

Riverside, minimal efficiency, SCE

BUILD Calculator
Low Rise Residential Multi-Family

1. Select the climate zone, utilities, and proposed building features from the pull-down menus.
2. The Calculation Tool will calculate the extra PV (PVx) needed to offset the energy equity gap.
3. % Better than T24 is automatically determined from the pull-down selections. The selections must be greater than 0%
4. The Total BUILD Incentive is calculated based on all the selections and calculations.

The calculations and incentives are based on the building performance of predetermined outcomes using CBECC-Res 2019 v1.3 SP1 for the combinations selected. Prescriptive assumptions that are not selectable below have used in the models that, if different from the applicant's building, will change the results and incentive amounts.

As Modeled Prior to Incremental PV

Monthly Modeled Resident Utility Cost Difference = $7.95

Modeled Utility Cost Savings = -28%

As Modeled with Identified Incremental PV, if chosen

Monthly Modeled Resident Utility Cost Difference = -$1.42

Modeled Utility Cost Savings = 5%

Select Climate Zone	Select Gas Utility	Select Electric Utility	Select Heat Pump Efficiency	Select AC Efficiency	Select Window U-Factor	Select Ext. Wall Foambd	Select DHW TIER	Select DHW Location	Select Battery Upgrade kWh	Incremental PV for Utility Cost Savings (per unit)	% Better Than T24	Avoided GHG / Yr	Building Incentive x 30 yrs	PVx Incentive	High Efficient Building Incentive	Total BUILD Incentive
CZ	Gas Utility	Elec Utility	HSPF	SEER	Window	Wall	DHW	DHW Loc.	Battery	+kW	%	(MT)	$/MT	$/W	$/%	$
10	SCG	SCE	8.2	14	0.30	R-4	TIER 3	IN	0.00	0.40	5.1%	4.40	$150	$1.30	$1,200	$30,077

* Percent modeled utility cost savings must be greater than 5% to qualify

This tool is based on 2-story 8-Unit, 12-Bedroom Multi-Family 6,960 ft2 building

This model assumes that all PV benefits are allocated to the resident.

Seeking Feedback

- Does this 3-step process appropriately align with other common low-income funding programs that stakeholders rely on?
  - What else should we be considering?
- For each step in the process, are the various milestones and documents reasonable and consistent with industry timetables?
- Is the BUILD Calculator helpful, or would stakeholders prefer to simply submit their own custom models consistent with the Program statutory requirement and established methodologies?
- CEC exploring how to expand the participation process – which leverages existing building processes – by identifying appropriate alternative requirements for projects in tribal areas.

Q's & Comments: Program Participation

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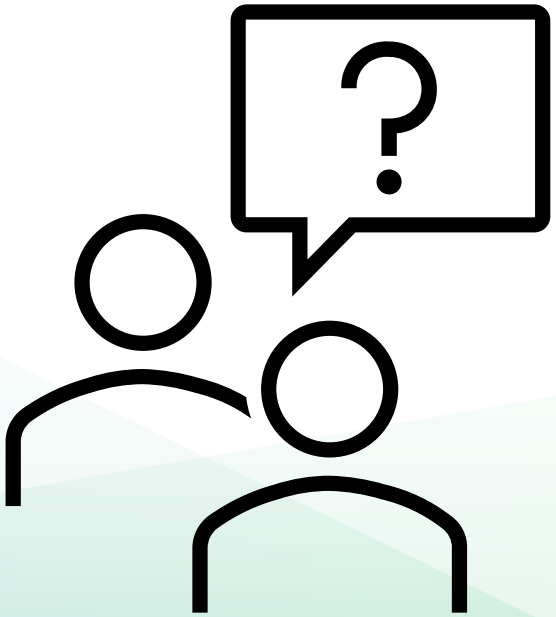


Technical Assistance

Scope of Technical Assistance

TA Provider will help ensure technical assistance is available to all prospective applicants for new low-income residential building

Services of the TA Provider include:

- Project design – helping to overcome technical challenges with new equipment
- Permit Assistance and supporting local building departments
- Supporting the Developer/ Energy Consultants in demonstrating Program and code compliance

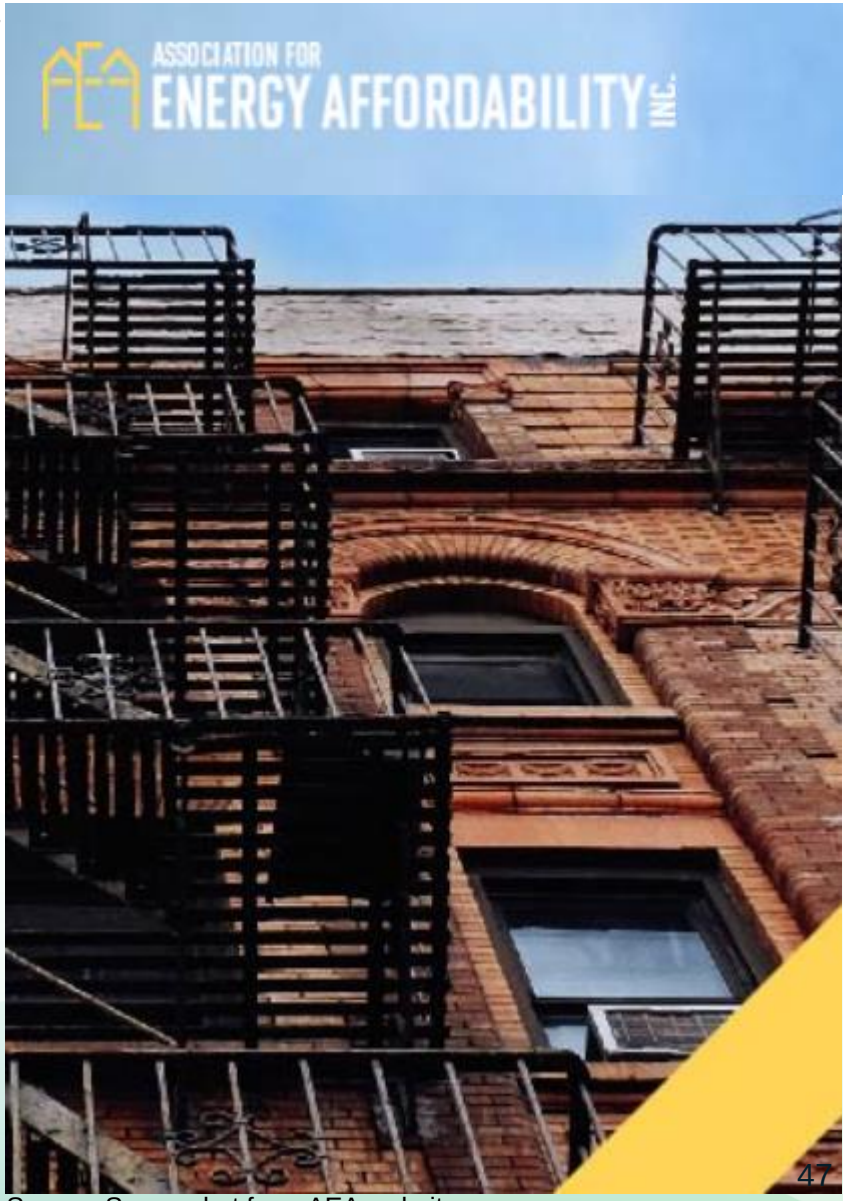
Technical Assistance

- Technical Assistance Provider (TAP) selected under competitive solicitation
  - Association for Energy Affordability (AEA) and team
  - Approved by CEC in early Sept, expected to be under contract this fall

- Launch of Technical Assistance
  - Targeted Q4, 2021
  - Process outlined in future Technical Assistance Manual

- Provide potential applicants unlimited hours for first two projects
  - Limit next two project to 50 hours

- Potential Applicants can receive technical assistance and/or an incentive award



Source: Screenshot from AEA website

Q's & Comments: Technical Assistance

3 ways:

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Program Evaluation: Seeking Feedback on Metrics for Success

- At a minimum, statute requires evaluation of:
  - the number of low emissions systems installed in each type of building,
  - projected utility bill savings,
  - the cost per metric ton of avoided GHG emissions.

- CEC will be working with the CPUC's EM&V contractor, Opinion Dynamics

- Are there specific metrics that stakeholders would suggest including to best demonstrate program success?

Contact Information

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Webpage:

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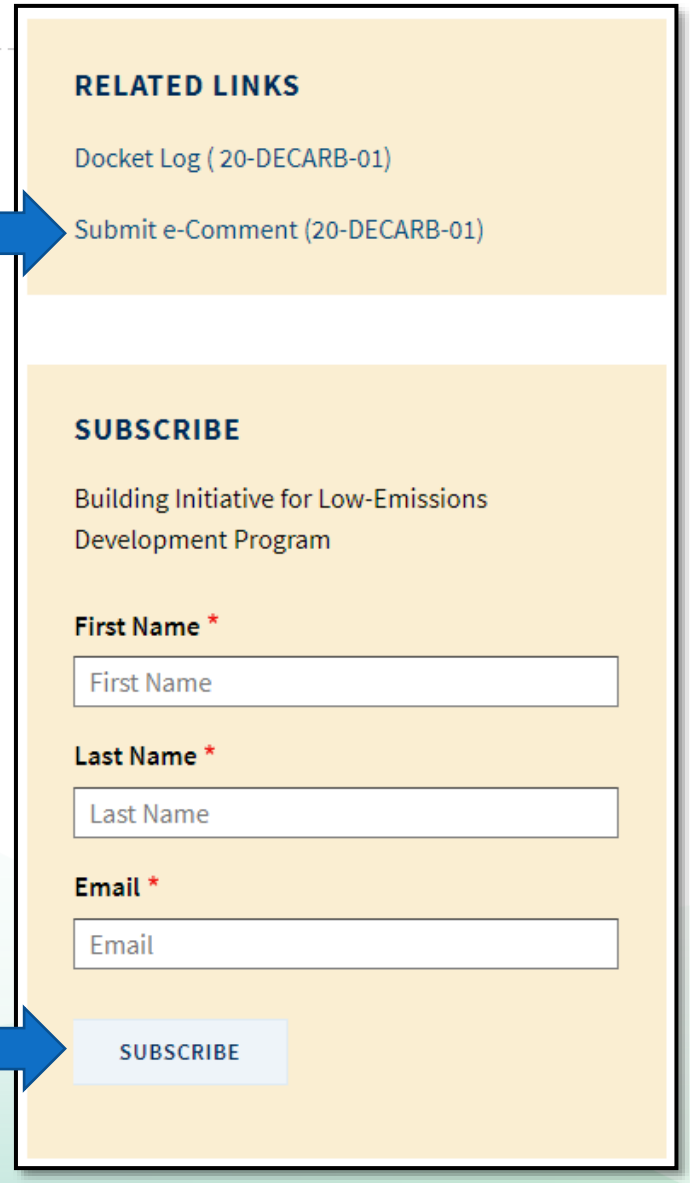
Don’t forget to…

Submit written comments by September 30, 2021.

Subscribe to the list server to receive BUILD Program updates.



Public Comments

- Limited to 3 minutes per comment
- To comment or ask questions
  - By computer: use the "raise hand" feature in Zoom
- Over the telephone: dial *9 to "raise hand" and *6 to mute/unmute your phone line

3-MINUTE TIMER

Thank You!