BUILD (SB 1477) Public Workshop
Draft Guidelines
December 6, 2021
Agenda

• Welcome
• Program Overview
• Eligibility Requirements
• Technical Assistance & New Adopters
• Incentive Structure
• Program Participation
• Evaluation, Measurement & Verification
• Public Comment
• Next Steps
Welcome

Commissioner J. Andrew McAllister, Ph.D.
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 **December 15, 2021**
  • Submit through the [e-commenting systems (20-DECARB-01)](https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=20-DECARB-01)
Program Overview
BUILD’s Path to Today

SB 1477 is approved by the Governor establishing the BUILD Program

CPUC institutes Building Decarbonization Proceeding (R.19-01-011)

Joint agency workshop with CPUC

CEC publishes Draft BUILD Implementation Plan

CPUC approves BUILD Implementation Plan

Workshop on program design

Draft Guidelines posted, Public Workshop on 12/6

CEC BUILD Guidelines approval

CPUC approval & incentive program launch
## BUILD Program: “At A Glance”

<table>
<thead>
<tr>
<th>Goal</th>
<th>Deploy near-zero emission building technologies to reduce GHG emission -- while ensuring no negative bill impact for low-income occupants.</th>
</tr>
</thead>
</table>
| 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 (*Public Utilities Code §2852(a)(3)(C)*) |
## BUILD Budget

<table>
<thead>
<tr>
<th>Budget Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program Costs:</strong> Incentives for Low-Income Housing Developments</td>
<td>$60 Million (no less than)</td>
</tr>
<tr>
<td><strong>Program Costs Other</strong></td>
<td></td>
</tr>
<tr>
<td>• Technical assistance Provider - up $8 Million over 6 years</td>
<td>$10 Million</td>
</tr>
<tr>
<td>• New Adopter Award – up to $1 Million</td>
<td></td>
</tr>
<tr>
<td><strong>Administrative Costs</strong></td>
<td>$8 Million (no more than)</td>
</tr>
<tr>
<td><strong>Joint Evaluation Cost Share</strong></td>
<td>$2 Million (no more than)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$80 million</td>
</tr>
</tbody>
</table>

Incentives must be proportional to each gas corporation's contribution:

<table>
<thead>
<tr>
<th>Gas Territory</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCG</td>
<td>49.26%</td>
</tr>
<tr>
<td>PG&amp;E</td>
<td>42.34%</td>
</tr>
<tr>
<td>SDG&amp;E</td>
<td>6.77%</td>
</tr>
<tr>
<td>SWG</td>
<td>1.63%</td>
</tr>
</tbody>
</table>
Eligibility Requirements
## Eligibility

<table>
<thead>
<tr>
<th>Applicant Eligibility</th>
<th>Project Eligibility</th>
<th>Projects may include…</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building owners or developers of low-income housing</td>
<td>• Low-income residential housing (single family and multifamily)</td>
<td>• New residential buildings</td>
</tr>
<tr>
<td>• 5 years experience; and</td>
<td>• All electric and have no hookups to the gas distribution grid</td>
<td>• Structural renovation (≥50% of exterior walls replaced)</td>
</tr>
<tr>
<td>• At least one completed project</td>
<td>• Demonstrate Modeled Resident Utility Cost savings</td>
<td>• Repurposed buildings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Projects in tribal areas</td>
</tr>
</tbody>
</table>
## Low-Income Residential Housing

<table>
<thead>
<tr>
<th>Multifamily deed-restricted <strong>low-income</strong> residential rental building (2+ units)</th>
<th>Residential (condo or single-family)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type 1</strong></td>
<td><strong>Type 2</strong></td>
</tr>
</tbody>
</table>
| 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**

Income limits and affordable rents defined by PUC 2852 (a)(3)(A) to be consistent with affordable financing sources.
Statutory Requirement: Resident Utility Cost 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))

- To implement this requirement, BUILD requires each project to demonstrate through a modeling methodology, that the project design provides at least 5% of bill savings compared to a mixed fuel code compliant building design.
Methodology to Calculate Modeled Resident Utility Cost Savings

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

Calculation will vary by building design, utility territory and rates
Meeting the Modeled Resident Utility Cost Savings Requirement

• To ensure this project requirement is met, Applicants will:
  • consider a combination of efficiency measures and PV in their design, and
  • if PV is used to meet the requirement, the calculated solar benefits must be assigned to the residents
Eligible Costs

- Eligible Applicants limited to $3 million total BUILD incentives

- Eligible Costs: Reimbursement for costs associated with the development and construction of all-electric low-income housing, including:
  - design
  - associated third-party fees (e.g., architecture, engineering, electrician, energy consultants)
  - local permitting,
  - gas-disconnection and safety measures (if applicable),
  - construction, alteration, demolition, installation,
  - materials, appliances, equipment, technologies, and
  - labor costs
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: Eligibility Requirements

3 ways:
- 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
Technical Assistance & New Adopters
Technical Assistance

- Association for Energy Affordability (AEA)
  - Awarded Contract September 8, 2021
- Launch of Technical Assistance
  - Initial activities, testing and development Q4, 2021
  - Application process will be outlined in Technical Assistance Manual, under development
- Provide developers unlimited hours of assistance for first two projects
  - Limit next two projects to 50 hours
The BUILD TA team is here to help your new affordable housing development go all-electric, accelerating market transformation.

Experts in funding, design, construction, and operation of all-electric housing ready to assist with any issue you are facing.
New Adopter Design Award

$1 Million in funding available for New Adopter Design Awards, available on a first-come first-serve basis

- Eligible BUILD applicant, that:
  - has never previously built an all-electric building, and
  - is developing a multifamily project of at least 10 units
- Up to $25,000 to reimburse direct design costs (e.g., architectural or engineering costs)
- Requested at the time of submitting an incentive reservation
- Requires:
  - receiving a reservation
  - submission of paid invoices demonstrating direct design costs
Q’s & Comments: Technical Assistance & New Adopter Design Award

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Incentive Structure
**Incentive Types**

- **Base GHG Incentive**
  - Based on GHG emissions
  - $150/MT CO2e

- **Building Efficiency/Modeled Resident Utility Costs**
  - Based on % above code
  - Up to $1,000 per bedroom

- **Incremental PV/Modeled Resident Utility Costs**
  - Based on a flat rate for PV above code
  - $1.3/watt (low rise) or $3/watt (mid/high rise)

- **Kicker Incentive**
  - Incentive for additional GHG reduction technologies

**Total Incentive**
Methodology for GHG Incentive Calculation

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 and climate zone
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
- $200/charger (single family)
- $300/charger (multi)

Smart EV Charger
- $500/charger (single family)
- $600/charger (multi)

*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.
### Sample Hypothetical Project: Mateo Valley Garden

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

<table>
<thead>
<tr>
<th>Incentive Type</th>
<th>Incentive Level</th>
<th>Project Incentives</th>
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<tbody>
<tr>
<td>Base Incentive (GHG-based)</td>
<td>$150/MT Avoided GHG</td>
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<td>Building Efficiency Incentive</td>
<td>$830/bedroom</td>
<td>$59,760</td>
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<td>$1.30/W</td>
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<td>- Low-GWP HPWH (18.7 lb CO₂)</td>
<td>$1,500/lb refrigerant</td>
<td>$28,050</td>
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**TOTAL** $233,880  
($3,248 per bdrm)

Split HP (HSPF = 9 SEER =15 EER =12.44), Central Sanden HPWH, Title 24 Prescriptive Envelope

*Data evaluation is in progress.*
Sample Hypothetical Project: Mateo Valley Garden

CZ 3: $267,360 ($3,713/bdrm)

CZ 13: $233,880 ($3,248/bdrm)

CZ 10: $229,038 ($3,181/bdrm)
3 ways:
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Participation Process
Three Step Participation Process

**STEP 1**
Incentive 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

**STEP 2**
Construction Reservation
*(Construction completed within 36 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

**STEP 3**
Project Completion & Remaining Funding
Submit
- Certificate of Occupancy
- Recorded Deed Restriction
- Permission to Operate PV
- Completed CF2R & CF3R

Final Building Models Reviewed and Incentive Amount Checked, Final Payment to Applicant
• **Step 1: Incentive Reservations.** Applicants can request:
  • Transfer of Incentive Reservation to other projects in portfolio
    • If funds are available
    • If new project meets all program requirements
  • Extension request of 6 months may be approved by staff

• **Step 2: Construction Reservation.** Applicants can request:
  • Extension requests of 12 months may be approved by staff
  • Additional extension requests may be considered by the Commission
Progress Payments

**STEP 1**
Incentive Reservation

$: Upon CEC approval, new adopter design award released

**STEP 2**
Construction Reservation

$: Upon CEC approval, up to 25% of GHG incentive released

$: After project foundation is poured, up to 50% of GHG incentive released

**STEP 3**
Project Completion & Remaining Funding

$: Remaining incentive funding released at project completion

OR

Applicants may request lump sum

Approved payments may be released to third-parties, as identified by the applicant.
Sample Hypothetical Project: Mateo Valley Garden

Low-Rise: 2-story, 48 units, 72 bedrooms  
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**TOTAL** $233,880  
($3,248 per bdrm)

Split HP (HSPF = 9 SEER =15 EER =12.44), Central Sanden HPWH, Title 24 Prescriptive Envelope

*Data evaluation is in progress.*

$73,035 (50%) at poured foundation

$36,518 (25%) at Construction Reservation

After Project Completion, $124,327
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 assist to simplify this process.

Approved compliance software: CBECC, EnergyPro, Right-Energy Title 24, IES VE
The calculator will assist applicants in identify the amount of PV required to be assigned to residents to meet the modeled resident utility costs savings requirement.
Q's & Comments: Program Participation

3 ways:
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• Type your question in the Q&A window
Evaluation, Measurement and Verification (EM&V) Process
SB 1477 requires that evaluation metrics, at a minimum, include:

- 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.
Program Evaluation

• Data collected through the program (e.g. technical assistance activities and applications) and other CEC data collection efforts – including interval metered data – will be used in program evaluation

• BUILD Program and TECH Initiative have a single program evaluator, Opinion Dynamics
EM&V: Presentation of Proposal by CPUC & Opinion Dynamics

Introducing

• Abhilasha Wadhwa, California Public Utilities Commission, Energy Division
  (abhilasha.wadhwa@cpuc.ca.gov)

• Ellen Steiner, Opinion Dynamics
  (esteem@opiniondynamics.com)
Q’s & Comments: EM&V

3 ways:

• 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
General 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
  - Type your comment in the Q&A window

3-MINUTE TIMER
Next Steps

<table>
<thead>
<tr>
<th>Target Dates*</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 6&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Public Workshop</td>
</tr>
<tr>
<td>December 15&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Public Comments Due</td>
</tr>
<tr>
<td>December – January</td>
<td>Staff Consideration of Comments</td>
</tr>
<tr>
<td>Mid-January</td>
<td>Post Final Guidelines for Consideration for Adoption by the CEC</td>
</tr>
<tr>
<td></td>
<td>• written public comment period</td>
</tr>
<tr>
<td>February</td>
<td>CEC Consideration of Guideline Adoption at Business Meeting</td>
</tr>
<tr>
<td>February (following adoption)</td>
<td>Guidelines submitted to CPUC for Approval</td>
</tr>
<tr>
<td>March</td>
<td>Anticipated CPUC Approval</td>
</tr>
<tr>
<td>March</td>
<td>Program Launch, dependent on CPUC Approval</td>
</tr>
</tbody>
</table>

*Future dates are subject to change.
Don’t forget.....

Submit written comments by December 15, 2021.

Subscribe to the list server to receive BUILD Program updates
Thank You

Email & BUILD Webpage:
BUILD@energy.ca.gov

Appendix: Eligible Technologies
# Low-Rise Residential

<table>
<thead>
<tr>
<th>Energy End Use</th>
<th>Core Technologies</th>
<th>Minimum Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space Conditioning</td>
<td>Air-source split central heat pump&lt;sup&gt;1&lt;/sup&gt;</td>
<td>HSPF ≥ 8.2</td>
</tr>
<tr>
<td></td>
<td>Packaged terminal heat pump&lt;sup&gt;2&lt;/sup&gt;</td>
<td>COP ≥ 3.0</td>
</tr>
<tr>
<td></td>
<td>Variable capacity heat pump&lt;sup&gt;3&lt;/sup&gt;</td>
<td>Per publication CEC-400-2019-012</td>
</tr>
<tr>
<td>Water Heating</td>
<td>Unitary heat pump water heater</td>
<td>NEEA Tier 3</td>
</tr>
<tr>
<td></td>
<td>Central on-site heat pump water heater</td>
<td>UEF ≥ 3.75</td>
</tr>
<tr>
<td></td>
<td>Drain water heat recovery</td>
<td>Unequal to shower, 43% CSA Rated Efficiency</td>
</tr>
</tbody>
</table>

1. Qualifying Air-Source Heat Pumps shall have ANSI/AHRI Standard 210/240 rating
2. Qualifying Packaged Terminal Heat Pumps shall have ANSI/AHRI Standard 310/380 ratings at 47F dry-bulb
3. Qualifying Variable Capacity Heat Pumps shall be per publication CEC-400-2019-012
# Mid- and High-Rise Residential

<table>
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<th>Minimum Requirements</th>
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<td>HSPF ≥ 8.2</td>
</tr>
<tr>
<td></td>
<td>Variable refrigerant flow&lt;sup&gt;2&lt;/sup&gt;</td>
<td>HSPF ≥ 7.7, COP ≥ 3.3</td>
</tr>
<tr>
<td></td>
<td>Variable capacity heat pump&lt;sup&gt;3&lt;/sup&gt;</td>
<td>HSPF ≥ 7.7, COP ≥ 3.3</td>
</tr>
<tr>
<td><strong>Water Heating</strong></td>
<td>Unitary heat pump water heater</td>
<td>NEEA Tier 3</td>
</tr>
<tr>
<td></td>
<td>Central on-site heat pump water heater</td>
<td>UEF ≥ 3.75, CEC Certified&lt;sup&gt;4&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Drain water heat recovery</td>
<td>Unequal to shower, 43% CSA Rated Efficiency</td>
</tr>
</tbody>
</table>

1. Qualifying Air-Source Heat Pumps shall have ANSI/AHRI Standard 210/240 rating
2. Qualifying Variable Refrigerant Flow systems shall have ANSI/AHRI Standard 1230 rating at 47F dry-bulb
3. Qualifying Variable Capacity Heat Pumps shall have ANSI/AHRI Standard 1230 rating at 47F dry-bulb
4. Qualifying central heat pump water heater shall be certified and on the CEC's certification list.
Process for Evaluating New Technology

Must be available to be modeled within approved compliance software.

Energy Code Updates
- 3-year Energy Code update process
- New technologies are vetted
- Integrated into software with updates

OR

Compliance Option
- Present technology to CEC Energy Code staff
- At least 1-year performance data based on field studies
- Data vetted by CEC Energy Code staff