

## APPENDIX A: BUDGET NARRATIVE

The following budget narrative provides further details on information provided in both Section 7 of the workplan and the attached budget spreadsheet. The budget summary table included in Section 7 and the budget spreadsheet is explained in further detail below.

### *Budget Detail*

**Personnel:** ABAG's total personnel budget of \$1.5 million includes costs for staffing for all tasks under Task 1 as well as overall project management for the BACHI and includes 1 Principal at .5 FTE, 1 Senior Program Manager at .5 FTE and 1 Associate at .75 FTE for the duration of the BACHI project timeline.

**Fringe:** ABAG's fringe benefits budget of \$649,395 reflects the staffing breakdown above at a rate of 42.5 percent.

**Contractual:** ABAG's contractual budget of \$23.4 million will engage an implementer, selected through a competitive bidding process compliant with ABAG's procurement policies and EPA regulations, to deliver at least 450 home retrofits at a cost of \$40,000 to \$45,000 per home.

**Other:** Subawards will contribute to the following activities critical to project implementation:

- Direct installation of holistic decarbonization retrofits in a majority of the targeted homes will be delivered by the Association for Energy Affordability, Rebuilding Together and Habitat for Humanity. The remaining homes will be served by a contractor to be selected through competitive procurement by ABAG. **The cost of holistic decarbonization retrofits of \$40,000-45,000 per home** reflect the known project costs collected from multiple sources (including state and local rebate programs) documented in Tables A-1 through A-7 below. As described in Section 1b. Demonstration of Funding Need, covering the full cost of measures is critical to equitably reach homes in LIDACs, particularly rental housing. **[Task 1.1]**
- Capacity building of nonprofit home rehabilitation partners, the Habitat for Humanity and Rebuilding Together affiliates in the Bay Area. **[Task 1.2]**
- Neighborhood-based identification and outreach by BayREN's member county agencies. **[Task 1.3]**
- The installation of solar plus storage systems on homes as needed for bill stabilization after decarbonization, performed by Habitat for Humanity. This funding will leverage existing solar programs to the extent available in partnership with Grid Alternatives, a solar installation nonprofit. **[Task 1.4]**
- Additional staff capacity support from the Air District to directly implement Tasks 2.1, 2.2, 2.4, 2.5, and oversee the UC Berkeley team for Task 2.3. Funding will provide one staff position for the grant period plus two staff positions for years 2-4 of the grant period. **[Tasks 2.1, 2.2, 2.3, 2.4, 2.5]**
- Support from graduate students and research specialists at UC Berkeley at UC San Francisco to conduct over 400 interviews with rental housing stakeholders, including tenants and landlords. It also includes some faculty time for advising and participation stipends. **[Task 2.3]**

### Subawardees:

- **The Association for Energy Affordability** budget of \$24.8 million includes \$19.5 million contractual budget for retrofits they will manage and \$5 million for staffing which includes 1 FTE

Senior Manager, 1 FTE Manager, 0.5 FTE Associate, with supplemental hours from Senior Director, Director, and Senior Associate. Travel budget includes mileage for traveling to project sites across the Bay Area. Equipment includes diagnostic equipment for conducting energy assessments to recommend decarbonization retrofit scopes. Other includes construction management and prevailing wage compliance software needed to deliver projects compliant with federal funding requirements.

- **The Habitat for Humanity** budget of \$40.6 million includes \$11 million for staffing including administrative oversight to manage the retrofits budget of \$29.6 million and to distribute budget to Habitat for Humanity and Rebuilding Together affiliates.
- **The Air District's** budget of \$4.5 million includes costs for staffing for all tasks under Implementing Action 2, which includes 1 FTE for five years of a Principal Planner, and 1 FTE each for three years of a Senior Planner and Environmental Planner. It also includes a subaward of \$1.6 million to engage a team of researchers at UC Berkeley and UC San Francisco to conduct research and engagement activities, and a \$400,000 contractual budget for LIDAC engagement support.
- **For the nine Bay Area Counties**, the total budget of \$1.5 million covers county staffing for outreach and engagement activities as well as coordination with ABAG and subawards to CBOs to conduct direct outreach with LIDAC residents.

#### **Average cost assumption for decarbonization retrofit projects in Task 1:**

The project cost assumptions are based on costs per retrofit measure weighted by the prevalence of the need for that measure. For example, electrifying cooking appliances cost \$3,500 on average and 63% of homes in PG&E territory have gas cooking appliances, so the weighted average project cost is \$3,500 x 63% (e.g. the \$3,500 budget line item is assumed to apply to 63% of the total homes served by BACHI).

The table below shows the total and average cost of each category of measures. Based on this analysis, the BACHI per-home contractual budget under ABAG, AEA, and Habitat for Humanity / Rebuilding Together is \$40,000-45,000.

**Table A-1: Total and Average Cost of Specific BACHI Decarbonization Measures**

Scope Element	Total Cost Across Homes	Average per Home
<b>1. Remediation</b>	\$10,000,000	\$6,700
<b>2. Electrical Capacity</b>	\$8,000,000	\$5,300
<b>3. Energy Efficiency</b>	\$8,000,000	\$5,300
<b>4. Electrification</b>	\$35,000,000	\$23,300
<b>Total</b>	<b>\$55,000,000</b>	<b>\$40,600</b>

The following sections detail specific measure costs within each category and the data sources.

### Remediation

Silicon Valley Clean Energy (SVCE) and Peninsula Clean Energy (PCE) are two of the Bay Area’s seven community choice aggregators (CCAs). In 2024, they compiled a cost list for retrofit measures they are including in their home decarbonization pilot.<sup>1</sup> The average cost information for remediation represents the moderate cost of each measure (the SVCE report contained low, moderate, and high costs for most measures). Applicability rate (% of homes) estimates a third of homes require each of these remediation measures. This reflects the reality that most homes will require more than one remediation measure, but not all. As described in our project recruitment strategy in the project narrative, and the cost containment strategy below, in the first year of the BACHI project, the implementers will target homes with fewer remediation needs to ensure the program budget is sufficient to deliver the committed GHG reductions.

**Table A-2: Rehabilitation Scope Measure Costs**

Rehabilitation Scope Measure	Cost per home if applicable	Percent of homes	Number of homes	Total cost
Mold	\$1,500	33%	495	\$742,500
Asbestos	\$8000	33%	495	\$3,960,000
Pest	\$1,500	33%	495	\$742,500
Repair Roof	\$2,000	33%	495	\$990,000
Repair Exterior Cladding	\$1,000	33%	495	\$495,000
Repair Interior Plumbing	\$600	33%	495	\$297,000
Repair drainage gutters	\$1,000	33%	495	\$495,000
ERV	\$2,850	33%	495	\$1,410,750
Plaster repair	\$1,200	33%	495	\$594,000
Drywall repair	\$800	33%	495	\$396,000
<b>Subtotal</b>	<b>\$20,450</b>			<b>\$10,122,750</b>

### Electrical Capacity

In order to accommodate the greater electrical loads of decarbonizing appliances, some homes, particularly older ones, will need upgrades to their electrical systems. The 2023 Viable Electric Alternative (VEA) Decision (D. 23-04-035) directed the CPUC to conduct a statewide market study to assess the infrastructure costs associated with electrifying gas end uses. On a webinar on March 5, 2024<sup>2</sup> researchers at Opinion Dynamics presented the following weighted average infrastructure cost for electrifying appliances in marine climate zones like the Bay Area. The weighted averages reflect the percentages of anticipated needs shown alongside the sample size (see Table A-3).

<sup>1</sup> Table of costs are available in the draft contractual agreement with Franklin Energy 3/13/24 SVCE Board meeting packet (p. C-4) <https://svcleanenergy.org/wp-content/uploads/2024-0313-SVCE-March-BOD-Agenda-Packet-scrubbed.pdf>

<sup>2</sup> Webinar slides and recording are available on the CPUC website under Fuel Substitution in Energy Efficiency.

**Table A-3: Electrical Capacity Infrastructure Costs**

Scope Element	Cost per home if applicable	Percent of homes	Number of homes	Total cost
Panel upgrade	\$6,470	42%	477	\$3,086,190
Panel optimization	\$4,590	25%	288	\$1,321,920
Simple connection	\$2,090	34%	391	\$817,190
<b>Subtotal</b>	n/a (mutually exclusive scopes)			<b>\$5,225,300</b>

The SVCE cost table also includes electrical capacity measure costs. These were used for comparison. Percent of homes was estimated with round figures to approximate the needs estimated by Opinion Dynamics (see Table A-4).

**Table A-4: Electrical Capacity Measure Costs**

Scope Element	Cost per home if applicable	Percent of homes	Number of homes	Total cost
Panel replacement	\$6,850	42%	483	\$3,308,550
Service upgrade	\$800	42%	483	\$386,400
Sub-panel	\$1,600	25%	288	\$460,800
Repairs	\$1,600	50%	575	\$920,000
Add 230 V	\$1,600	50%	575	\$920,000
Add 120 V	\$1,200	50%	575	\$690,000
<b>Subtotal</b>	n/a (mutually exclusive scopes)			<b>\$6,685,750</b>

### Energy Efficiency

The per-home cost is based on a compilation of the SVCE analysis described under Remediation costs above and BayREN's single family and multifamily programs (see Table A-5).

**Table A-5: Energy Efficiency Upgrade Costs**

Scope Element	Cost per home if applicable	Percent of homes	Number of homes	Total cost
Attic insulation	\$3,159	50%	750	\$2,369,250
Wall insulation	\$3,188	50%	750	\$2,391,000
Duct repair	\$1,171	25%	375	\$439,125
Duct replacement	\$5,650	15%	225	\$1,271,250

<b>Smart thermostat</b>	\$390	80%	1200	\$468,000
Weatherstripping (from SVCE)	\$750	50%	750	\$562,500
Windows (from SVCE)	\$1,600	25%	375	\$600,000
<b>Subtotal</b>	<b>\$15,908</b>			<b>\$8,101,125</b>

### Appliance Electrification

The per-home cost is based on a compilation of the SVCE analysis described under Remediation costs above and BayREN's single family and multifamily programs in addition to the TECH Clean California's past project database (filtered for projects in the Bay Area) and Rincon's analysis for the Bay Area Air Quality Management District (Air District) to inform the Zero NOx Appliance Rule Implementation Working Group.<sup>3</sup> The percentage of homes was derived from the 2019 Residential Appliance Saturation Survey for PG&E territory (see Table A-6).

**Table A-6: Electrification Costs Per Home**

Scope Element	Cost per home if applicable	Percent of homes	Number of homes	Total cost
<b>Space Heating</b>	\$17,500	79%	1,185	\$20,737,500
<b>Water Heating</b>	\$7,500	89%	1,335	\$10,012,500
<b>Cooking</b>	\$3,500	63%	945	\$3,307,500
<b>Clothes Dryer</b>	\$2,500	30%	450	\$1,125,000
<b>Subtotal</b>	<b>\$31,000</b>			<b>\$35,182,500</b>

The cost per appliance reflect a round average drawn from the following sources (see Table A-7).

**Table A-7: Electrification Costs Per Appliance or Upgrade**

Appliance	BayREN	SVCE (incl. warranty)	TECH Clean CA	Rincon (NOx Rule)
Ducted heating	\$14,640	\$14,950	\$23,154	\$20,408
Ductless heating	\$12,214	\$14,000		\$17,122
Water heating	\$7,400	\$7,025	\$7,889	\$7,071

<sup>3</sup> In 2022, the Air District amended their Rules 9-4 and 9-6 to prohibit the sale and installation of NOx-emitting appliances for indoor space and water heating in the nine county Bay Area. The Air District convenes an Implementation Working Group of local governments and other key stakeholders to assess barriers to successful implementation of the rules.

Cooking	n/a	\$3,450	n/a	n/a
Clothes dryer	n/a	\$2,500	n/a	n/a

**Cost containment strategy:** In order to ensure that projects do not exceed the budget of \$40,000 - \$45,000 on average, the project costs will be monitored quarterly and the eligible scope and targeting will be continuously refined to balance budget-aligned costing with gaining GHG reductions and serving diversity of project types to demonstrate replicability. Below is an example of how this targeted scope refinement may evolve over the three program years (see Table A-8).

**Table A-8: Cost Containment Strategy**

Year 1: Begin with conservative targeting	Year 2-3: Add additional measures if budget allows	Year 4: Target most complex projects if budget allows
<b>Strategy</b>		
Recruit from previous program participants that have had rehab or some efficiency work completed. Include eligibility criteria for a 200 amp panel, no knob-and-tube wiring, and electric stoves and dryers.	If year 1 is $\geq$ budget, continue year 1 strategy. If year 1 is $<$ budget, add projects with rehabilitation or electrical capacity needs, and/or may require more appliances to be electrified.	If year 2 is $\geq$ budget, continue year 2 strategy. If year 2 is $<$ budget, include more challenging and extensive scopes where measures may cost more than average but demonstrate feasibility of full decarbonization in a diversity of scenarios.
<b>Anticipated Measure Mix</b>		
Some energy efficiency and two appliance replacements.	Some rehabilitation and/or electrical capacity upgrades, more extensive efficiency work and 3-4 appliances.	More extensive building preparation (rehabilitation and electrical capacity) scopes, challenging efficiency and appliance installation scenarios (e.g. moving appliance locations)

### **Expenditure of Funds**

The BayREN program has a proven track record of launching and delivering upgrades quickly since its initiation. BayREN's existence was approved in Q3 2012. By Q2 2013, it had launched programs, including the Bay Area Multifamily Building Enhancements Program (BAMBE). By the end of 2014, BAMBE had fully subscribed its rebate pool for 5,000 units, and surpassed it to deliver 8,000 units of upgrades.

The BAMBE past participant pipeline is also a ready pool for BACHI participants. There are 3,000 units in small buildings (<20 units) in CEJST census tracts that would be viable candidates with existing

relationships with our program implementers. We are front-loading these units during the first half of the grant period, which ensures the grant funds will be expended quickly and that greater cumulative GHG emissions will be avoided by having these upgrades in place for more years before 2030. In the unlikely event that unforeseen circumstances delay deployment, we have two buffer years (2028 and 2029) to expend the funds within the grant period.

The BACHI is designed for rapid deployment paired with long-term impact. The proposed budget shows that 64% will be expended by year 3, leaving only 36% to spend in the last two years. As described in the timeline section 3.c above, the BACHI team is well positioned to hit the ground running upon receipt of award notification. Although the activities serving Task 2 are projected to continue for the duration of the grant period, the heaviest volume of expenses are in the earlier phases of the work, for stakeholder engagement. The primary risk to delayed expenditures is for the \$35,223,382 budgeted for the last two years of the grant period. The program manager will track the spend rate of Task 2 activities closely during the first three years. Upon any indication of delay, the program manager will reevaluate scopes and contractors, making adjustments as needed. The subrecipient and contractor scopes of work will include a clause to allow for renegotiation in the case of delayed expenditures.

### *Reasonableness of Costs*

**Personnel:** Personnel expenditures are critical to the success of BACHI because ABAG currently does not have the internal capacity to administer a program of this scale without hiring staff who are fully dedicated to implementing the program.

**Fringe:** ABAG's fringe rate is 42.5 percent for salaried employees. These rates are voted on and approved by the organization's Commission of elected representatives.

**Contractual:** Contractors procured through a competitive bid process and compliant with ABAG's procurement policies will be responsible for retrofitting 450 single family homes in CEJST Communities. Installation costs reflect prevailing wage and \$40,000 to \$45,000 per home including project management costs.

**Other:** ABAG consulted with the Air District, Association for Energy Affordability, Habitat for Humanity East Bay Silicon Valley, and BayREN county members which all provided budget information for costs associated with their respective task activities. ABAG will leverage the existing program infrastructure, subject matter expertise, and staff capacity from subawardee partners to achieve maximum efficiency of project implementation. Subawardees will provide specific expertise to support ABAG. Installation costs for homes retrofitted by partners at Association for Energy Affordability, Habitat for Humanity and Rebuilding Together and affiliates reflect prevailing wage at \$40,000-45,000 per home (\$65,000 for homes with added solar and storage) with 10-20 percent added for project management.

**Indirect Cost:** A copy of the Negotiated Indirect Cost Rate Agreement (NICRA) can be provided by the coalition lead upon award.