



Advanced Energy Build

2019 Title 24 Code Program Manual

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1. Program Overview

The Advanced Energy Build (AEB) program serves to help residential new construction builders in the Sonoma and Mendocino counties prepare for future code changes and build homes better-than-code. Customers participating in the AEB program will receive incentives to adopt building practices now that will be required for all new construction in future Title 24 code cycles.

2. Glossary of Terms

This document uses acronyms and abbreviations for certain terms to simplify instructions. The following is a list of these terms:

ADU: Accessory Dwelling Unit, also known as a casita or granny unit

AEB: Advanced Energy Build

BIG: Build It Green

CABEC: California Association of Building Energy Consultants

CalCERTS: California Certified Energy Rating & Testing Services (HERS Provider)

CEA: Certified Energy Analyst

CEC: California Energy Commission

CF-1R: Certificate of Compliance

CF-2R: Certificate of Installation, go to www.energy.ca.gov and search for Residential Manual

CF-3R: Certificate of Field Verification and Diagnostic Testing, go to www.energy.ca.gov and search for Residential Manual

CHEERS: California Home Energy Efficiency Rating Services (HERS Provider)

CPUC: California Public Utilities Commission

EDR: Energy Design Rating

HERS: Home Energy Rating System

IRF: Incentive Request Form

PG&E: Pacific Gas and Electric Company

Rater: Inspector certified by a CEC-approved HERS provider to provide third-party verification for Title 24 measures

SCP: Sonoma Clean Power

Title 24: Title 24 Building Energy Efficiency Standards

TRC: Program implementer for AEB

3. Introduction

Advanced Energy Build is offered as a part of Sonoma Clean Power's mission to reduce emissions in Sonoma and Mendocino counties. Participation is open to single- and multifamily residential new construction built in SCP's service territory. AEB is a comprehensive residential new construction concept with a cross-cutting focus on sustainable design and construction, energy efficiency, resiliency, demand reduction and emerging technologies.

Through a combination of education, design assistance and financial support, AEB works with building and related industries to exceed compliance with the California Code of Regulations, Title 24, Part 6, 2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings (Standards). The program is designed to prepare builders for changes to the Standards and to create future pathways beyond compliance and traditional energy savings objectives.

AEB is designed to complement the performance-based approach for Title 24, Part 6 compliance. Participating projects must demonstrate compliance with the 2019 Title 24 code through the performance method using approved California Energy Commission (CEC) compliance software. A 2016 or 2019 Title 24 code Certified Energy Analyst (CEA) must create and sign the documents. Builders must demonstrate compliance for each building as a whole and may not group unrelated or detached buildings, such as ADUs or JADUs, with a main home. Participating projects may model an attached wall in an ADU or JADU as adiabatic.

4. General Requirements

Participants must submit an application package prior to the start of any HERS testing or drywall installation. All participating units must be new construction dwellings and modeled accordingly.

The program offers incentives on a *lot-by-lot* basis, rather than at the project level. The program will evaluate approved plans for each orientation individually, and only the orientation(s) that meet the program requirements will receive incentive payments. This approach will allow for models with orientations failing to comply to still meet the program requirements and earn incentives for the orientations that do qualify. All orientations do not need to qualify to enroll a project in the program.

The applicant agrees not to accept duplicate funding from multiple utility-sponsored energy-efficiency programs for the same measures. Measures that save multiple fuel types can accept funding for **each** fuel type from **one** utility.

For verification purposes, all projects must contract with a certified HERS rater, even if HERS measures are not required. The HERS rater will be required to enter project verifications into the HERS registry for the program. This includes verifications of non-HERS measures as applied in the project's specified registry. The HERS rater is responsible for field verifying all measures used for program compliance.

Incentive payments are available only to builders or owners named on the application. Funding, incentive levels, and program requirements may be revised during the program cycle.

Funds are limited and will be reserved on a first-come, first-served basis to projects that meet the program requirements. The program will not issue any payments for any project changes that may affect compliance without prior written approval from your program representative.

For any additional program details and funding availability prior to submitting applications contact SCP at programs@sonomacleanpower.org or (707) 890-8496.

The funding for this program will expire December 31, 2021 or once funding is depleted. The application is valid for 24 months from the date of utility acceptance.

5. Program Process Overview

Step 1: Come Talk with Us

Contact your AEB program representative prior to submitting the application and prior to construction to ensure you have the most current AEB program information. Program requirements and incentive levels may change at any time. A representative will guide you through the application and enrollment process.

Step 2: Find a Certified Energy Analyst (CEA)

The program requires all projects to hire a CEA as the energy consultant. Your CEA will walk you through potential energy measures you can install in your project to meet program eligibility and process the energy documentation for your building permit. To find a CEA, [click here](#). Your CEA will then create an energy model for each plan set in your project. The program can provide design assistance to help projects meet program requirements, as needed. Contact your program representative to learn more.

Step 3: Submit Program Application

Prior to submitting your program application, please read all instructions and requirements contained herein. For additional program information, speak with your program representative.

The applicant listed on the application is responsible for submitting documentation that verifies compliance with CEC requirements to SCP's satisfaction. However, a third party may complete documentation on behalf of the applicant.

In cases where measures and construction elements may vary from default or standard efficiency values, the AEB program may request supporting specification sheets.

The program may provide design assistance within reason for viable projects. The program will not provide funding for Title 24 documentation authors to reconstruct models or plans in the event of needed corrections.

Submit your online program [application here](#). In addition to this form, you will need to upload and submit the following items:

- Title 24 CF-1R documentation authored and signed by a 2016 or 2019 Title 24 Residential CEA.
- 2019 code-approved energy model file (.bld or .ribd).
- Complete set of construction plans, including architectural, mechanical, and electrical pages.
- A completed [IRS W-9 form](#). The program team may issue an IRS Form 1099 to the recipient of incentive payments.
- If requested, the following specifications:
 - Specification sheet for windows, glazed doors, and skylights with manufacturer's name, U-factor, and Solar Heat Gain Coefficient (SHGC)
 - Specification for heating equipment with manufacturer's name/model number and efficiency rating
 - Specification for air conditioner with manufacturer's name/model numbers for condenser/coil match or AHRI reference number for each proposed unit ([ahridirectory.org](#))
 - Specification for water heater with manufacturer's name/model number and efficiency rating
 - If installing a solar water heater, a CF-SR form is also required
- Please have your CEA share the project with TRC in the HERS registry.
 - For CalCERTS:
 - Please have your CEA or HERS rater share your project with *TRC Energy Services* as an energy consultant. If TRC Energy Services does not appear on your list of energy consultants, you may need to add the company to your list.
 - If you or your HERS rater/CEA need registry sharing instructions, please contact TRC at RNC@TRCcompanies.com for detailed instructions.
 - For CHEERS:
 - Please have your CEA or HERS rater share the project with *TRC Solutions*. If TRC Solutions does not appear in your list of project team members, you may need to add the company to your list.

- If the project is a custom home, provide TRC with the name listed as the *builder*.

Please be aware that, according to submittal requirements, the program will not accept projects after drywall has been installed or HERS testing has begun, unless the program has reserved the project's eligibility date.

Step 4: Conduct HERS Rater Inspections

Ensure all CF-2R form(s) have been uploaded to the HERS registry (CalCERTS or CHEERS), verifying the proper installation of energy-efficient equipment. Any changes to a project that will affect total home energy use, such as added or relocated windows, addition of bonus rooms or other areas not shown on the Title 24 submittal, changes in proposed HVAC or water heating equipment, or changes to building insulation, will require an adjustment application. Participants must notify AEB of any of these changes prior to uploading any inspections to the HERS registry. Changes made without notification may forfeit incentive payment.

Your HERS rater will then complete an on-site inspection and/or testing and upload CF-3R form(s) to confirm the energy-efficient equipment has been properly installed. Both the CF-2R and CF-3R forms will need to be shared with, and reviewed by, TRC before the program can issue the final incentive.

Step 5: Submit Incentive Request Form

After HERS rating is complete, the project team must complete, sign, and date the incentive request form that the program provided in the acceptance package at enrollment. If you need another copy of the incentive request form, please email RNC@TRCcompanies.com. Note: the form cannot be signed by the energy consultant or HERS rater due to conflict of interest.

Additionally, you will need to fill out a program satisfaction survey, [located here](#). This should be filled out by the person or entity receiving the incentive.

6. General Building Requirements

To qualify for the incentive payment, each home covered by the application must meet the following criteria:

- A new construction project/home within the SCP service territory that is receiving electric distribution service from SCP and/or PG&E.
- A single-family detached dwelling, including accessory dwelling units, two-dwelling building of any number of stories, R-3 occupancy, and on SCP or PG&E residential rates.

- A residential low-rise multifamily building with three or more attached dwelling units in a building, R-2 occupancy, and on SCP or PG&E's residential rates.
- Permitted under the Title 24 2019 Residential Compliance Manual effective January 1, 2020, and achieving compliance using a CEC-approved computer modeling method. Projects must meet, at a minimum, CEC and Advanced Energy Build installation and field verification requirements, as documented by a certified HERS rater.
- Modular and manufactured housing may qualify, when regulated by Title 24 standards (not U.S. Department of Housing and Urban Development - HUD). Please contact your program representative more information.
- The following defines the dwelling unit types that qualify for program participation:
 - Detached: A single or multi-story structure consisting of one unit not attached to another building (except a garage or casita). This may be either a custom home or part of a larger project consisting of multiple lots.
 - Duplex: A structure consisting of two dwelling units. The duplex can be a single structure or part of a larger project consisting of multiple structures and units but must be modeled as two separate units.
 - Townhome: A single-family dwelling unit constructed in a group of three or more attached units in which each unit extends from the foundation to roof and with open space on at least two sides. Must be modeled as individual separate units.
 - Accessory Dwelling Units (ADUs): Projects that include an all-electric ADU are eligible to receive a bonus incentive of \$1,750, as long as both dwelling units have separate mechanical and water heating systems and comply with program eligibility requirements. Projects submitting an ADU must submit two energy models, one for the main home and one for the ADU. ADUs that are not registered as an ADU or JADU with the permitting authority are not eligible for this incentive.
 - Multifamily: A multifamily building with three or more attached units per building that meet the Title 24 multifamily residential designation (i.e., a dwelling unit of occupancy group R-2, as defined in the California Building Code that shares a common wall and/or floor/ceiling with at least one other dwelling unit). For high-rise multifamily projects, please contact us at programs@sonomacleanpower.org.
- The following facilities do **not** qualify for participation: remodels, additions, residential care facilities, hotels, motels, dormitories, community facilities.

6. Financial Incentives

The following incentives are available for single-family and multifamily projects:

Project Type	Single Family	Multi-family	ADU Bonus*
Advanced Energy Home	\$1,000 per unit	\$500 per unit	N/A
All-Electric Home	\$3,500 per unit	\$1,750 per unit	\$1,750 per unit
Affordable All-electric	\$5,000 per unit	\$2,500 per unit	\$2,500 per unit

Figure 1. Incentive Amounts

*ADU must be all-electric and built in conjunction with an eligible single-family home

6.1 Energy Design Rating

The roll-out of the 2019 Title 24 code came with a new, more accurate way to measure a home's energy efficiency using the Energy Design Rating (EDR). EDR is a whole house efficiency metric that considers all aspects of the building, including insulation, heating, cooling, water heating, lighting, appliances, etc. The lower the EDR, the better the building performs. AEB provides incentives for projects that demonstrate energy efficiency of a designed home or *proposed* design that is higher than what the Title 24 energy code's *standard* design requires. To calculate, subtract the efficiency EDR of proposed design score from the efficiency EDR of standard design score. The resulting score is the efficiency delta EDR. The higher the delta, the better a building performs.

The table below summarizes the EDR metrics:

Efficiency EDR of Standard Design	Efficiency EDR of Proposed Design	Final EDR Proposed	Efficiency Delta EDR
How efficient your design must be to meet code	How efficient your project is designed to be	Not evaluated for program eligibility	A score of 1.0 or higher qualifies for AEB
EDR if the home were to meet the requirements of energy code-compliant home	EDR as designed with energy-efficient measures, not taking solar PV and/or battery into account.	Final EDR for homes as designed, taking solar PV and/or battery (if installed) into account	Difference of Efficiency EDR of Standard Design and Efficiency EDR of Proposed Design

Figure 2. EDR Metrics for Site-built Homes

To qualify for the program, a home must meet an efficiency delta EDR score of 1.0 or higher, which means that your home is 1 EDR score better than the standard design (meeting the Title 24 energy code requirements). Work with your CEA and your builder to develop your preliminary Title 24 files and target meeting the minimum efficiency delta EDR score of 1.0. If you experience challenges meeting the program requirement, we can recommend changes to your design to bring your project up to the 1.0 efficiency delta EDR threshold. Please send your preliminary Title 24 files when they are ready to programs@sonomacleanpower.org so we can assist you.

6.2 Advanced Energy Home Requirements

The Advanced Energy Home pathway is available to projects with mixed fuel (building will have natural gas or propane). These projects are eligible for a \$1,000 incentive for single-family homes, duplexes, or townhomes. For multifamily projects, an incentive of \$500 per unit is available.

Project must complete the following measures as a part of the Advanced Energy Home pathway.

- **Delta EDR 1.0 or higher**

Demonstrate a delta EDR of 1.0 or higher, as shown on a CF-1R report generated by an approved 2019 Title 24 compliance software. The Title 24 compliance software must be approved by the CEC at the time the permit was approved. A 2019 Title 24 CEA must complete the energy model and associated CF-1R.

- **220V outlet at stove/range, water heater, and clothes dryer**

For all natural gas and/or propane equipment installed in the home, it is required that dedicated circuits and receptacles be installed to accommodate for future electrification of the appliance. The amperage supplied shall be no less than: Water Heating (30 amp), Clothes Dryer (30 amp), Stove/Range (50 amp) and shall be permanently labeled at the service panel as "For Future [Appliance Name]".

Construction plans shall show receptacles and associated loads for stove/range, water heater, and clothes dryer. At the time of application, the participant will submit Title 24 CF-1R documentation, which a 2019 Title 24 CEA has authored and signed, and the associated energy models (.bld or .ribd) for review. A HERS rater will field verify the energy features on site and perform testing, as required, with this documentation.

- **Electric Vehicle Charging Station - (Free Equipment provided by SCP)**

Single-family projects must have a minimum of one hard-wired Level 2 electric vehicle charging station installed and activated. This equipment is available for free at: <https://sonomacleanpower.org/gridsavvy>.

Multifamily projects must provide electric vehicle charging stations for three percent of parking spaces. This equates to three percent of the total amount of parking spaces provided, but in no case less than one space. These spaces must have hard-wired Level 2 electric vehicle charging station installed and activated. Resources for discounted and/or free charging stations are available from SCP.

Verification Process: If ordered through SCP, charging stations can be verified through an electronic signal once installed and activated. For items not ordered through SCP, a HERS rater will field verify the installation of the charging station.

6.3 All-Electric Home Requirements

The All-Electric Home pathway is available to projects that are all-electric (building will NOT have natural gas or propane). These projects are eligible for a \$3,500 incentive for single-family homes, duplexes, or townhomes. For ADUs or multifamily projects, an incentive of \$1,750 per unit is available.

Projects must complete the following measures as a part of the All-Electric Home flexible performance pathway.

- **Delta EDR 1.0 or higher with All-Electric Appliances**

The project must demonstrate a Delta EDR of 1.0 or higher, as shown on a CF-1R report generated by an approved Title 24 compliance software using only electric equipment. The Title 24 compliance software must be approved by the CEC at the time the permit was approved. A CEA must complete the energy model and associated CF-1R.

Verification Process: At the time of application, the participant will submit Title 24 CF-1R documentation, which a 2019 Title 24 CEA has authored and ,and the associated energy model (.bld or .ribd) for review. A HERS rater will field verify energy features associated with this documentation.

- **Electric Vehicle Charging Station - (Free Equipment provided by SCP)**

Single-family projects must have a minimum of one hard-wired Level 2 electric vehicle charging station installed and activated. This equipment is available for free at: <https://sonomacleanpower.org/gridsavvy/>. ADUs must install an additional electric vehicle charger.

Multifamily projects must provide electric vehicle charging stations for three percent of parking spaces. This equates to three percent of the total amount of parking spaces provided, but in no case less than one space. These spaces must have hard-wired Level 2 electric vehicle charging station installed and activated. Resources for discounted and/or free charging stations are available from [SCP](#).

Verification Process: If ordered through SCP, charging stations can be verified through an electronic signal once installed and activated. For items not ordered through SCP, a HERS rater will field verify the installation of the charging station.

6.4 Battery Storage Backup Bonus

In addition to base incentives for electric and electric-ready homes, projects may also apply for battery storage backup incentives. Market-rate single-family homes can receive \$1,000 toward installation of a battery storage system with a capacity of 7.5 kWh or more. Market-rate multifamily developments are eligible for \$5,000 in incentives toward battery backup systems.

Project Type	Single Family	Multi-family	ADU
Advanced Energy Home	\$1,000 per home	\$5,000 per project	N/A
All-Electric Home	\$1,000 per home	\$5,000 per project	\$500 per home
Affordable All-electric	\$1,000 per home	Up to \$25,000 per project	\$500 per home

Figure 4. Battery Storage Incentive Amounts

*ADU must be all-electric and built in conjunction with an eligible single-family home

Affordable housing multifamily projects are eligible for increased battery backup system incentives of up to \$25,000. These offerings are tiered by number of units and storage capacity as shown below:

- <10 units: \$5,000 per project (minimum 7.5 kWh battery capacity)
- 10-25 units: \$10,000 per project (minimum 15 kWh battery capacity)
- 25 to 50 units: \$15,000 per project (minimum 20 kWh battery capacity)
- 50 to 100 units: \$20,000 per project (minimum 25 kWh battery capacity)
- 100+ units: \$25,000 per project (minimum 30 kWh battery capacity)

Additionally, Sonoma Clean Power offers application assistance for the California Public Utilities Commission's (CPUC) Self-Generation Incentive Program (SGIP). If your project would like to take advantage of this support, please reach out to us.

7. Program Frequently Asked Questions

The following section represents questions frequently asked of program staff. For any remaining questions, please contact programs@sonomacleanpower.org.

Program Processes

Q. Who should I contact to get started with the AEB program?

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Prior to your application submission, please contact programs@sonomacleanpower.org. SCP will be your resource for program information, design assistance, and how to apply. Once you have submitted your application, the program implementer, TRC, will become your main contact. TRC will enroll your project in the program and process your incentive payment. Please contact rnc@trccompanies.com with any questions after you have submitted your application and/or TRC has enrolled your project in the program.

Q. Can I enroll multiple homes in the program on the same project under both the Advanced Energy Home and All-electric Home pathways if some homes will be all-electric and some will have natural gas or propane?

Yes, you can enroll multiple homes in the program using either pathway. Incentives are reserved on a lot-by-lot basis.

Q. Can I enroll my ADU in the program if I am building it on a property with an existing main home?

No, only ADUs being built in conjunction with a new construction main home are eligible for this program.

Q. Can my ADU enroll in the program if it has natural gas or propane?

No, an ADU is only eligible for this program if it is all-electric, meaning no gas or propane is fueling anything (including appliances and fireplaces) within the unit.

Q. What is a certified energy analyst (CEA) and why is it required for the program?

Certification as a CEA signifies that a consultant understands the California Building Energy Efficiency Standards (Title 24, Part 6). CEAs also have an understanding of broader energy efficiency issues, are committed to providing quality service to clients, and have made a commitment to conduct business in an ethical fashion. For more information on the CEA certification, please visit www.cabec.org.

Q. Can a professional engineer (PE) substitute the requirement for a certified energy analyst (CEA)?

No. The consultant who generates the Title 24 documentation must be a CEA.

Q. Does the CEA have to be certified for the 2019 standards or is a 2016 certification okay?

A 2019 certification is required. However, a 2016 certification will be accepted until the 2019 certification exams take place.

Q. Can a manufactured or prefabricated home participate in this program?

Provided the manufactured/prefabricated home is permitted with Title 24 energy calculations (specific to California), rather than the less rigorous country-wide code, prefabricated/manufactured homes are allowed in the program.

Q. I received a 1099 in the mail, are these incentives taxed?

Each participant's tax situation is unique. Please consult your tax advisor to determine if this income is taxable or non-taxable.

All-Electric Home

Q. If I have an interior gas fireplace in my home, does that prevent me from participating in the all-electric home pathway?

Yes, a home with an interior gas fireplace would only be eligible for the \$1,000 Advanced Energy Home incentive. A home with an interior or exterior electric fireplace, or an exterior propane fireplace would still be eligible to receive the all-electric home incentive.

Q. Can my home have a natural gas meter if I pursue the all-electric home pathway?

No. A home participating in the all-electric home pathway cannot include a natural gas meter.

Q. Is it possible to reach a Delta EDR of 1.0 with an all-electric home?

Yes. For guidance, please contact us at programs@sonomacleanpower.org.

Bonus for Renewable Energy

Q. Can a leased battery system receive the \$1,000 incentive?

Yes.

Q. Can I only participate in the battery storage system bonus? Or do I need to participate in either the advanced energy home or all-electric home pathway as well?

The battery storage incentive is a bonus and must be combined with either the advanced energy home or all-electric home incentive. It is not currently offered as a stand-alone incentive.

Q. If I am not sure if I will install a battery storage system before I enroll in the program, can I add it to my application later?

Yes, you can add the battery storage bonus to your incentive reservation up until you request your incentive payment. Once you receive your incentives, you will no longer be able to add the bonus as your project will have completed the program.

Marketing

Q. Are there program marketing materials that I can provide to potential clients?

Yes, for the most up-to-date marketing materials, please email programs@sonomacleanpower.org.