California Energy Commission

2025 California Building Energy Compliance Software Update

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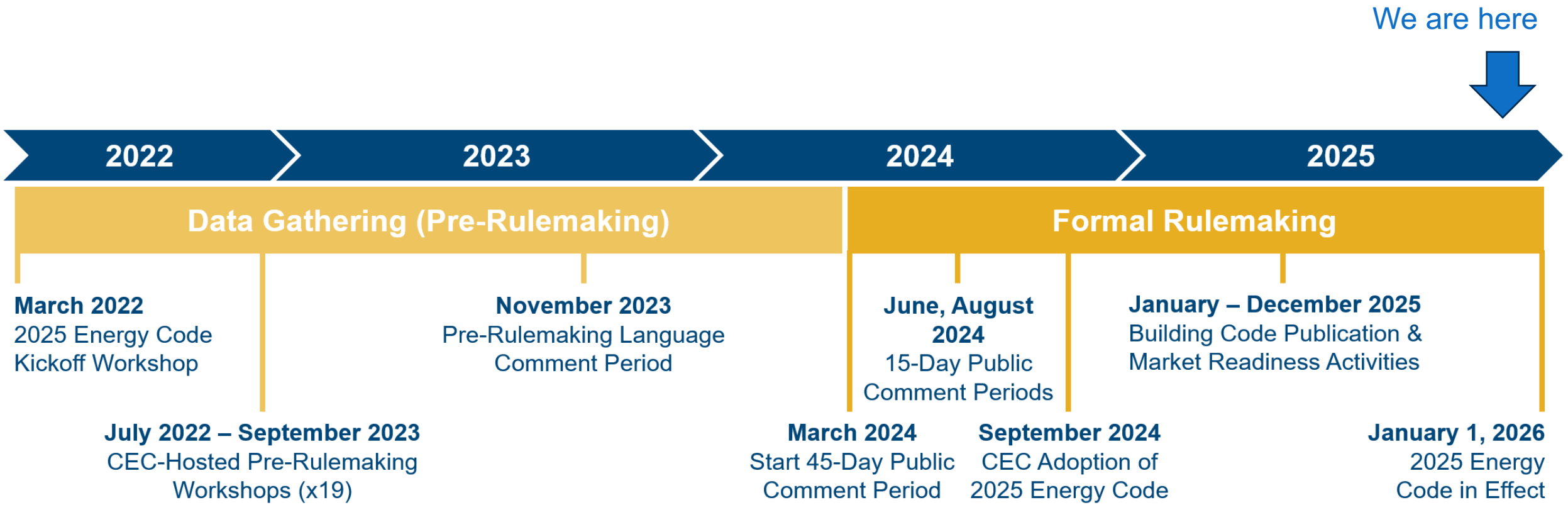
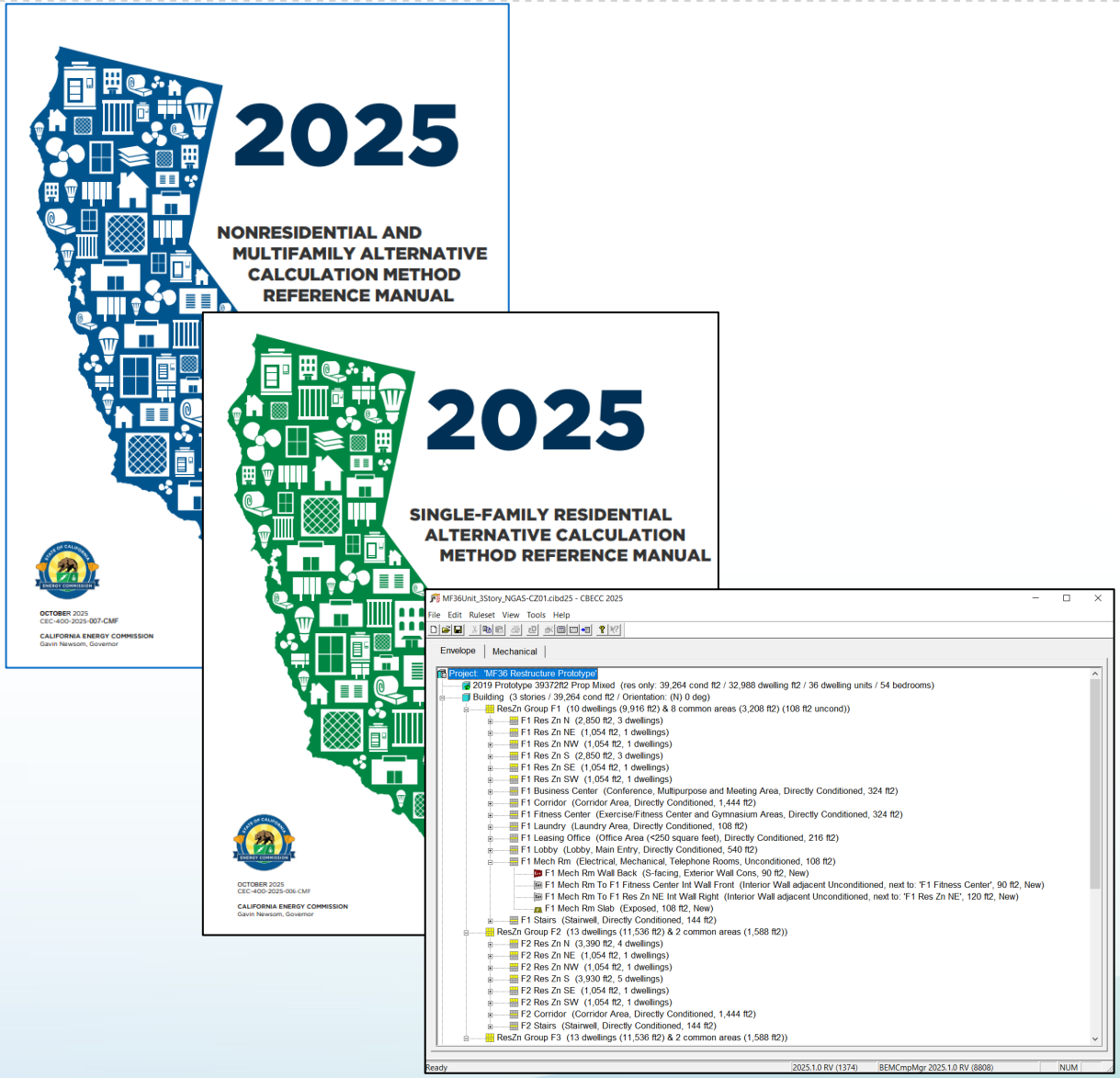
November 19, 2025

Where are we? – 2025 Energy Code



2025 Compliance Software



	Milestone	Timing
✓	2025.1.0 RV's (Research Versions)	April '25
✓	2025.1.0 RC's (Release Candidates)	May '25
✓	2025 ACM Reference Manual Adoption and CBECC 2025.1.0 Approval	June '25
✓	2025.2.0 CBECC	Nov '25
	Third-party Software Approvals	ASAP
	2025 Energy Code Effective Date	January '26

2025.2.0 Software Updates

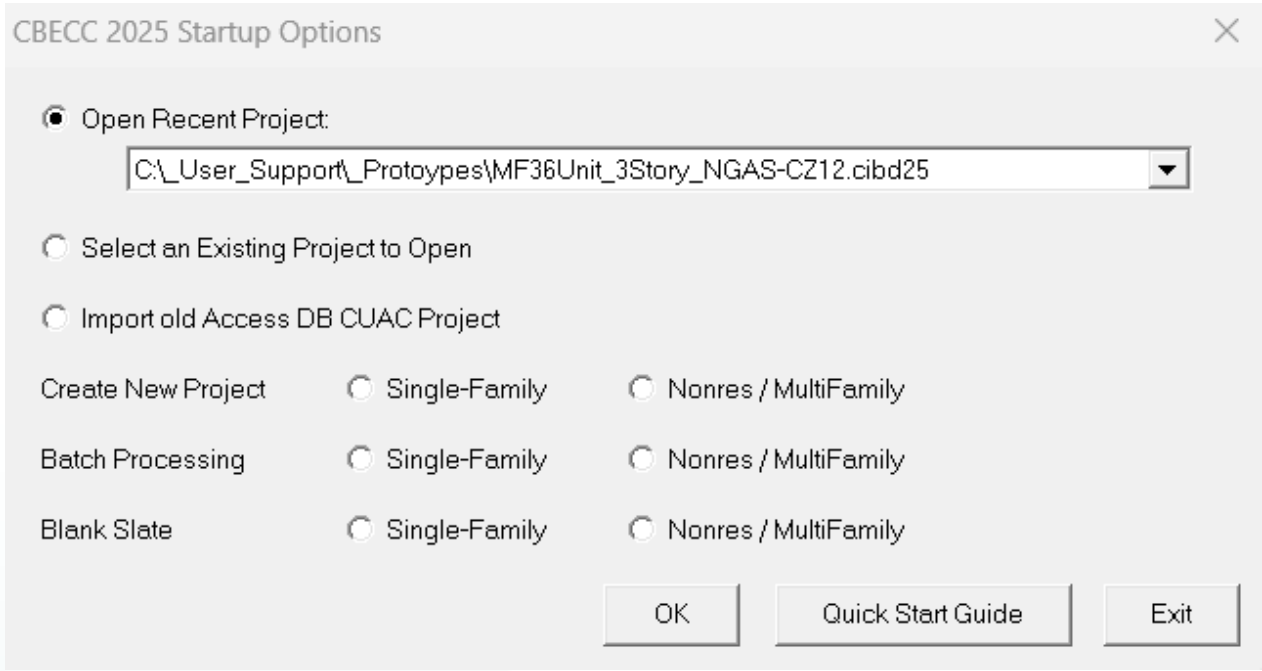
- **Aligns to updated ACM modeling rules**
  - Enhancements, corrections, bug fixes, etc.
- **Unification of all building types into CBECC**
  - New unified program supports performance compliance for single-family, multifamily, and nonresidential occupancies.
  - A dedicated single-family program, CBECC-Res, will no longer be supported.
- **Nonresidential simulation engine update**
  - Updating to the newest version of EnergyPlus, 25.1.0, to improve modeling accuracy and features.
- **Approval given at the October 8th CEC Business Meeting**

2025 Software Highlights

- **Unified CBECC application for nonresidential, residential, and multifamily compliance**
- **Support for Executive Order N-29-25 (LA Fires PV/Battery Exception)**
- **Nonresidential / Multifamily**
  - New Air to Water Heat Pump (AWHP)
  - Removal of Tailored Lighting Method
  - Ventilation updates (Balanced or supply only, HRV/ERV, and FID requirements)
  - Common area lighting updates
- **Single Family**
  - Unitary AC and HP Modeling (Variable capacity heat pump -VCHP)
  - Dual heat pump standard design in all climate zones
  - Switch from EDR to LSC, Source, and Peak Cooling metrics
- **NRCC/LMCC PRF & CF-1R Reporting Updates**

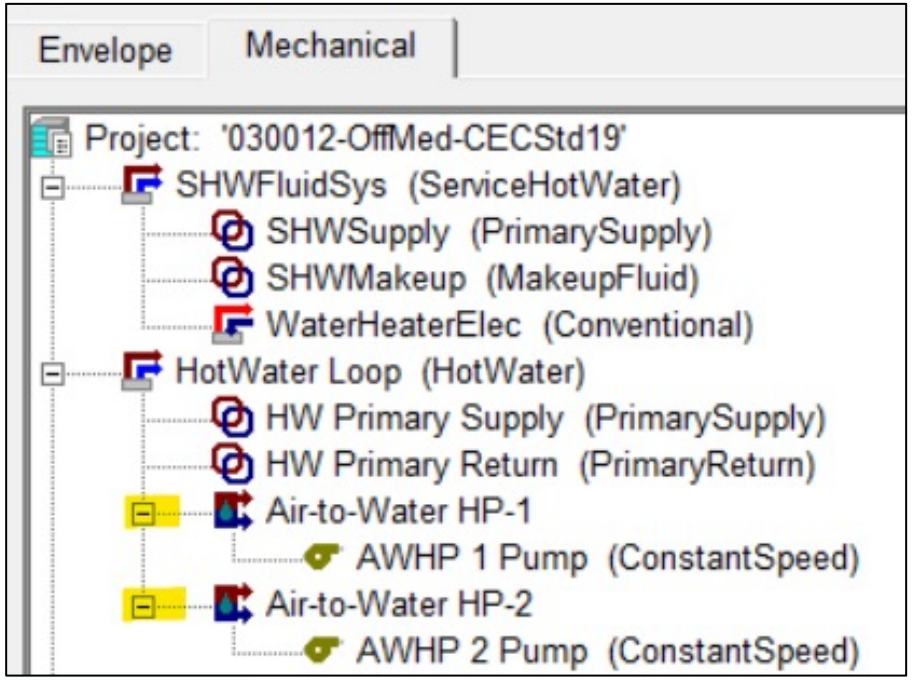
Unified User Interface

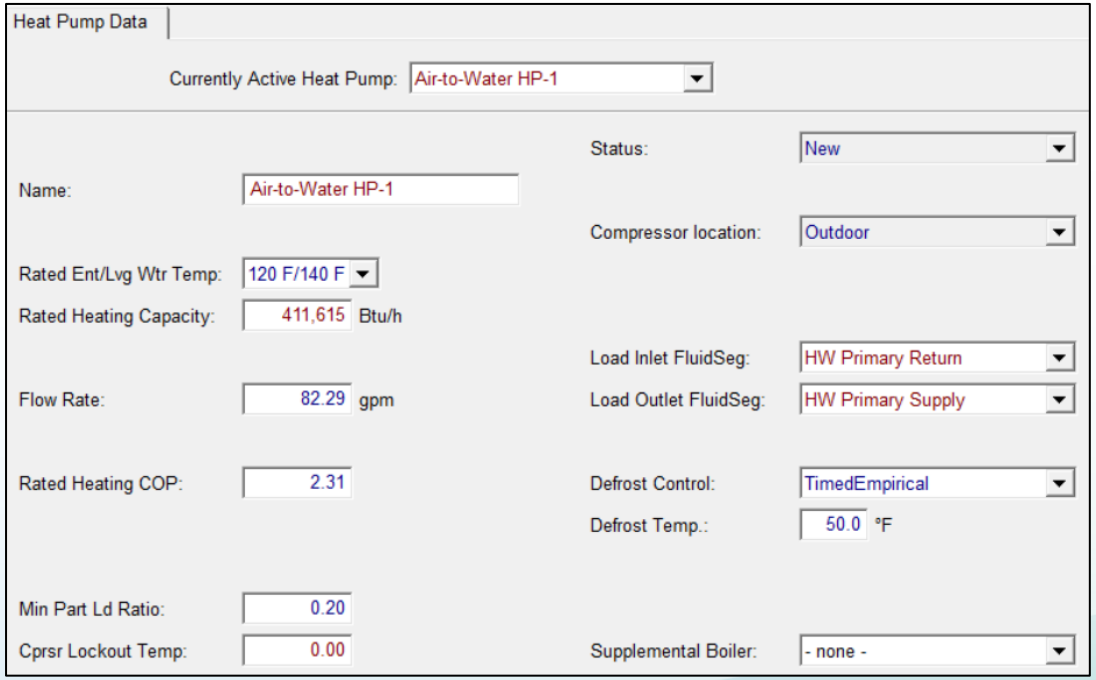
- One CBECC application for all building types, nonresidential, residential, and multifamily
- No changes to user interface from previous CBECC and CBECC-Res once a model file is opened/started
- Combined Quick-Start Guide
- Future: Combined User Manual and ACM Reference Manual



New Air to Water Heat Pump (AWHP)

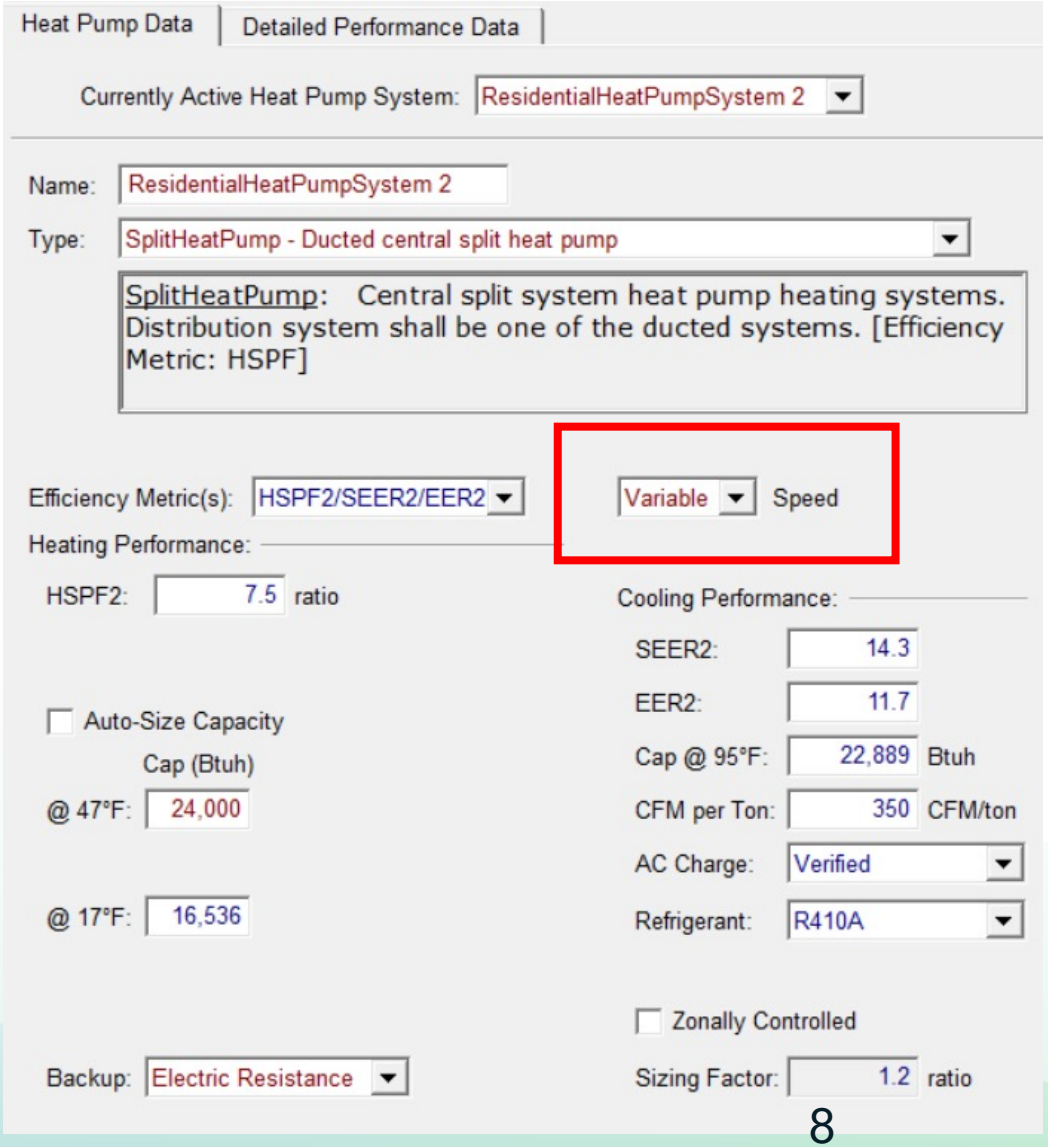
- New AWHP object
- Based on new EnergyPlus AWHP-EIR
- Used in multizone standard designs with AWHP's





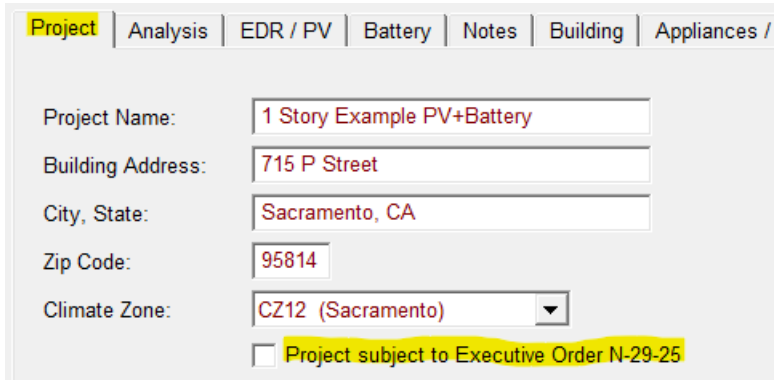
Unitary AC and HP Modeling

- New AC and HP modeling method
- Supports single and multispeed AC and HP modeling
- Replaces Variable Capacity Heat Pump (VCHP) compliance option and previous “detailed” VCHP modeling method
- Replaces old single speed AC modeling method
- Based on RESNET publication 003-2025

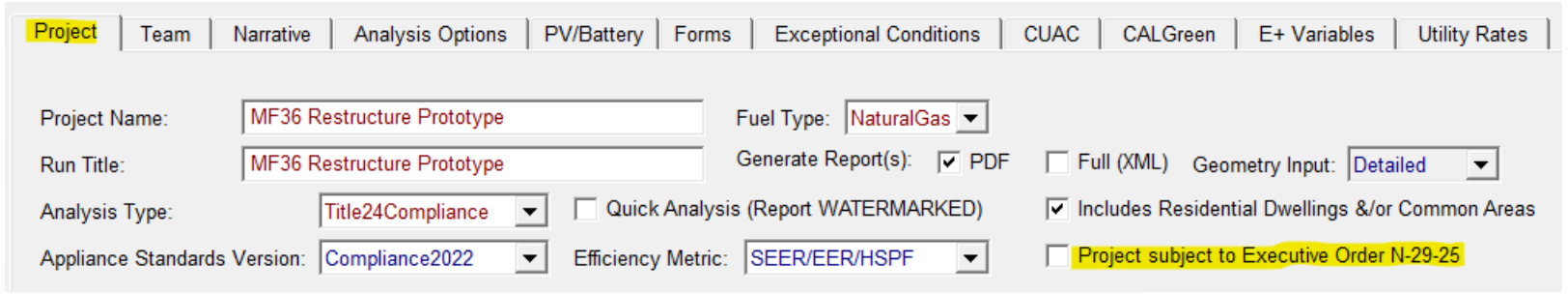


LA Fire PV/Battery Suspension

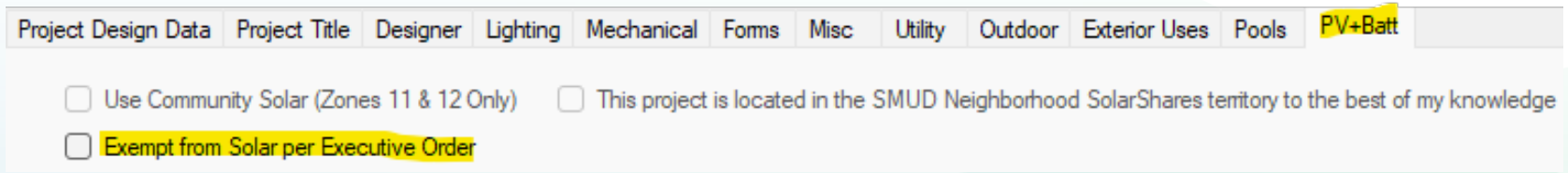
- CBECC-Res: 2022



- CBECC: 2022/2025



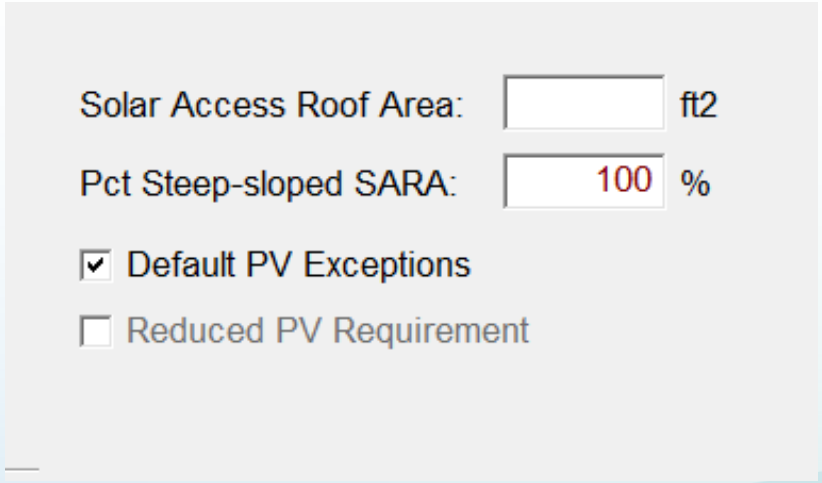
- EnergyPro:



- [Executive Order N-29-25]
- Suspends PV and Battery requirements for residential structures impacted by LA fires

PV Updates

- PV exceptions are now automatic in CBECC (with the option to override)
- Single family standard design PV capacity based on prescriptive requirements alone (no more sizing run for PV)



14. **Photovoltaic requirements.** All single-family residential buildings shall have a newly installed photovoltaic (PV) system or newly installed PV modules meeting the minimum qualification requirements specified in Joint Appendix JA11. The annual electrical output of the PV system shall be no less than the smaller of a PV system size determined using Equation 150.1-C, or the total solar access roof area (SARA) multiplied by 18 for steep-sloped roofs or multiplied by 14 for low-sloped roofs.

    A. SARA includes the area of the building's roof space capable of structurally supporting a PV system, and the area of all roof space on covered parking areas, carports, and all other newly constructed structures on the site that are compatible with supporting a PV system per Title 24, Part 2, Section 1511.10.

EQUATION 150.1-C ANNUAL PHOTOVOLTAIC ELECTRICAL OUTPUT

$$kW_{PV} = (CFA \times A)/1000 + (N_{DU} \times B)$$

Reporting Updates: CF-1R / NRCC / LMCC

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD			NRCC-PRF-E
Nonresidential Performance Compliance Method			(Page 1 of 20)
Project Name:	020012-OffSml-CECStd25	Date Prepared:	2025-11-07

A. General Information

1	Project Name	020012-OffSml-CECStd25		
2	Run Title			
3	Project Location	- specify -		
4	City	- specify -	5	Standards V
6	Zip code	95814	7	Compliance
8	Climate Zone	12	9	Building Or
10	Building Type(s)	• Nonresidential	11	Weather Fi
12	Project Scope	• New complete scope	13	Number of
14	Total Conditioned Floor Area in Scope (ft^2)	5502.05	15	Total # of h
16	Total Unconditioned Floor Area (ft^2)	0	17	Fuel Type
18	Is Natural Gas Available per Section 100.1?	Yes	19	Nonresider Floor Area
20	Total # of Stories (Habitable Above Grade)	1	21	Residential Area

CA Building Energy Efficiency Standards - 2025 Nonresidential Compliance

Report Version: 2025.0.0
Schema Version: rev 202

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD CF1R-PRF-01-E

Project Name: 2 Story 2 Zone PV, Battery, Self-Utilization **Calculation Date/Time:** 2025-11-06T22:12:23-08:00 (Page 1 of 12)

Calculation Description: 2 Zone Top/Bot, 2 GasFurn SplitAC Systems **Input File Name:** 2story2zoneExample-EO.ribd25

GENERAL INFORMATION

01	Project Name	2 Story 2 Zone PV, Battery, Self-Utilization			
02	Run Title	2 Zone Top/Bot, 2 GasFurn SplitAC Systems			
03	Project Location	715 P Street			
04	City	Sacramento, CA	05	Standards Version	2025
06	Zip code	95814	07	Software Version	CBECC 2025.2.0
08	Climate Zone	9	09	Front Orientation (deg/ Cardinal)	0
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Newly Constructed	13	Number of Bedrooms	4
14	Addition Cond. Floor Area (ft^2)	0	15	Number of Stories	2
16	Existing Cond. Floor Area (ft^2)	n/a	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	2700	19	Glazing Percentage (%)	20.00%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Fuel Type	Natural gas	23	No Dwelling Unit:	No

COMPLIANCE RESULTS

Building Complies with Computer Performance

This building incorporates features that require field testing and/or verification by a certified ECC rater under the supervision of a CEC-approved ECC provider.

This building incorporates one or more Special Features shown below

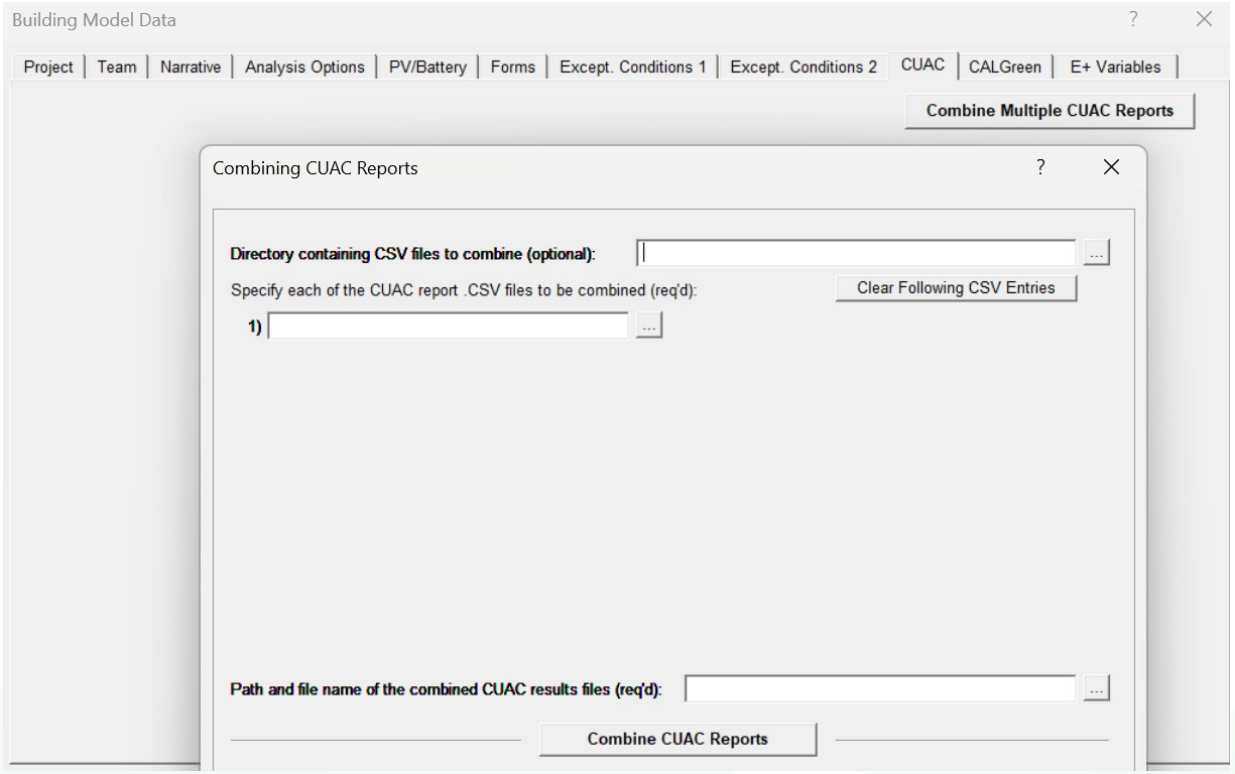
REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- Solar Electric Generation Systems / Solar PV System requirements for newly constructed residential buildings are suspended per Executive Order N-29-25
- Whole house fan
- Cool roof
- Insulation below roof deck
- Non-standard duct location (any location other than attic)

CA Utility Allowance Calculator (CUAC)

- CUAC is now available for single family projects using the residential CBECC interface
- Multifamily projects continue to use the CBECC interface
- New project combination tool allows multiple project results to be combined after being processed by the CUAC tool
- Rate updates are included in CBECC 2025.2.0



2025 Metrics Updates Summary

- **Terminology:** Updated terminology for the Energy Code cost-effectiveness metric from Time Dependent Valuation (TDV) to Long-term System Cost (LSC).
- **Units:** Time dependent metric unit, LSC, simplified to $/kWh and $/therm. Previous code cycles did extra steps to convert to energy only units, kBtu/kWh and kBtu/therm.
- **Clean-up:** Switching from Energy Design Rating (EDR) for single-family to LSC and Source aligning with nonresidential and multifamily.
- **Additions:** New peak cooling metric for single-family residential.

2025 Metrics Summary

Single family:

1. **LSC Efficiency:** LSC for all efficiency measures (no PV/Battery)
2. **LSC Total:** LSC for all efficiency measures (efficiency LSC) and the LSC for all flexibility measures (PV/Battery).
3. **Source Energy**
4. **Peak Cooling < 120% of Standard Design peak cooling energy**

   Peak cooling energy is the total annual mechanical cooling site energy, in kWh, that occurs at peak hours between 4 pm and 9 pm from July through November. Applicable in Climate zones 4 and 8 through 15.

Nonresidential and Multifamily:

1. **LSC Efficiency:** LSC for all efficiency measures (no PV/Battery)
2. **LSC Total:** LSC for all efficiency measures (efficiency LSC) and the LSC for all flexibility measures (PV/Battery).
3. **Source Energy**

Current/Future Software Work

- **GitHub development and repository**
  - Current repository: https://github.com/NOR-Codes-Stds/CBECC
  - Final repository destination: California Energy Commission GitHub - https://github.com/california-energy-commission
- **2025**
  - Executive Director approvals for multizone HP alternatives (Section 140.4(a)3Av)
  - Third party software approvals as applications are received
  - 2025 software/UI/reporting enhancements and new features
- **2028**
  - 2028 CBECC
  - Proposed updates to LSC and Source Energy metrics and weather data
  - Proposed updates to equipment power densities and building schedules
  - Proposed updates to building prototypes

Software Resources

- Building Energy Efficiency Standards Subscription
  - Notification for docketed material, workshops, software releases and approvals, business meeting notices
- Energy Code Homepages
  - Links to dockets, presentations, important dates, backup material
  - 2022, 2025, 2028
- Compliance Software Webpages
  - 2022, 2025
- CBECC GitHub Repository: https://github.com/NOR-Codes-Stds/CBECC
  - Code repository, CBECC Wiki and FAQ (coming soon)
- Support: CBECC@energy.ca.gov and CBECC.Res@energy.ca.gov
- Industry Groups: CABEC, CalBEM, IBPSA-USA

Thank You!