CPUC Domestic Hot Water Heat Pump Calculator 2026 Updates and Market Impacts

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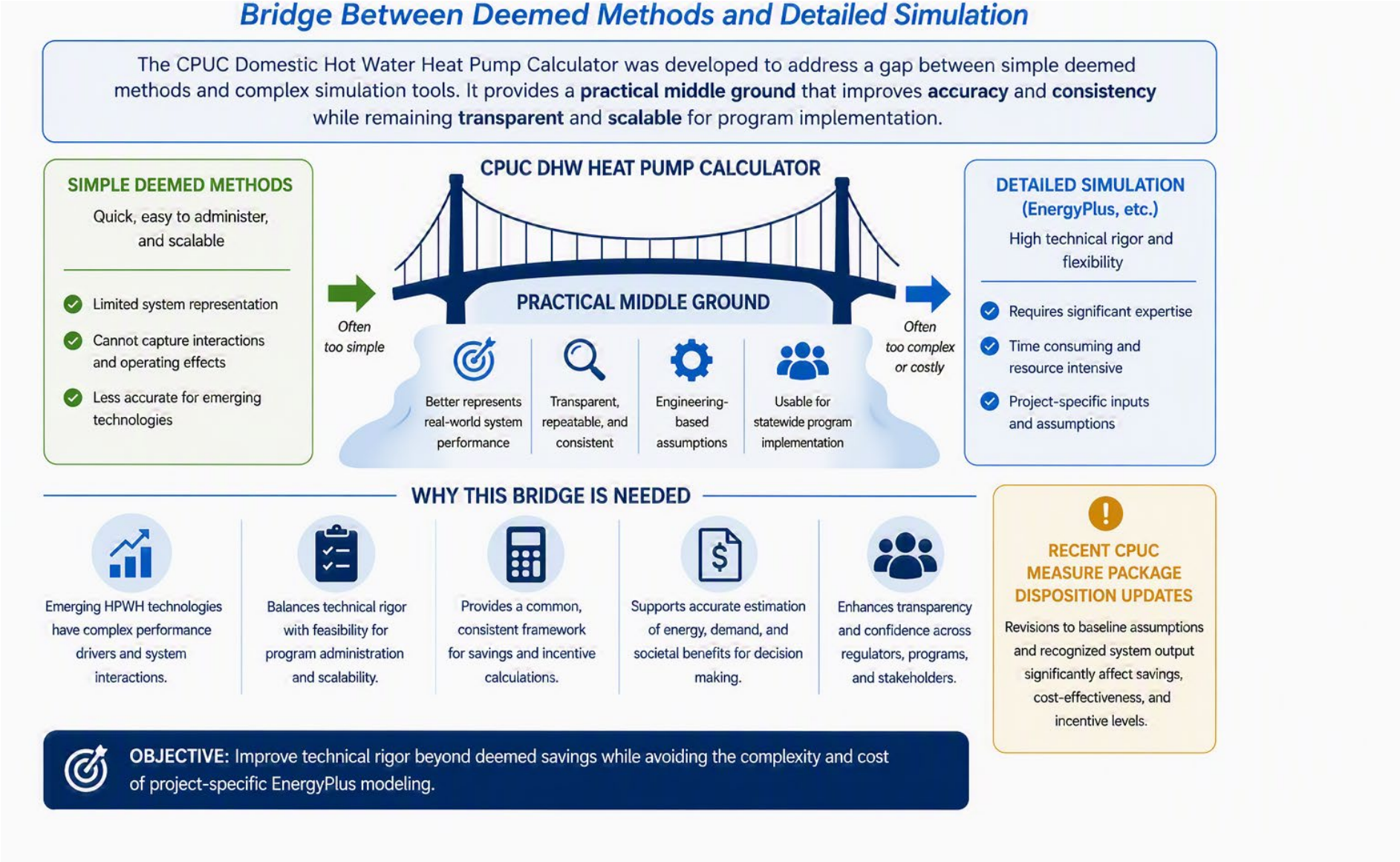
Contents

Today's discussion follows the logic of the calculator story: why it exists, how methods evolved, what changed, and what the market implications may be.

Source: cedars.cpuc.ca.gov/deer-resources/tools/water-heaters/

Why the Calculator Exists

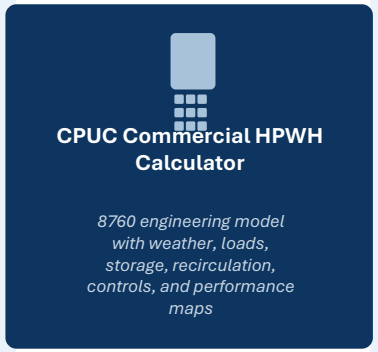


Calculator Inputs and Methodology Overview

The calculator provides an 8760 engineering framework for translating project assumptions into annual performance estimates.

Core Inputs

- Equipment sizing and configuration
- Building type and climate zone
- Hourly hot water load profiles
- TMS configuration and recirculation assumptions
- Equipment performance data: capacity, COP, or UEF
- Baseline water heating equipment and efficiency assumptions



Primary Outputs

- Annual electricity and baseline gas impacts
- Unit energy consumption and savings: UEC / UES
- Peak demand and hourly load shapes
- System COP
- Sizing outputs: capacity, storage, and units required
- Inputs for measure development and program planning

Note: Incentives, recognized capacity, and cost-effectiveness are downstream applications of the calculator results, not standalone calculator outputs.

- **Purpose:** *Estimate annual system performance. Downstream policy methods convert results into claimed savings, recognized capacity, incentives, and cost-effectiveness.*

Source: DEER Commercial HPWH Calculator v1.0.3.2

Recent Methodology Changes

Recent disposition updates changed how commercial HPWH capacity and benefits are recognized.

Baseline Revision
DOE Gas water heater thermal efficiency assumption increased from approximately 0.80 to 0.95.

Electric Resistance Treatment
Electric resistance contribution removed from recognized output capacity.

Thermal Storage Treatment
Thermal storage contribution removed from recognized output capacity.

Capacity Recognition
Methodology shifts toward recognizing primarily heat pump production capacity.

Key Result: Recognized savings, cost-effectiveness, and incentive levels can change even when the installed equipment does not.

Illustrative Impact Example: 119 Gallon Integrated HPWH

The example shows how methodology assumptions can materially affect recognized capacity and incentive value.

Prior Recognition Approach

- Heat pump capacity
- Electric resistance contribution – pre-April 2025
- Thermal storage contribution

Recognized Capacity **~161 kBtu/h**

Current Recognition Approach

- Heat pump production capacity emphasized
- Electric resistance contribution removed
- Thermal storage contribution removed

Recognized Capacity **~20–30% of prior**

Illustrative Incentive Impact Per unit, estimate

↘ **–40%** reduction in incentive

Example is directional and based on presentation notes, not a general rule for every installation. Source: CPUC_HPWH_Presentation_Notes.docx

Potential Market Impacts

Changes in recognized benefits can affect projects, programs, and broader market adoption.

Project Level

Individual Project

- Lower incentive levels
- Reduced project economics (TSB)
- Greater difficulty covering administrative and installation costs

Program Level

Utility Program

- Lower cost-effectiveness
- More challenging participation economics
- Greater need for clear assumptions and documentation

Market Level

Broader Market

- Potential reduction in project participation
- May Slow market adoption
- Need for continued education and research

Methodology revisions can shift market signals even without a change in installed technology performance.

Source: CPUC_HPWH_Presentation_Notes.docx

Future Research and Industry Needs

Commercial HPWH evaluation methods continue to mature as additional field data and guidance become available.

1

Additional EM&V Studies

Continue validating savings methods and real-world outcomes.

2

Continued Field Monitoring

Improve understanding of system COP, storage losses, recirculation, controls, and operating effects.

3

EnergyPlus Improvements

Support better simulation capability and validation for commercial HPWH systems.

4

Sizing and Efficiency Guidance

Improve industry guidance on commercial HPWH sizing and efficiency characterization.

5

ASHRAE and Federal Guidance

Continue developing broader technical guidance as the market matures.

Key Finding: Field studies suggest equipment COP and system COP may differ once storage losses, recirculation, controls, and operational effects are included.

Source: CPUC_HPWH_Presentation_Notes.docx

Key Takeaways

The calculator reflects an evolving methodology, not the endpoint of commercial HPWH evaluation.

1 Purpose

The calculator bridges simple deemed approaches and detailed simulation tools, providing a practical middle-ground for statewide program implementation.

2 Methodology

Commercial HPWH assumptions continue to evolve with field data and research, reflecting an ongoing refinement process rather than a fixed standard.

3 Impacts

Recent CPUC updates materially affect recognized capacity, benefits, and incentives — even when installed equipment performance has not changed.

4 Next Step

Additional EM&V, monitoring, simulation validation, and sizing guidance can inform future calculator updates and strengthen program outcomes.

Methodology changes represent an evolution in policy assumptions rather than a final determination of technical accuracy.


Q&A