2023 EE Potential and Goals Study: Scenarios Workshop

CPUC Leads:

Study lead: Travis Holtby, Ali Choukeir, Sasha Merigan

Low-Income: Kapil Kulkarni

Contractor: Guidehouse

California Public Utilities Commission

Guidehouse
Outwit *Complexity*

2023 Potential and Goals Study Scenarios

Workshop

December 14, 2022

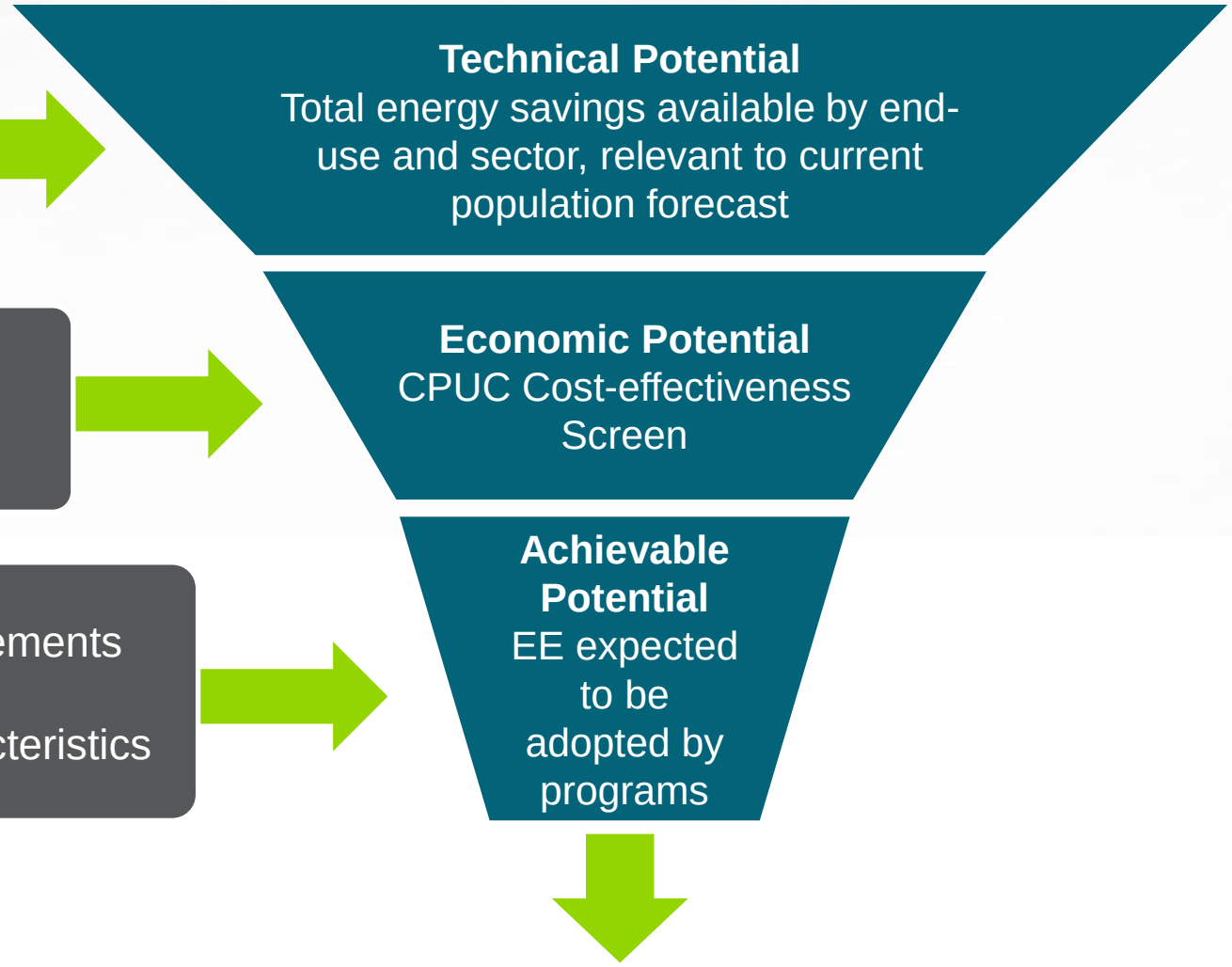
EE Potential & Scenarios Review

What is a Potential Study?

- Measure Energy Savings
- Measure Life
- Technology Density and Saturation

- Avoided Costs
- Measure Costs

- Historical Program Achievements
- Program Budget
- Customer Adoption Characteristics



Establishes Goals & Scenarios for Forecast

P&G Scenarios Scope

- The 2023 P&G study will develop several scenarios that inform the CPUC's goal setting process. We refer to these as the **P&G Scenarios**:
  - One "reference" scenario that stems directly from the calibration process
  - Additional alternate scenarios (determined in conjunction with CPUC staff considering stakeholder input)

- **Additional** scenario analysis will be conducted as part of the Additional Achievable Energy Efficiency (AAEE) and Additional Achievable Fuel Substitution (AAFS) analysis after the P&G study is finalized. **AAEE/AAFS Scenarios**:
  - Feed into the California Energy Commission's Integrated Energy Policy Report (IEPR)
  - Are built around the adopted IOU goals and informed by P&G Scenarios
  - Consider additional variables and policy context
  - Do not impact IOU goals

Today's discussion focuses on **P&G Scenarios**, **not** **AAEE/AAFS Scenarios**

Scenario Approach

What is a Scenario?

- Key variables in the P&G model can fall within a range of possibilities, grouped into two categories:
  - **Internally Influenced** - CPUC and IOUs collectively have control over these **policy** and **program** decisions
  - **Externally Influenced** - CPUC and IOUs do not have control over these factors

Example Internally Influenced	*Example* Externally Influenced
• Cost-effectiveness (C-E) test • C-E threshold • Incentive levels • Marketing & outreach level of effort • Behavior, retro commissioning & operational (BROs) customer enrollment over time • IOU financing programs	• Federal Tax credits • Building stock forecast • Retail energy price forecast • Measure-level input uncertainties (unit energy savings, unit costs, densities) • Non-IOU financing programs • Enacting of future Codes and Standards

- Scenarios allow us to explore different futures based on a combination of assumed policy interventions, program design decisions, and exogenous factors

Approach to P&G Scenarios

Scenarios historically addressed differences based on internally influenced variables – policy and program decisions under control of the CPUC and IOUs. New considerations for the 2023 study consider some key items outside of CPUC/IOU's control.

- Reference Scenario is primarily informed by current program design and policy. The reference scenario should best represent "current and known future policy"
- Alternate scenarios help identify the range of results and inform policy decision making.
- P&G scenarios will fix many market driven externally influenced variables to a single setting across all scenarios:
  - IEPR Mid-case forecast for retail rates, population, building stock
  - Use DEER and workpaper values as is
  - One set of assumptions about future C&S
- Areas of emphasis for 2023 P&G Scenarios include **Inflation Reduction Act** impact and **Fuel Substitution**

Scenario Variables

Candidate Scenario Levers - Descriptions

Lever	Description	Applicability	
		Economic	Market
Federal Tax Credits (IRA)	Including Tax Credit values specified by Inflation Reduction Act within the P&G Model for applicable measures	✓	✓
Cost-Effectiveness (C-E) Test	Different C-E screening tests and/or thresholds yield different amounts of economic potential and cause the market potential model to incentivize different sets of measures. These only apply to rebate programs (excluding the LI and BROs programs)	✓	✓
C-E Measure Screening Threshold			
Incentive Levels	Varying incentive levels will change both the C-E of measures and upfront and lifetime costs to customers	✓	✓
Marketing & Outreach	Varying marketing and outreach levels impacts customer awareness and the rate of technology adoption		✓
BROs Program Assumptions	Enrollment in BROs programs is an input vector by assuming a conservative or aggressive roll-out of BROs programs		✓
Fuel Substitution	Varying adoption parameters (Awareness, Willingness, Sensitivity, Stock Turnover)		✓

Inflation Reduction Act Tax Credits

- **IRA tax credits will have two primary effects in the model:**
  1. Changing Cost Effectiveness
  2. Increasing Willingness to Adopt

- **Residential Sector**
  - For applicable Residential EE and FS measures, IRA specifies a $/measure unit credit. The P&G analysis will scale this back to account for applicability for the population of dwellings within building stock
  - Scaling factors account for requirements that measures are installed in owner-occupied single-family homes, and that the homeowner has sufficient tax burden to receive the value of the tax credit

- **Commercial Sector**
  - IRA offers a $/sq ft tax credit for commercial buildings that meet a minimum % reduction in baseline energy usage, and applies to HVAC, Lighting, and Water Heating measures
  - Guidehouse will derive a $/measure unit value to be applied within the P&G analysis.
  - Scenarios can vary the proportion of commercial building stock that can achieve the baseline energy reduction requirement

Candidate Scenario Levers - Ranges

Lever	Range/Bounds	
	Lower	Upper
Inflation Reduction Act Tax Credits	Conservative: Estimated Residential Sector and Low EE Potential Commercial Sector	Aggressive: Estimated Residential Sector and High EE Potential Commercial Sector
Cost-Effectiveness (C-E) Test	TRC, PAC, RIM, Societal*	
C-E Measure Screening Threshold	0.85 for all measures	1.25 for all measures
Incentive Levels (EE and/or FS)	Capped at 50% of incremental cost or existing program levels	Capped at 75% of incremental cost
Marketing & Outreach	Reference: Default calibrated value	Aggressive: Increased marketing strength
BROs Program Assumptions	Reference: Continued offering of existing BROs interventions and planned new interventions based on policy directions	Aggressive: Intervention penetration grows faster than the Reference Case and additional BROs not currently in CA utility plans are included
Fuel Substitution	Reference: Default calibrated value	Aggressive: Increased parametric adoption lever values

*Not fully defined by CPUC

Recap of Scenarios from the 2021 Study

- 2021 P&G Study scenarios primarily varied the cost effectiveness screening thresholds
- Program engagement was either set to a reference case or an aggressive case

Scenario → Levers ↓	1: TRC Low	2: TRC Reference	3: TRC High	4: PAC Reference
C-E test	TRC	TRC	TRC	PAC
C-E measure screening threshold	1.0	0.85	0.85	0.85
Incentive levels	Capped at 50%	Capped at 50%	Capped at 75%	Capped at 50%
Program Engagement*	Reference	Reference	Aggressive	Reference
Financing	No	No	Yes	No

*Includes Marketing and Outreach and BROs Program Assumptions

Scenarios for Comment - 2023 Study

- 2023 P&G Study proposed draft scenarios vary the Commercial IRA Tax Credits, Fuel Substitution adoption, Incentive Levels
- Program engagement was either set to a reference case or an aggressive case

Scenario → Levers ↓	Reference	Alternative 1	Alternative 2	Alternative 3	Alternative 4
C-E test	TRC	TRC	TRC	TRC	TRC
C-E measure screening threshold	0.85	0.85	0.85	0.85	0.85
IRA Tax Credits	None	Conservative	Conservative	Aggressive	Aggressive
Incentive levels	Capped at 50%	Capped at 50%	Capped at 75%	Capped at 50%	Capped at 75%
Program Engagement	Reference	Reference	Reference	Reference	Aggressive
Fuel Substitution	Reference	Reference	Aggressive	Reference	Reference

Stakeholder Input

- Do you believe the CPUC staff proposed scenarios capture a reasonable range that can inform goal setting?
  - Other IRA considerations?
  - C-E thresholds?
- What key variables should be the focus of scenario design?
- Should incentive layering be factored into fuel substitution potential, and if so, how?
- Are there any structural factors that play into current PA goal attainment levels that should inform the study?
- CPUC staff aim to choose 4 scenarios – do you have suggestions for specific scenarios to consider?

Reminders and Next Steps

Stakeholder engagement is critical and CPUC and the Potential and Goals Study team values the input and direction provided.

- Study-related comments are informal.
- Study-related comments on Scenarios are due **January 6, 2023** via e-mail to: travis.holtby@cpuc.ca.gov, ali.choukeir@cpuc.ca.gov and npodkowsky@guidehouse.com

Stay Informed

CPUC's 2023 Energy Efficiency Potential & Goals Webpage:

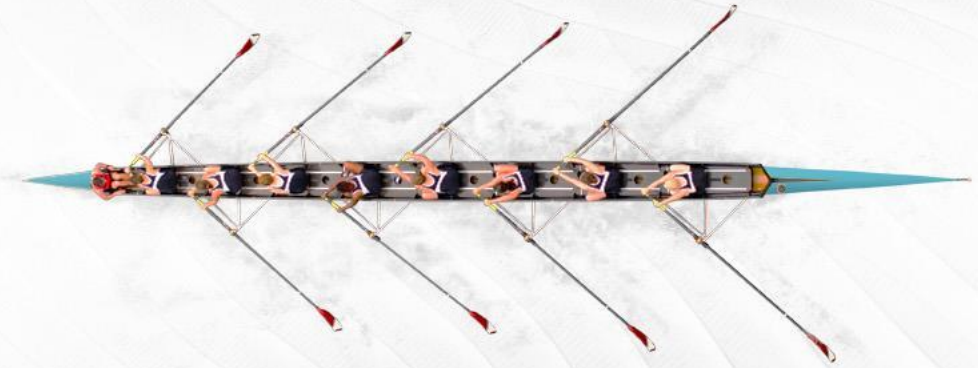
https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/energy-efficiency/energy-efficiency-potential-and-goals-studies/2023-potential-and-goals-study

Contacts

Amul Sathe
Director
amul.sathe@guidehouse.com
(415) 399-2180

Neil Podkowsky
Associate Director
npodkowsky@guidehouse.com
(602) 528-8028

Rebecca Legett
Associate Director
rebecca.legett@guidehouse.com
(415) 399-2156



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CPUC Lead: Travis.Holtby@cpuc.ca.gov
CPUC Support: Ali.Choukeir@cpuc.ca.gov