CALIFORNIA
TECHNICAL FORUM

Cal TF Research Memo:

Background Information Supporting the Industry Standard Practice (ISP) White Paper

Version 3.0

REVISED DRAFT FOR TF AFFIRMATION

March 21, 2024

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SUMMARY

The Cal TF White Paper *Current State and Recommended Improvements for Industry Standard Practice (ISP) Studies and Use* describes findings and recommendations related to ISP studies and the baseline selection process for energy efficiency programs overseen by the California Public Utilities Commission (CPUC). This Research Memo provides additional details on the ISP White Paper Subcommittee's data collection, analysis, and recommendations.

SUBCOMMITTEE APPROACH

Cal TF formed an ISP White Paper Subcommittee to examine relevant policy and practice, analyze the current custom portfolio, compile existing baseline data and related resources, and engage with stakeholders to understand existing challenges and develop proposed solutions related to ISP studies and the baseline selection process.

The Subcommittee combined quantitative and qualitative data along with feedback from stakeholders through multiple Cal TF Custom Subcommittee, TF, and PAC meetings as well as one-on-one meetings with stakeholders (including PAC Staff, CPUC Staff, and project developers and reviewers) to characterize existing challenges.

The White Paper Subcommittee developed recommendations based on stakeholder input, analysis of the current state and data collected, and reviewing successful models of statewide coordination, transparency, balancing rigor and value. The Subcommittee presented draft recommendations for discussion at Custom Subcommittee, TF, and PAC meetings and improved recommendations based on stakeholder feedback and discussion.

BASELINE DATABASE

As defined in the EE Policy Manual, baseline data is the "the state of performance and/or equipment that what would have happened in the absence of the program induced energy efficiency."[1]

Cal TF Staff is creating a centralized, public, searchable Baseline Database that stakeholders can use to identify existing, approved baselines applicable to their measure or project. This Baseline Database would contain information stakeholders can use to determine the appropriate baseline (e.g., technology or efficiency level) from which to calculate savings for their energy efficiency measure or project.

To complete this effort, Cal TF Staff proposes to:

- Design the database with data fields necessary to define baselines and their applicability and to facilitate searching to optimize useability and usefulness to stakeholders;

[1] CPUC. April 2020. *Energy Efficiency Policy Manual*. Version 6.

- Populate the database with existing baseline data by summarizing existing ISP studies and leveraging stakeholder input for relevant baseline information from informal ISP research and CPUC guidance;
- Facilitate the ongoing incorporation of new baseline data (e.g., from Market-Based ISP studies and other CPUC-issued baseline guidance); and
- Develop communication and notification strategies so all stakeholders statewide are aware of the baseline database and when new baselines are added.

Database Content and Sources

The Baseline Database will aggregate key information on approved baselines as well as baseline research planned and in-progress. It will include all data necessary to inform stakeholders on existing and upcoming baselines and whether those baselines apply to customers, projects, and programs across the state. Table 1 describes the proposed data fields.

Table 1. Baseline Database Data Fields

Data Field	Description
Source	Source of baseline information (e.g., Market-Based Study, Informal ISP) including direct link to published source material
Issue Date	Date the baseline was issued (e.g., CPUC approval date or PA approval date for informal ISPs not selected for CPR)
Measure	Description of the measure for which the baseline was developed and is applicable
Measure Identifier	Statewide custom measure code (based on statewide custom measure code structure to be developed through the Cal TF in 2024)
MAT	Measure Application Type for which the baseline was developed and is applicable
Baseline	Description of the approved baseline
Effective Date	Date for which the baseline is effective
Expiration Date	Date through which the baseline is valid. Default to 5 years from the Effective Date and may be adjusted to shorter or longer effective period.
CPUC Approval Status	Indicates whether the baseline was reviewed, approved, or rejected by the CPUC
TF Affirmation Status	Indicates whether the baseline was reviewed and affirmed by the TF
Applicability	Description of the measures, MATs, customer/market segments, regions, etc. for which the study results are or are not applicable
Update Triggers	Description of triggers (e.g., code or other market changes) that may indicate a need to update the baseline
Search Fields	Data Tags to support search functions so stakeholders can easily find relevant baseline data (e.g., measure category, measure code, end use, sector)

The Baseline Database will rely on multiple sources of information, as described below.

- **Market-Based ISP Studies**. Baseline data are collected through approved, published ISP Reports via the Market-Based ISP Study Summary Form.
- **Informal ISP Studies (CPR-Reviewed)**. For CPR-reviewed projects, baseline data will be collected through the CPUC-issued Project Disposition Form (with modifications to appropriately capture key baseline data).[2]
- **Informal ISP Studies (PA-Reviewed)**. For projects approved by PAs but not selected for CPR (and thus which have not been reviewed by CPUC), PAs and/or implementers may identify and provide relevant baseline data to include in the Baseline Database.
- **Planned and In-Progress Research**. Baseline data will be collected through the Statewide Public Planning Process.

Database Functions

To maximize transparency, useability, consistency, and awareness of baseline data, the Baseline Database will:

- Be publicly accessible for all stakeholders and allow all stakeholders to view data necessary to understand the baseline and its applicability,
- Be searchable and easy-to-use to understand existing content, find relevant content, and be aware of new content,
- Connect to source information so that stakeholders can find the details (e.g., study report and/or additional context) associated with published baseline data,
- Be maintained up to date through established workflows, and
- Provide notifications when new material is added (e.g., new baseline uploaded).

Building and Maintaining the Database

Cal TF Staff is building the initial database in an Excel Workbook hosted on the Cal TF Custom Initiative SharePoint Site. Cal TF Staff will examine opportunities to migrate the database into the eTRM and create direct connections to Custom Measure Packages and the eTRM Reference Library.

To populate the database with existing baseline information, Cal TF Staff is working with stakeholders to identify all existing and still-relevant baseline data that should be made available to statewide stakeholders. This includes existing Market-Based ISP Studies collected from CAEnergyGuidance.com, from the Custom Measure Project Archive (CMPA) and provided by PA and CPUC Staff, and Informal ISP studies reviewed through CPR. Cal TF Staff will work with stakeholders to compile existing resources and populate the database.

Cal TF Staff will work with stakeholders to establish procedures to populate the database on an ongoing basis as described in the “Sources” section above.

[2] The Subcommittee developed a modification CPR disposition template and shared with CPUC Staff and Consultants for review.

ISP STUDY SUMMARY FORM

The Subcommittee created the Market-Based ISP Study Summary Form to provide a simple, standardized format to compile key information from an ISP Study. The ISP Study Summary Form can be used to summarize applicable past market-based ISP studies and would be required for all future market-based ISP studies as a condition of approval.

Market Based ISP Study Cover Form

About: The ISP Study Summary form describes required information for all Market-Based ISP Studies and provides quick access to key information, including key outcomes of the study and applicability of those outcomes for future use/reference. The information provided in this summary page is an important reference for stakeholders and will be used to populate the Statewide Baseline Database.

Directions:

1. Complete this form for all final, approved Market-Based ISP Studies.
2. Attach summary form as the cover page to the ISP Study.
3. When possible, limit the summary form to one page.
4. Since this form will be shared publicly, this form should have no PII.

Study Information

Study Name	
Study Author	
Study Sponsor	
Study Complete Date	
TF Affirmation Date	
CPUC Approval Date	

Baseline Information

The results of the Market-Based ISP Study are summarized in the table below. (Create additional tables for additional measures as needed.)

Measure Description	
Measure Identifier	
MAT	
Standard Practice Determination	
Effective Date	
Expiry Date	
Applicability	
Update Triggers	

STATEWIDE ISP STUDY PUBLIC PLANNING PROCESS

A statewide coordinated and proactive baseline research portfolio will improve transparency and consistency statewide, maximize value of ISP research efforts, and minimize time and cost delays and complications on individual customers and projects. The Subcommittee proposes statewide coordination with the following features:

- Regularly scheduled public process to identify and prioritize baseline research needs;
- Guidance on rigor requirements to ensure market-based studies appropriately represent market opportunity and activity;
- Cal TF affirmation to ensure baseline research meets technical standards and support statewide stakeholder understanding of research outcomes and applicability; and
- Public notifications on baseline research planned, in progress, and approved/affirmed.

The proposed approach, outlined in Table 2, is modeled based on Cal TF's Measure Package Development and New Measure Screening processes. In its current role facilitating analysis and resolution of technical and technical policy issues, Cal TF may be well positioned to facilitate a public, statewide market-based ISP planning process.

Table 2. Proposed Approach for ISP Study Public Planning Process

Step	Proposed Approach
Identify Baseline Research Needs	Establish a public intake process through which stakeholders can recommend or request baseline research. On a regular schedule and before the prioritization step, proactively solicit input from all PAs (including RENs and CCAs), 3P Implementers, and CPUC Staff (e.g., similar to New Measure process).
Prioritize Baseline Research	Conduct an annual public stakeholder process to prioritize baseline research based on factors such as market impact, data availability, and cost/value of research. Facilitate a prioritization process (similar to the annual eTRM Enhancement process) to collect stakeholder input and develop final recommendations for proactive baseline research.
Select and Conduct Baseline Research	Select and assign baseline research. Depending on breadth, complexity, and required expertise, options to conduct baseline research include: (1) PA manages and conducts study internally or through a contractor (e.g., similar to Measure Package); (2) Contractor with appropriate experience and/or expertise (e.g., similar to Measure Package); and (3) Cal TF Subcommittee formed to conduct baseline research and develop recommendation (e.g., White Paper).
Research Standards, QA/QC Review, and Affirmation	Develop baseline research rigor standards and other applicable guidance for statewide baseline research. To ensure studies meet rigor standards, include required data, and receive appropriate technical vetting/review, submit all studies to Cal TF for review and affirmation (e.g., similar to Measure Package).
CPUC Approval	Submit TF-affirmed ISP Studies to CPUC for final approval (e.g., similar to Measure Package).
Engage and Notify Stakeholders	To ensure statewide stakeholders are able to participate in the identification and prioritization processes and are aware of baseline research planned, in-progress, and complete, facilitate statewide communication, including: public

Step	Proposed Approach
	webpage with baseline research requests and status of selected baseline research, email notifications for key baseline research milestones including prioritization process, selection/initiation of baseline research, and approval of new baseline data.

TIERED BASELINE ANALYSIS

Through analysis of the custom portfolio[3] and data collected through the stakeholder survey, the Subcommittee developed a Tiered Baseline recommendation to simplify the baseline selection process for custom measure below a payment threshold. This section describes the background analysis and findings that form the basis for the Tiered Baseline approach.

Analysis

The Subcommittee analysis compares the estimated cost of completing informal ISP studies to the estimated measure or project incentive, with consideration of the following:

- Informal ISP Studies, when required, are only a fraction of custom project development costs. Other project development costs include customer engagement and interactions, energy audit activities, energy engineering and solutions development, program influence documentation, M&V, and project submittal development;
- The custom net-to-gross (NTG) value is decreasing from 0.60 to 0.50 starting in 2024,[4] which reduces project developer payments.

Cost Estimate

To estimate Informal ISP study costs, the Subcommittee analyzed responses to the Stakeholder Survey. The survey asked stakeholders to estimate the hours needed to perform an informal ISP study. The average response from implementers was 47 hours, and the average response among PAs was 30 hours; overall the average estimate was at least 43 hours.

While it is possible that the implementer and PA hours estimates should be additive (i.e., implementer hours to develop and conduct the ISP study and PA hours to review the ISP study), the Subcommittee conservatively used the weighted average estimate of 43 hours to complete an Informal ISP study.

Applying a billing rate of $120 per hour (a low rate in today's market) results in a conservative average cost estimate of $5,200 per study.

[3] Measure-level data for custom measures and projects in development collected through the PAs' bi-monthly upload (BMU) data for January 2021 through June 2023.

[4] CPUC Resolution E-5221, page A-22-23

Incentive Levels

The Subcommittee reviewed custom measure data available in the PA's bi-monthly reports to examine the range of incentive levels and determine the number of projects and average incentive for a project in each of custom project tiers established in CPUC Resolution E-5115:[5]

- Very Low Rigor (<$7,500 incentive)
- Low Rigor ($7,501-$25,000 incentive)
- Medium Rigor ($25,001-$100,000 incentive)
- Full Rigor ($100,000 incentive)

The Subcommittee used these tier levels since they had already been established to define variable POE rigor requirements based on customer incentive. The number of projects and average incentive in each Tier level is shown in Table 3.

Frequency of Informal ISP Studies

Informal ISP Studies are not required for every custom measure. The Stakeholder Survey asked stakeholders how often they had to conduct informal ISP studies for their custom projects (1 = "Never" and 5 = "Always"). Using the average response of 3.58 out of 5, the Subcommittee estimated a study requirement rate of 71.6%.

Comparing Cost and Incentive

The Subcommittee calculated the ratio of Informal ISP cost to the average incentive for each rigor level using the following equation:

$$\%_i = \frac{(Hours)(Billing\ Rate)(\%_{Compliance})}{Average\ Incentive_i}$$

where:

$\%_i$ = Ratio of informal ISP cost to incentive in rigor level i, (%)

Hours = Weighted average estimate of the hours to conduct an Informal ISP (Hours)

Billing Rate = Estimated billing rate to labor to conduct an Informal ISP ($/Hour)

Average Incentive$_i$ = Average incentive for projects in rigor level i ($)

Table 3 shows the calculation results at each rigor level. The analysis shows that the average ISP Study Cost is three times of average incentive for Very Low Rigor Projects, 25% of the average incentive level for Low Rigor Projects, 7% of the average incentive level for Medium Rigor Projects, and 1% of the average incentive level for Full Rigor Projects.

[5] CPUC Resolution E-5115, OP1

Table 3. Tiered Baseline Data Analysis

Analysis Parameter	Very Low Rigor	Low Rigor	Medium Rigor	Full Rigor
Total number of projects (in data review period)	1630	164	137	58
Average incentive level	$1,253	$15,065	$51,515	$382,576
Ratio of Informal ISP Study Cost to Average Incentive	416%	35%	10%	1%
Average Ratio of Informal ISP Study Cost to Incentive, based on estimated requirement rate	298%	25%	7%	1%

During Custom Subcommittee and TF meetings to discuss these findings and draft recommendations, some stakeholders commented that the $5,200 Informal ISP Study cost estimate was low and estimated that actual study costs may be double.

Also, this cost comparison only considers the labor cost of completing ISP studies and does not address other challenges raised by stakeholders that create barriers for customers and projects, including:

- Increased burden on customers and contractors when project delays occur to establish a standard practice;
- Confusion among customers and contractors when asked for information to establish a baseline for a specific scenario that is different from the customers' existing conditions, code and regulatory requirements, or what they had otherwise planned to do; and
- Challenges identifying and engaging with vendors not associated with the project to provide hypothetical measure and cost data.

These challenges increase cost, time, and risk for custom projects and are exacerbated when a baseline study is modified in a way that impacts the customer's incentive or is rejected. The combined costs and risks drive implementers to avoid small projects (with lower value) and innovative projects (with less predictability) and otherwise limit their activities to large, common, predictable, low risk opportunities.

Stakeholders agree this is a major factor driving the downward trend in custom measure activity:

- When asked about their anticipated custom measure activity in 2023 compared to previous years, 62% of implementers indicated they expect to implement fewer custom measures in 2023, and only 7% expect to implement more.
- When asked about the significance of the SP selection process (relative to other components of developing a custom project) in deterring customers to do custom projects, almost three-quarters (74%) rated 4 or 5 (Very Significant); no respondents said "Not Significant".
- Stakeholders estimated that the SP baseline selection process adds significant workload to the project development process: the weighted average estimate from implementers was 47 hours per project, and the weighted average estimate from PAs was 30 hours per project.
- Finally, through anecdotal discussions with stakeholders through TF, Custom Subcommittee, and Ad Hoc Meetings, stakeholders have affirmed that the cost,

complexity, and unpredictability of the SP selection process results in customers, implementers, and PAs choosing not to pursue viable custom energy efficiency projects.

Tiered Baseline Recommendation

The Subcommittee developed a tiered baseline approach that provides a streamlined pathway for custom measures with savings or payment levels that do not warrant the cost of an Informal ISP Study. This tiered baseline approach, similar to Tiered POE requirements, is necessary to balance the cost and value of required ISP research.

The Subcommittee recommended a threshold that matches the existing "Full Rigor" POE threshold ($100,000) or the savings-based equivalent of 1,000 MWh or 100,000 therms.

For custom Measures below the threshold, The Tiered Baseline recommendation modifies the baseline selection process *when an Informal ISP Study would be triggered under the current practice* as follows:

- Where baselines are current, applicable, and public (i.e., contained in the Baseline Database described in Recommendation #2), the measure should use those established baselines consistent with E-4939.[6]
- If No Existing, Applicable Baseline is Published in the Baseline Database, Use Code or Applicable Regulatory Requirement (e.g., AQMD requirements).
- If no Code/Applicable Requirements, Use Existing Conditions

This tiered approach uses existing baseline data when available and otherwise scales the cost of baseline selection with project size.

STAKEHOLDER SURVEY

To collect stakeholder input on the ISP Study process, the Subcommittee developed an online survey for custom stakeholders who have recent experience with Informal ISP studies and custom measure baseline selection. This section summarizes the survey approach, stakeholder responses, and key findings.

Survey Approach

The Subcommittee developed a web-based survey for custom stakeholders to understand the existing process, challenges, and improvement opportunities related to Standard Practice baseline selection in the delivery of custom projects for energy efficiency (EE) programs funded by the California Public Purpose Program. The Subcommittee provided an opportunity for CPUC Staff to review the draft survey.

The survey targeted custom stakeholders who have experience with Informal ISP studies and Standard Practice baseline selection as part of the custom project development process in the last 3 years. The Subcommittee compiled an email distribution list to send the survey, presented survey goals and requested participation at multiple stakeholder meetings, requested that IOUs

[6] Step 1 of the E-4939 Attachment A instructs the consideration and application of any relevant, applicable, and current CPUC published Standard Practice documents.

distribute survey to key stakeholders, and performed direct outreach to contacts at PAs and implementation firms to ensure representative coverage of the implementation firms active in custom project development.

Prior to beginning the survey, each survey stakeholder was asked whether they have been involved in the development and/or review of an Informal ISP Study in the last three years (i.e., in 2019 or later). This screening step ensured stakeholders had the appropriate experience to respond to the survey.

Survey Participants

Cal TF Staff administered the survey between July 17 and August 20, 2023 and received 42 responses from stakeholders, including 29 responses from PA Staff and 13 responses from implementers. Survey participants included at least two responses from each IOU and stakeholders engaged in the BayREN, SoCalREN, MCE programs. The 29 implementer participants represent 17 implementation firms, including most 3P implementation firms.

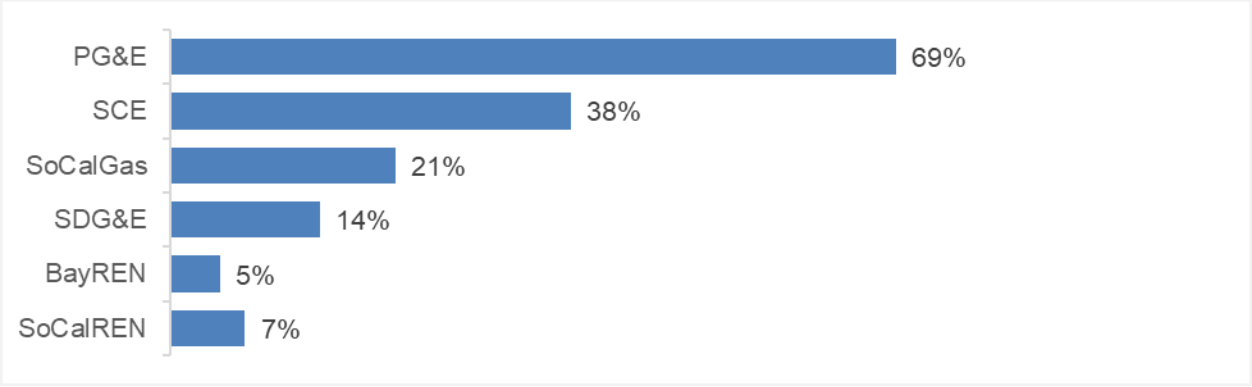
Participant Characteristics

This section summarizes the characteristics of the 42 survey participants. Responses indicate broad experience working with all PAs, across sectors, and in all areas of the ISP Study development process.

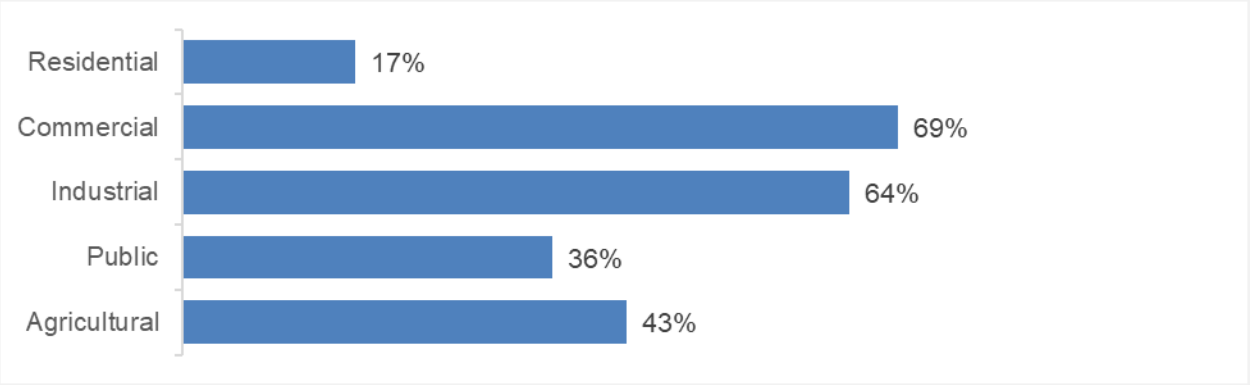
Participants reported a range of experience in the number of Informal ISP studies they have been involved in and their own levels of expertise on ISP policy:

- Only 38% of PA respondents indicated they were “Experts,” and very few (7%) implementer respondents indicated they were “Experts.”
- 39% of PAs and 41% of Implementers rated themselves a 3 or lower in familiarity with Standard Practice assessments for custom measures.

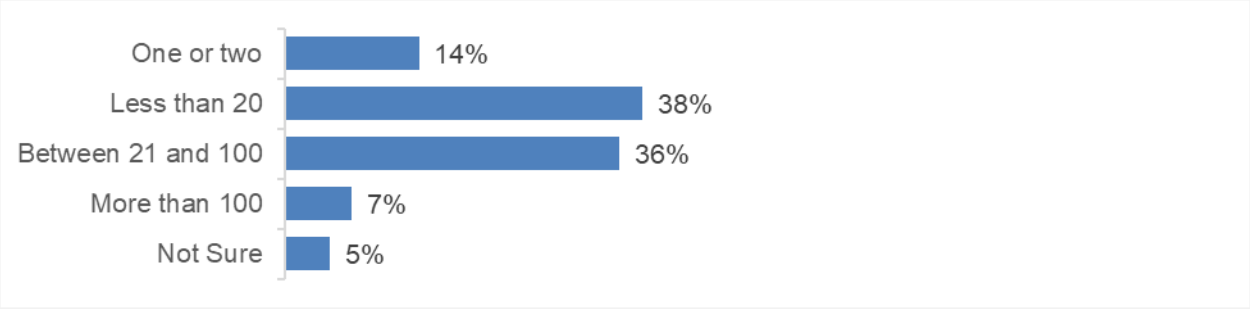
Q3: For which PA(s) have you developed, submitted, and/or reviewed custom projects? Select all that apply.



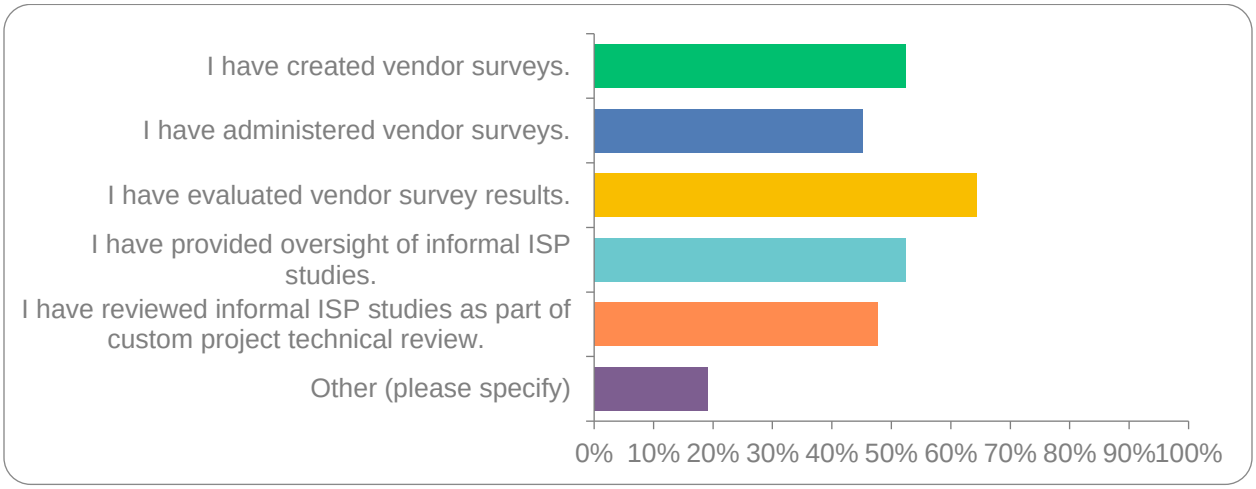
Q4: For which sector(s) have you developed and/or reviewed custom projects? Select all that apply.



Q5: Approximately how many unique non-lighting NEW, NR, AR, and applicable AOE custom measures did you develop or review since 1/1/2019?

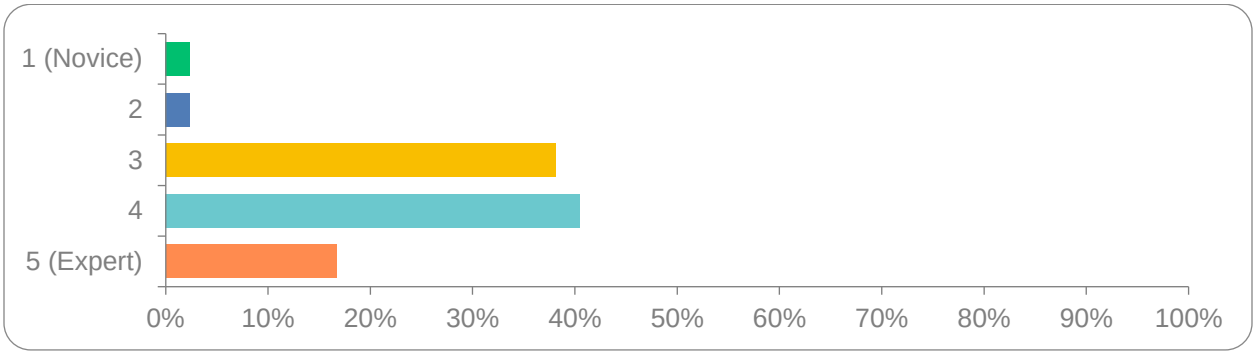


Q9: Indicate your experience related to Informal ISP studies conducted within the custom project development activities (select all that apply).



"Other" experience included reviewing/editing vendor surveys; direct interaction with contractors, vendors, and customers; conducting market research and literature reviews; and providing feedback on ISP studies.

Q7: Rate your familiarity with CPUC policy and guidance related to Standard Practice assessments for Custom measures (1 = Novice and 5 = Expert).



Stakeholder Responses

This section summarizes participant responses on various aspects of the baseline selection process, including improvement needs and opportunities.

Policy Compliance

One driver of the White Paper was stakeholder feedback that ISP policy is confusing and inconsistently followed. The survey requested stakeholder feedback on compliance with nine policy rules and found that:

- Only one policy rule was rated to “Always” happen by more than 90% of participants
- One policy rule ranked “Rarely” or “Never” by almost half the participants
- Four policy rules ranked “Rarely” or “Never” by more than 20% of participants

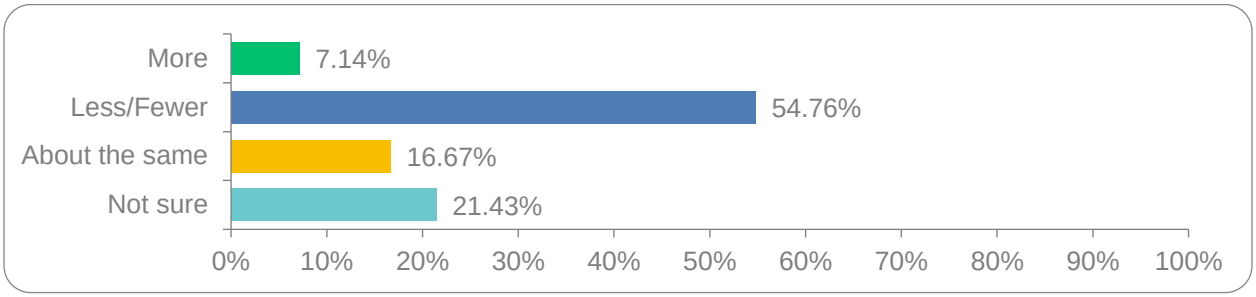
The figure below summarizes the participant responses on compliance for the nine policy rules surveyed.

Q9: Indicate your experience related to Informal ISP studies conducted within the custom project development activities (select all that apply)

General Experience

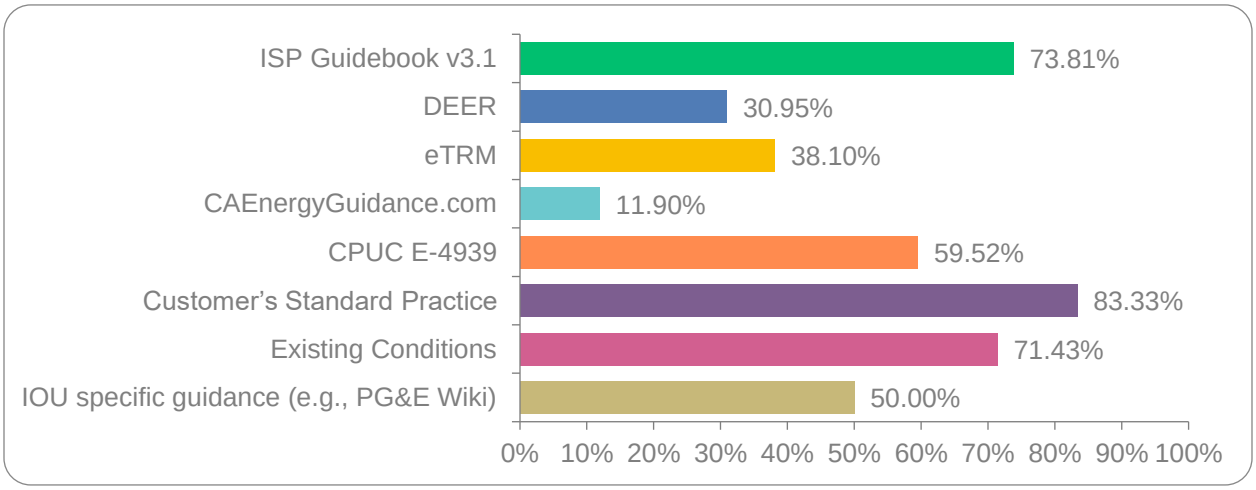
This section summarizes participant responses regarding their experience with Informal ISP Studies and the baseline selection process.

Q6: Do you expect to implement more, less, or approximately the same number of unique, non-lighting NEW, NR, AR, and applicable AOE custom measures in 2023?



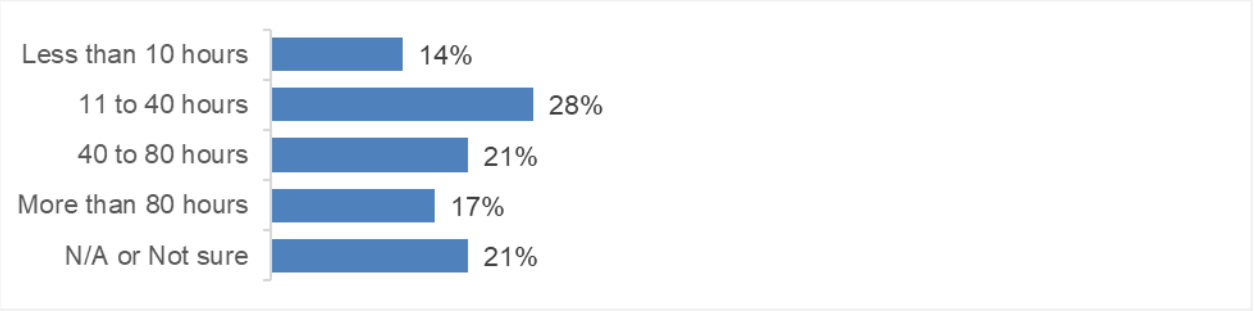
More than half (55%) of participants expect to implement fewer custom measures in 2023 compared to previous years; and only 7% expect to implement more. Among implementers, a higher majority (62%) anticipate fewer custom measures in future years.

Q8: Which of the following have you used to establish the Standard Practice baseline for a custom measure? Select all that apply.



Participants reported using a range of resources to establish standard practice baseline for custom measures. The CAEnergyGuidance.com website, developed in response to the E-4939 directive to provide a resource for baseline data, is the least used resource.

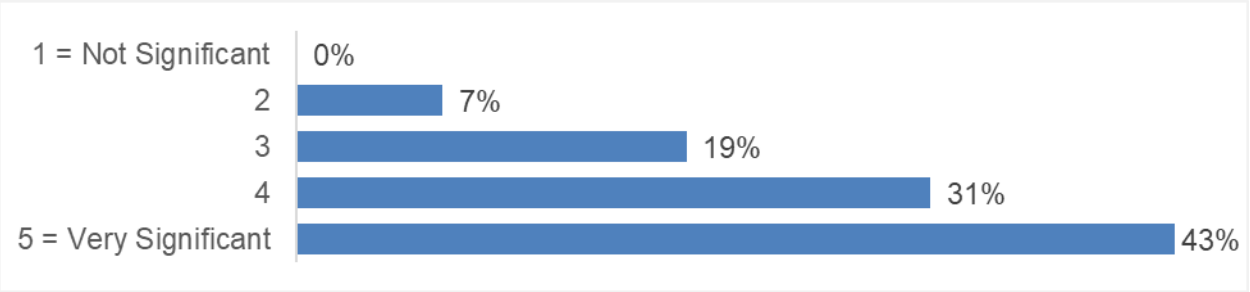
Q10: When considering a new Standard Practice baseline for custom projects (including developing, administering, and evaluating vendor questionnaires and work related to the feedback from technical reviewers), please estimate the average number of hours it takes to complete the Standard Practice baseline selection process for a single custom measure.



Among implementers, 38% of participants indicate more than 40 hours on average, and the weighted average hours among all implementer participants was 47 hours.

While the question prompted “Project Developers” only, six PA respondents responded (weighted average was 30 hours). The weighted average hours based on all PA and implementer responses was 43 hours.

Q29: Standard practice baseline selection is one component of developing a custom project (when applicable). Based on your experience, please rate the current Standard Practice baseline selection process in terms of a customer deterrent to doing custom EE projects (1 = Not significant and 5 = Very significant).



Not a single participant said the baseline selection process is “Not Significant” in deterring customers to do custom EE projects. Almost three-quarters (74%) rated 4 or 5 (very Significant), and 93% of respondents rated a 3 or higher.

Q20. Step 1 of the three-step process to determine the Standard Practice baseline involves reviewing whether a current CPUC-approved Standard Practice (CPUC memoranda or dispositions) exists and is applicable. What is your process for completing Step 1?

Examples of participant responses are provided below. The Subcommittee reviewed responses and had the following takeaways:

- There is no single or common practice to identifying existing standard practice data;
- Stakeholders use a wide variety of resources, often prioritizing personal experience and connections and private resources;
- CAEnergyGuidance.com search is difficult and content is outdated.

Examples of PA participant responses:

- “There really is no process. Dispositions are not really useable. We might seek CPUC guidance… In general, if ISP is uncertain, we are more likely to walk away from the project than to do a study because the business case to do a study rarely pencils out.”
- “Identify whether there is a CPUC-approved ISP Study exists. Read through the study to see if it applies to the project/measure in question.”

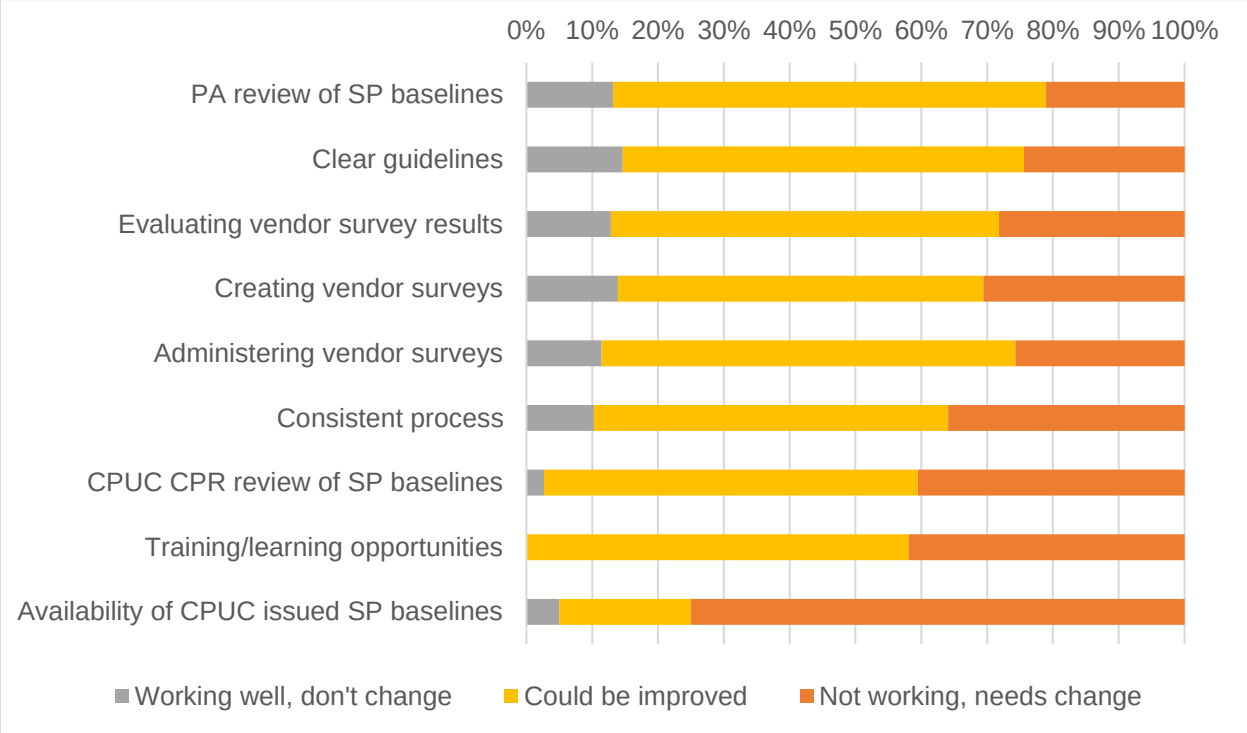
Examples of Implementer responses:

- “My process is to rely on our policy and engineering team that keeps up with all CPUC communications on Standard Practice. I defer to them for this type of information.”
- “Use memory to recall prior CPUC memos and dispositions and search the CAEnergyGuidance.com site.”
- “Finding and reviewing available and applicable material on CEDARS, eTRM, PG&E wiki, similar old projects etc.”
- “Referencing CAEnergyGuidance website to see if there is a formal ISP Study approved and listed, if not then we usually have to rely on memory if a relevant previous disposition or memorandum exists… The issue is that this relies on knowledge that such CPUC memoranda or dispositions exist. Ideally these should be broadly available for reference in a single location.”

Current State

This section summarizes responses regarding the current state of the ISP process.

Q21: Based on your experience, rate how well each of the following aspects of the Standard Practice baseline selection process is working. If you are not sure or do not have experience, select “Not Sure”.



For each issue, at least 85% of participants rated “Could be Improved” or “Not Working, Needs change.” No category had more than 15% of participants indicate it is “Working Well, Don’t Change.”

Participants rated the “Availability of CPUC-issued SP baselines” as the area needing the most change, with 75% of all respondents rating “Not Working, needs change” and less than 5% of participants rating “Working Well.”

Q22. Please elaborate on any aspects of the Standard Practice selection process (listed above or otherwise) that are working well.

Fifteen participants provided additional comments on aspects of the ISP process that are working well. Ten participants referenced the guidance, with three noting guidance on vendor surveys. Two implementer respondents noted IOU support. The remaining respondents mentioned consistent process, PA and CPUC review of SP baselines following the ISP guidance document, and data collection.

Ten participants emphasized areas not working well. These comments are included with the responses to the following question.

Q23. Please elaborate on any aspects of the Standard Practice selection process (listed above or otherwise) that are not working well.

Thirty-six respondents provided additional comments on aspects of the process that are not working well. Examples of these response are provided below, groups by common themes.

Complexity, Lack of Clarity, Inconsistent Understanding/Use of ISP Policy and Guidance

- “Guidelines are unclear and needlessly complex, even for industry veterans, engineers, and policy experts (Implementer)
- “Policy documents refer to other complex policy documents which in turn refers to other policy documents, which must each then be looked up individually for the current guidance to be remotely comprehensible - lack of any cohesive, single source for clear guidance even on specific topics.” (Implementer)
- “The current ISP Guidance blends both SP determination with influence which are separate aspects of project development; this confuses the process.” (Implementer)
- “Resolution and ISP Guidance does not provide clear guidance for cases where the results of informal ISP guidance are inconclusive.” (PA)
- “There really is no formal training on how ISP is really done.” (PA)
- “The guidelines are not always followed in PA and CPUC review and left to interpretation of PAs and CPUC which is often not the same. This is especially true for technologies where [SP] is inconclusive, which is common in Industrial or Process applications where the selected technology is unique to the site requirements.” (Implementer)
- “The process is different depending on the IOU and the individual reviewers within each IOU. This is partially because the guidance is not clear and allows interpretation.” (Implementer)
- “The guidelines of the CPR review for assessing a project's SP baseline are not clear.” (Implementer)

Limited Access to Information on CPUC-Approved Baselines

- “CPUC issued SP baselines are not available.” (Implementer)
- “It’s very challenging to find the information and to know if it’s the most up to date.” (Implementer)
- “There's not really a clear database of CPUC approved baselines and ISP studies that have been performed. It would be nice to have this readily available for users to find when needed.” (Implementer)
- “Previously approved SP baselines (by either PAs or CPUC) are not available to other project developers.” (Implementer)
- “Past ISP [determinations], other than the limited number of old studies on CAEnergyGuidance.com, are not tracked or made widely available for reference.” (Implementer)
- “Determining which [SP] selections are CPUC approved is also difficult as there are no central repositories of dispositions and successful [SPs] can only be gauged by a PA based on previous successful projects.” (PA)
- “While CAEnergyGuidance.com has some determinations, it doesn't appear to be comprehensive across utilities, and otherwise finding published CPUC issued SP baselines is not a streamlined process.” (Implementer)
- “CPUC approved [SP] baselines should be commonly available to use on other relevant projects instead of requiring the [SP] selection to happen for each project. Duplicative informal ISPs are being performed with different conclusions because of the lack of visibility to redacted dispositions or CPUC approved ISP studies.” (Implementer)

Cost, Time, and other Impact of ISP Study and Process Requirements on Project Development

- “Overly complicated. ISP studies take more than a year to complete and [are] subject to excessive engineering debate. Large obstacle to advancing projects.” (PA)
- “SP process is cumbersome and costly for project developers.” (Implementer)
- “Time consuming, customers frustrated with duration and unknowns; … Level of effort needed to complete is draining compared to savings level of project.” (Implementer)
- “The cost and time of conducting vendor surveys is perceived to be prohibitive for smaller projects.” (Implementer)
- “The process gets bogged down in PA review when creating surveys and evaluating results.” (Implementer)
- “The timeline for approval of each standard practice baseline determinations should be well defined and followed.” (Implementer)
- “Customer's projects have been cancelled due to SP causing the measure to be ineligible or savings/incentive reduced such that the project does not meet the customer's payback.” (Implementer)

Practical Challenges Inhibiting ISP Process

- “The information requested by CPUC to include in the surveys is quite difficult to obtain from vendors and would require additional research to obtain.” (Implementer)
- “It is difficult to get vendors to respond. They are busy selling and designing projects producing revenue. Due to the frequency of the requests, they tend to stop responding to different scenarios.” (Implementer)

- “The vendor survey does not work because would not provide enough information to establish that proposed measure is or not SP.” (Implementer)
- “Vendors don't like to respond because this is not part of their day-to-day job and we are asking for market information that some believe is confidential.” (Implementer)
- “Major issue that I have been encountering with informal ISP is discussing design with vendors and always getting the upsell speech. That has an impact on what is the appropriate equipment or device needed for a customer's application. This can kill the project based upon what is said and documented by the vendor. Finding vendors that have variety of equipment application / alternative options is imperative.” (PA)
- “I have seen some attempts to complete an ISP survey that only gets very few responses. Those surveys ask too many questions for any customer or expert, and many times it discourages the customer from moving forward.” (PA)

Inherent Subjectivity and Resulting Inconsistency/Uncertainty in SP Determinations

- “[SPs] seem to be very subjective and difficult to standardize. The [SP] of every project is developed at the development phase of the project and is not really centralized. For example, two projects might be similar in nature, and could potentially use the same [SP] due to the nature of the work and savings analyzed. However, based on the ED reviewer and other factors, the CPUC holds the ability to claim that the [SP] is sufficient to explain one project but not the other. Thus, no [SP] is ever truly CPUC-approved but instead… needs to be evaluated for possible inadequacies from project to project.” (PA)
- “You never really know what [CPR] determination you will receive, just cross your fingers and hope everything goes okay.” (Implementer)
- “Each PA has different expectations relating to the format and content of the Survey questions. Some PAs want to make each custom ISP so specific that it would only apply to that particular project although it is a widely used technology across industry and used in similar applications. Drafting non leading, but concise survey questions is a time-consuming and often challenging process, where different parties have varying levels of expectation.” (Implementer)
- “There is subjectiveness in the evaluation, and this is where the PA review takes a conservative approach to any judgement. Often, they ignore a vendor that supports a less efficient SP and choose the vendor's response for the more efficient SP.” (Implementer)
- “Rarely do the [vendor] responses align to provide a clear cut [SP]. This makes any evaluation per the SP definition of the commonly installed equipment difficult… I also question the statistical validity of three vendors’ responses… The questions do not ask anything about market share. Thus, it is impossible to tell how to weigh a vendor's response…” (Implementer)

Communication Challenges for Implementers During CPR

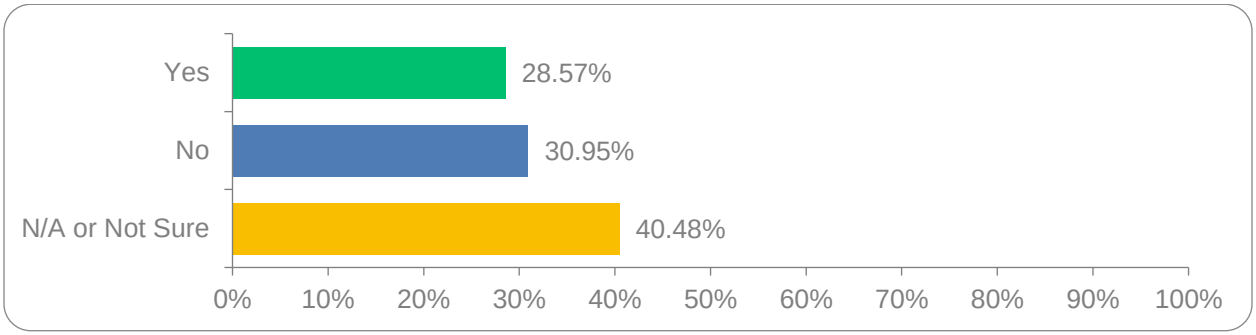
- “Progression and intent of policy decisions over time is not well documented or communicated. Both spirit and letter of SB 1131 not adhered to, with no recourse for PAs, implementers, or other stakeholders.” (Implementer)
- “Collaboration with CPUC has not been very constructive.” (Implementer)

- “Lack of collaborative process and communication with commission staff. No real system of checks and balances on CS review. No independent dispute resolution.” (Implementer)

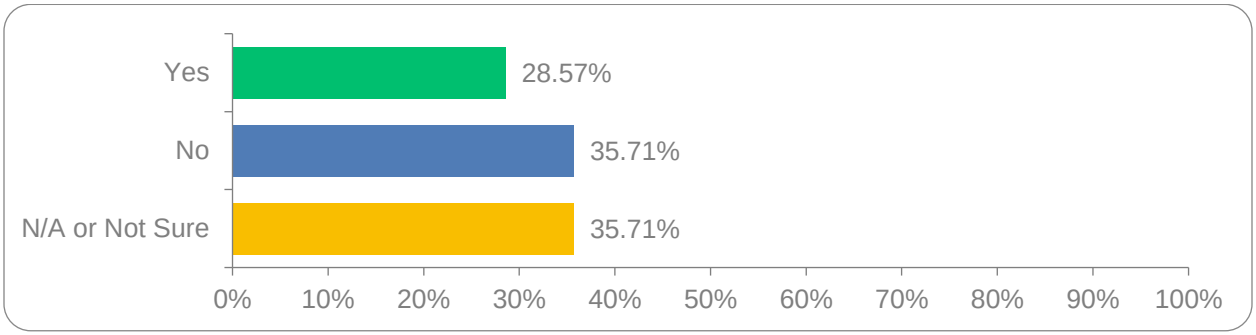
Baseline Rejections

Almost one-third (29%) of respondents had a baseline rejected or modified by a PA. 40% of respondents indicated N/A or Not Sure (11 implementers, 6 PAs). Similarly, almost one third (29%) of respondents had a baseline approved by PA Technical Review and rejected or modified by CPUC Technical Reviewer.

Q25: Have you had a Standard Practice baseline rejected or modified by a PA technical reviewer in the last three years?



Q27: Have you had an SP baseline approved by the PA technical reviewer and rejected or modified by a CPUC technical reviewer?



Respondents who replied “Yes” provided additional information, generally referring to disagreements on survey structure or findings or the withdraw/cancellation of projects based on perceived risk or level of effort to address reviewer comments:

- “Work on a [SP] determination for a governmental agency was abandoned when initial feedback on the proposed approach suggested that Commission Staff were unlikely to abide by the results because they did not agree with some of the initial findings.” (PA)
- “PA was concerned that CPUC might not accept it.” (Implementer)
- “Might not have been full denial but rework needed for not reaching out to enough customers vs vendors, perceived leading questions, sufficient sample size, what seemed like already decided efficiency standards by CPUC reviewer.” (Implementer)

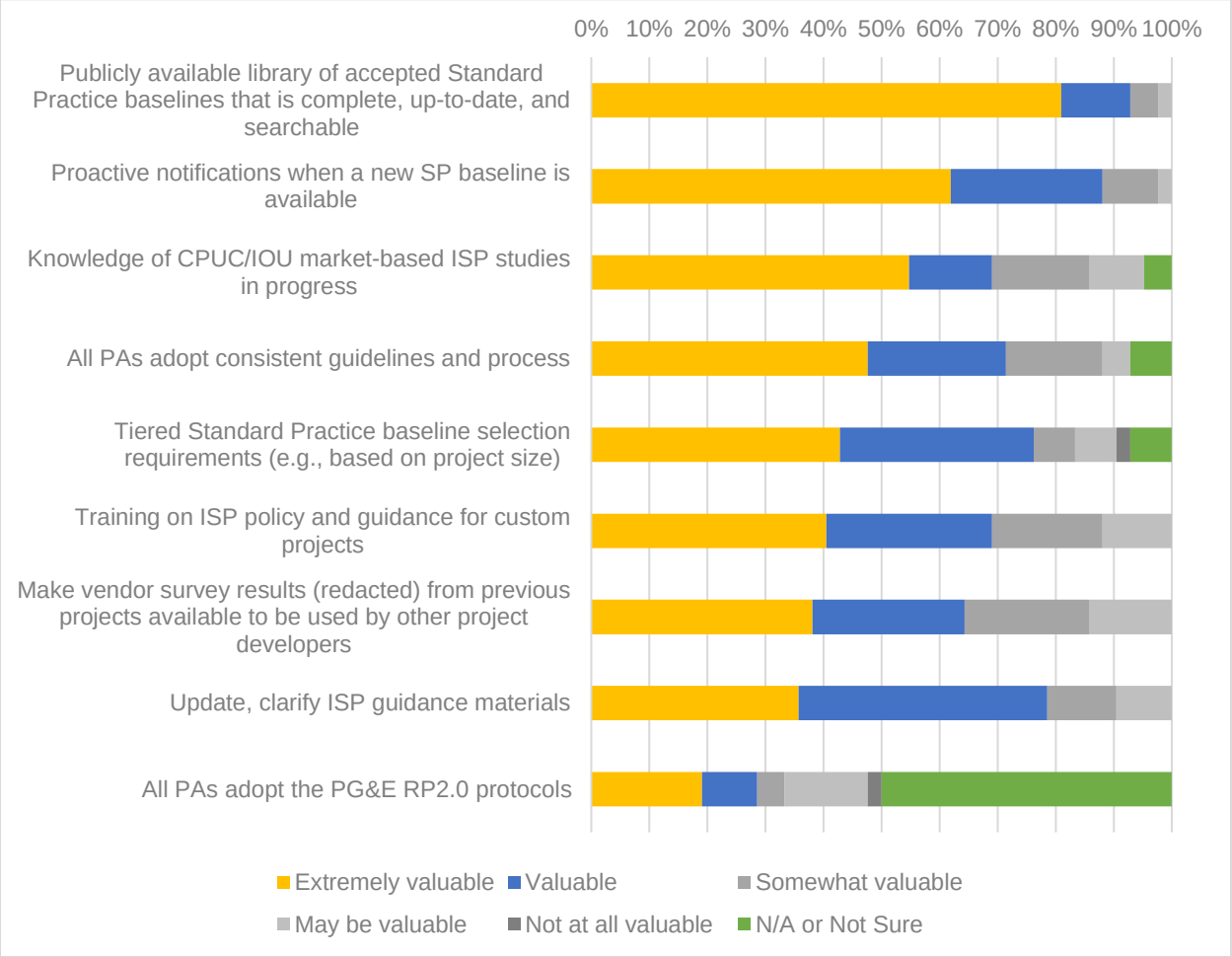
- “It was denied because the survey was inconclusive even though I followed the ISP Guidelines.” (Implementer)
- “Had to rework the vendor questions because there was a difference in opinion on the structure of the questions. Vendors didn't respond again and the project was denied.” (Implementer)
- “There was disagreement over interpretation of the vendor and customer surveys.” (Implementer)
- “[CPUC] did their own research… to change the ISP to what they already had in their heads it should be… One phone call… undermined all of our research.” (PA)
- “CPR… didn't fully conform with three-step process or the project development guidelines in ISP Guidance 3.1.” (PA)

Improvement Areas

Respondents ranked potential improvement areas. More than a 64% of respondents indicated all but one improvement activities would be “Extremely Valuable” or “Valuable.”[7] Both PAs and Implementers ranked “Publicly available library of accepted SP baselines that is complete, up-to-date, and searchable” and “Proactive notifications when a new SP baseline is available” in the top 3 improvements areas.

[7] 29% of respondents indicated “N/A or Not Sure” regarding the value of “All PAs adopt the PG&E RP2.0 protocols.” We confirmed through stakeholder discussions that this is likely due to lack of awareness among stakeholders about the protocol.

Q30: The table below lists potential activities to improve the ISP process for custom projects. Rate the potential activities to indicate how helpful or valuable they would be to you.



Twenty-three participants provided additional suggestions on ways to streamline or otherwise improve the ISP process for custom projects. These recommendations include:

- Simplifying and streamlining the guidance and processes
- Developing a tiered standard practice selection process
- Coordinating proactive standard practice research
- Incorporating sector-specific considerations in the SP development and determination process to take into account unique differences and customer decision-making practices
- Setting review timelines for SP studies and determinations
- Maintaining continuity in technical reviewers to improve efficiency and consistency
- Addressing overlap in standard practice, code compliance, and influence
- Eliminating standard practice research requirements for project developers
- Applying SP determinations prospectively

Measures for Proactive Research

Q32. What technologies/measures are you planning or considering pursuing in the next two years for which a known and accepted Standard Practice baseline would be beneficial? Indicate the sector, measure/technology, and priority level (low, med, high).

Thirteen respondents (3 PAs and 10 implementers) provided input on priorities for proactive or future research on standard practice baselines:

- Electrification Measures
    - Electrification of non-residential buildings
    - Electrification of gas domestic heating not covered by deemed measures for commercial (e.g., pool heater electrification)
    - HVAC and WH electrification where deemed measure is not available
    - Commercial heat pump water heaters for HHW systems
    - Heat Pump Chillers
    - Heat Pump Pool Heater
- Agricultural / Industrial
    - All AG measures will probably need a new ISP in the next year
    - Irrigation, refrigeration, chillers, and process cooling
    - Glass manufacturing and food processing sectors (furnace and boiler retrofit, heat recovery system, compressed air and refrigeration systems optimization)
    - Industrial Heat Pump
- Wastewater Measures
    - Blower technologies and controls
    - UV disinfection systems
    - MBR systems
    - Mixing for digesters, anoxic tanks, and aeration tanks
    - Sludge Thickening
    - Digestion
- Other
    - Horticultural lighting
    - Pumping technologies that are not covered by DOE pump efficiency standards
    - Turbo blower replacement
    - Large process boilers exceeding the deemed measure package capacity
    - Data Centers and USP
    - Air Compressors

Additional Comments and Recommendations

Q33. Is there anything else you would like to share regarding challenges or potential improvement to the standard practice baseline selection process for custom measures, or do you have any questions for the Cal TF team?

Eleven respondents provided additional comments at the end of the survey. These comments echoed and emphasized comments provided throughout the survey, including:

- Need to streamline and right size the process to the value of work so that the process does not impede projects and leave stranded energy savings;

- Challenges getting responses from subject matter experts and vendors, and the inherent disadvantage for small PAs and implementers;
- Need for customer- and market-specific considerations such that the requirements, process, and determinations reflect customers' reality;
- Need to improve transparency and access to baseline information to avoid surprises and redundant work;
- Need to improve communication about guidance/policy changes;
- Recommendation to coordinate code and code development (e.g., CASE studies), market activity, and code compliance research with standard practice research and determinations ISP process;
- Need to clarify guidance on when an ISP study is required; and
- Need an effective process for inconclusive and/or conflicting standard practice determinations.

Examples of additional participant comments are provided below:

- "Key obstacle to advancing custom projects. Strong negative impact to project predictability and to the business case for going through programs. Need to reevaluate tradeoffs between precision and actually completing projects." (PA)
- "There is a lot of "silo"-ing of information, so anything that can be done to share redacted work on SP baseline selection or prevent each project from having to repeat the same activities, such as shared informal studies, or making a searchable database available would be helpful." (Implementer)
- "If the ISP process remains, it is imperative that we find ways to streamline the effort for project developers and the reviewers. Making SP determinations public would be a great start." (Implementer)
- "May be a good idea to have more guidance on what would constitute an informal ISP study versus a full ISP study." (Implementer)
- "We have many instances where we deal with customers whose realistic alternative is not our ISP and their project drivers and metrics are much different than our programs… These are the nuances that make our programs look out of touch and ultimately discredits them. When we can defer to AHRI, ASHRAE, DLC, DOE, Title-24, etc. for standards, they are widely accepted and understood… ISPs should only be done to fill gaps where code does not cover, they should be highly vetted by comments from industry professionals." (PA)
- "It seems that customer's standard practice has little weight on actual standard practice selection given information from vendor survey and is instead used check for regressive baseline. I would recommend that the customer's standard practice has influence on final selection: if no conclusive technology in market is outperforming the other technologies, the customer's existing nominal technology to be considered standard practice baseline. Or if customer's standard practice has no weight on selection of baseline technology, then the customer survey is shortened and simplified to only check for regressive baseline: Did customer already install or select a technology; if so what technology." (Implementer)
- "Since code is relevant to future SP baselines, there should be a formal way to link proposed CASE studies/T24 updates to the ISP process." (Implementer)

Key Findings

The Subcommittee summarized the following key findings from the ISP Stakeholder Survey:

1. Stakeholder are concerned about the complexity, practicality, and implementation challenges of baseline/ISP policy.
2. Stakeholders believe that every aspect of the ISP process needs improvement or needs change. No category has higher than 15% respondents indicate “Working Well.” More than a 64% of respondents indicated all improvement areas would be “extremely” valuable” or “valuable” for all but one area listed.
3. Policy is not consistently implemented.
4. Both PAs and implementers indicated gaps in familiarity with policy and guidance
5. Stakeholders use a variety of sources to develop SP baselines for custom measures, and CAEnergyGuidance.com is the least used resource.
6. There are inconsistent outcomes in PA and CPUC review. Almost one third of implementers indicate they have had a baseline rejected or modified by a PA, and almost one-third of respondents indicate they have had a baseline approved by PA technical reviewer and rejected by CPUC reviewer.
7. SP Baseline Selection process adds significant workload to process (38% of implementer respondents indicate more than 40 hours on average); Cost of SP requirements is unclear; PAs estimate of hours was 2/3 implementer estimate
8. Both PAs and implementers expect to implement fewer custom measures in 2023 compared to previous years. Stakeholders describe that declining implementation numbers are related to the cost and challenges of developing custom measures.
9. Both PA and Implementer respondents indicate SP baseline selection process is a significant customer deterrent to doing custom EE projects
10. Stakeholders see high value in improving availability of CPUC-issued SP baselines. 75% of all respondents indicated the “Availability of CPUC-issued SP baselines” is “Not Working, needs change”