Southern California Edison

Statewide Electric Emerging Technologies Program (SWEETP)

Implementation Plan

First Filing Date: 01/22/2022
Revision Filing Date: 01/22/2022

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1. Program and/or Sub-Program Name

Statewide Electric Emerging Technologies Program (SWEETP)

2. Program and/or Sub-Program ID Number

SCE_SW_ETP_Elec

3. Program and/or Sub-Program Budget Table

Table 1: Program Budget Overview

Pricing All Inclusive	Program Budget ($)				
Program Budget Cost Elements	2022	2023	2024	2025	Total
Administration Costs (*10% Budget Hard Cap*)	$686,415	$930,674	$930,674	$934,698	$3,482,461
Direct Implementation - Non-Incentive Costs	$13,330,540	$16,889,273	$16,889,273	$16,962,301	$64,071,388
Total Budget	$14,016,955	$17,819,947	$17,819,947	$17,896,999	$67,553,849

4. Program and/or Sub-Program Gross Impacts Table

N/A - This section is not applicable because SWEETP is a non-resource program that does not claim savings.

5. Program and/or Sub-Program Cost-Effectiveness (TRC)

N/A - This section is not applicable because SWEETP is a non-resource program that does not claim savings.

6. Program and/or Sub-Program Cost-Effectiveness (PAC)

N/A- This section is not applicable because SWEETP is a non-resource program that does not claim savings.

7. Type of Program and/or Sub-Program Implementer

Table 2: Program Implementer Classification

Program Implementer	
Program Administrator (PA)-Delivered	☐
Third Party-Delivered	☒
Partnership	☐

8. Market Sector

Table 3: Program Target Market Sector

SCE Business Plan Sector	Yes
Residential	☐
Commercial	☐
Industrial	☐
Agricultural	☐
Public	☐
Cross-Cutting	☒

9. Program and/or Sub-Program Type

Table 4: Program Type

Program Type	
Resource	☐
Non-Resource	☒

10. Market Channels and Intervention Strategies:

N/A: This section is not applicable because SWEETP is a non-resource program that does not claim savings.

Table 5: Market Channels and Intervention Strategies:

Market Channels	
Upstream	☐
Midstream	☐
Downstream	☐

Market Channels	
Intervention Strategies	
Direct Install	☐
Incentive	☐
Finance	☐
Audit	☐
Technical Assistance	☐
Other	☐

11. Campaign Goals and Timeline:

The SWEETP timeline includes a four-year period to begin projects, from 2022 through 2025, as well as two additional years to complete projects, from 2026 through 2027. The Program team has set quantitative targets and goals for each of the program's project types, defined as:

- Focused Pilot(s): Emerging technology projects focused on high-impact technologies that identify market barriers, conduct pilot tests through installations and interventions to address market barriers, collaborate with other programs, and determine whether the technology should be transferred to energy efficiency resource programs and/or the Market Transformation program.
- Technology Development Research: Emerging technology projects focused on further developing the commercial capability of *early-stage* equipment, technology, or products that are not available in the market to improve the ability of such equipment, technology, or product to generate energy savings or otherwise reduce energy consumption or demand.
- Technology Support Research: Emerging technology projects focused on overcoming market barriers or further developing the capability of *market-ready* equipment, technology, or products to improve the ability of such equipment, technology, or product to generate energy savings, reduce energy consumption or demand, or support new measures eligible for energy efficiency resource programs.
- New Technology Priority Map(s): New frameworks that document the potential, needs, and market readiness of all technologies across each of the end-use areas to drive product ideation and inform project selection. The Program team will leverage the existing Technology Priority Maps (TPMs) to launch the program.
- Revised Technology Priority Maps(s): Updates to the existing frameworks that document the potential, needs, and market readiness of all technologies across each of the end-use areas to drive product ideation and inform project selection.
- Outreach Event(s): Events, such as webinars, forums, and workshops, where the SWEETP will deliver program policy information, disseminate emerging technology project results, and receive input from emerging technology market participants.
- Scanning and Screening: The activities related to sourcing, scanning, screening, and prioritizing potential emerging technology demonstration projects that could be implemented through the program. The Program team will conduct Scanning and Screening activities on an ongoing basis and will plan them quarterly.

The following table represents the project goals for the duration of the program period:

Table 6: SWEETP Program Goals Overview

Project Type	Focused Pilot(s)	Technology Development Research	Technology Support Research	New Technology Priority Map(s)	Revised Technology Priority Map(s)	Outreach Event(s)
Project Targets	10 Projects	34 Projects	126 Projects	7 TPMs	21 TPMs	40 Events

Focused Pilots, Technology Development Research, and Technology Support Research represent the program's goal of 170 total emerging technology demonstration projects. This Implementation Plan describes these project types as well as the others in the following sections.

2. Implementation Plan Narrative

1. Program Description

SWEETP (or Program) provides a comprehensive set of offerings that support adoption of emerging and underutilized technologies into the California (CA) electric investor-owned utilities (IOUs)[1] energy efficiency (EE) portfolios. This program is composed of the following components:

Planning and Prioritization: SWEETP will conduct significant stakeholder engagement to align program priorities with the evolving needs of the portfolios. This includes developing and annually revising Technology Priority Maps (TPMs) to inform program direction and the specific areas of focus. Based on these TPMs, SWEETP will also develop a Prioritization Framework[2] and publish Quarterly Technology Area reports that summarize the program's key focus areas and results. Publishing program priorities will help communicate research priorities and program direction to interested stakeholders[3].

Scanning and Screening: Based on the published TPMs, the Program team will establish a robust scanning and screening process to develop a project pipeline. This includes broad outreach to wide range group of stakeholders to provide structured guidance to encourage a wide range of high-quality idea submissions aligned with portfolio needs. This includes communicating program priorities, application processes and scoring criteria to support their participation. The following table summarizes the stakeholders involved with SWEETP:

Table 7: Overview of Key Stakeholders by SWEETP Activity Area

Stakeholder Group	Stakeholder	Key SWEETP Activity				
		Planning and Prioritization	Technology Priority Maps	Scanning and Screening	Project Implementation	Technology Transfer
Utility/Energy Provider Stakeholders	IOUs	Essential	Essential	Desirable	Essential	Essential
	Program/Solution Implementers	Desirable	Essential	Essential	Essential	Essential
	Codes and Standards	Desirable	Essential	Optional	Essential	Essential
Technology Market Actors	Technology Experts	Desirable	Essential	Optional	Essential	Optional
	Manufacturers	Desirable	Desirable	Essential	Essential	Optional

[1] The California Electric IOUs include Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Edison.

[2] "Prioritization Framework" is a decision support tool with flexibly weighted ranking for Project evaluation criteria, determined in partnership with stakeholders based on program priorities. It will be the basis for evaluating submitted Technology Development Research and Technology Support Projects, identifying potential Focused Pilot technologies, and shaping Project scopes.

[3] Stakeholders include, but are not limited to, Technology Developers, technology evaluators, program administrators, policymakers, third party consultants or businesses, and other groups.

	Supply Chain	Desirable	Desirable	Optional	Desirable	Optional
External ET Stakeholders	Project Implementers	Not Involved	Desirable	Essential	Essential	Optional
	Green Building Think Tanks	Not Involved	Desirable	Optional	Desirable	Optional
	ET Collaborators	Desirable	Essential	Not Involved	Essential	Desirable
	Technology Financers	Not Involved	Desirable	Optional	Optional	Optional
Other Stakeholders	DAC/HTR Organizations and CBOs	Desirable	Desirable	Essential	Essential	Optional
	Customer Representatives	Not Involved	Optional	Optional	Optional	Optional

SWEETP will review and select submitted project ideas on a frequent basis to maintain a robust set of projects. portfolio.

For each selected project, SWEETP will develop a Project Plan outlining specific project type (e.g., market research, lab evaluation, scaled field-placement, Focused Pilot, Fast Track demonstration[4]), research and tasks to achieve individual project objectives. This project plan will document scope, budget, timeline, alignment with program priorities, and plans to support information transfer. The Program team will solicit stakeholder feedback on the plan.

Upon approval of the Project Plan from Southern California Edison, the project will move into the technology demonstration phase.

Each project will be implemented by the Program team based upon the project plan. As the project proceeds, the team will publish a preliminary findings report, a draft report, and a final report.

Dissemination: Once projects are completed, the Project team will communicate project findings to stakeholders through a variety of mechanisms. SWEETP will disseminate program-level process information and results through webinars, emails, events, the program website, and other marketing media as needed to promote public visibility and engage stakeholders.

Technology Transfer: SWEETP will facilitate technology transfer to the IOU portfolios by conducting dedicated meetings with key stakeholders both during the annual planning process and upon completion of the final report. While SWEETP efforts focus on maximizing information and knowledge transfer support the uptake into the portfolio, uptake is reliant on resource program implementers to fully scale measures into the IOU portfolios.

[4] "Fast Track" is a process to provide focused outputs addressing immediate portfolio needs, such as technical data required for a workpaper update. SWEETP will work closely with stakeholders to set identification criteria based on needs defined by the portfolio and Workpaper Development needs.

Program Objectives:

SWEETP's primary program objectives are:

- Clearly communicate Program priorities to the SWEETP stakeholder community.
- Scan, prioritize, and evaluate commercially available, emerging, or underutilized technologies to support increased adoption in the IOU portfolio.
- Communicate project results to the broader market to support information transfer among stakeholders and advance industry understanding of energy efficient electric technologies, market barriers, and business strategies in order to support scaling.
- Advance California's decarbonization, equity, and grid priorities by incorporating them into the Prioritization Framework and executing emerging technology research Projects that support the utility energy efficiency portfolio.

2. Program Delivery and Customer Services

Program Description: SWEETP will evaluate new technologies and program delivery mechanisms to meet the evolving needs of the California IOU portfolio. SWEETP is a non-resource program with cross-cutting offerings that span across all technology areas, including but not limited to Appliances, Heating Ventilation & Air Conditioning (HVAC), Lighting, Process Loads, Water Heating, and Whole Buildings and Homes. The program will serve all sectors. SWEETP will deliver its offerings through the following services and tools:

Planning and Prioritization: The SWEETP Program begins with identifying the EE portfolio needs on an annual cadence by seeking input from portfolio program managers and a program advisory committee consisting of external stakeholders, categorizing each need on a short, medium, and long-term basis. Portfolio needs to cover a breadth of focus areas from improving individual resource program performance to meeting longer term California policy goals such as evolving building codes and electric grid decarbonization, as per Recommendation 2 of the Emerging Technologies Program Handoff Process Evaluation[5] to ensure close coordination internally and with the California Public Utilities Commission (CPUC).

The collected EE portfolio needs are then to be compiled into TPMs, all updated annually. Engaging market and technology development actors prior to finalizing each TPM is a crucial step to discern the market state of a technology as well as to understand the supply chain ecosystem and market dynamics (manufacturers, distributors, addressable customer market, etc.) as it currently exists and how it needs to evolve to achieve scale.

SWEETP will address all six technology categories described in the existing TPMs, at minimum. To streamline the TPM development and update process, the Program team may group related TPM technology families into meta-categories for purposes of annual TPM planning. Updating one grouping per quarter ensures a well-resourced, predictable process that keeps key market stakeholders engaged and aware, while ensuring alignment of projects with program priorities. SWEETP will initially offer the four major groupings below, with the Focused Pilot TPM integrated across all groupings.

[5] http://www.calmac.org/publications/CPUC_ETP-3_Handoff_Study_Report_FINAL_10-29-20.pdf

1	2	3	4
HVAC and Water Heating to support decarbonization strategies	**Whole Buildings / Whole Home** incl. Plug Loads, Control, Distributed Energy Resource Management (DERMs), Load Flexibility	**Lighting and Appliances** leveraging national standards	**Process Loads** incl. Commercial, Industrial, Ag and Water

Figure 1: Summary of Annual TPM Update Process.

Each number represents the quarter of each year that the annual TPM update will occur (subject to change). For example, HVAC and Water Heating TPMs will be updated in Q1 of each calendar year, Whole buildings/Whole Home will be updated in Q2, etc.

These groups will support cross-pollination and coordination among related technologies in support of key portfolio priorities. Groups may be adjusted annually to respond to changing market conditions or program drivers. Screening ideas by group, with a well-publicized monthly rotation, will create a streamlined and holistic review process.

Once the TPMs have been updated each year, SWEETP will adjust the Prioritization Framework intended to rank potential Project ideas (solicited and submitted to the program) against the TPMs, both within a TPM and across all the TPMs, and within SWEETP budget constraints. Moreover, the Prioritization Framework will identify potential Focused Pilot or Fast Track-sourced Projects that address high priority portfolio needs. Focused Pilots will involve the development of a specialized TPM – updated annually – for specific technologies that have high potential to deliver substantial savings to the portfolio but has not been widely adopted in the marketplace due to persistent market barriers.

Scanning and Screening: SWEETP will leverage the existing TPMs or revised TPMs to engage with the market ecosystem to solicit ideas for emerging technology Projects. Market engagement will begin with developing a comprehensive communications and engagement plan, including updating the website with SWEETP priorities and holding forums with Technology Developers and Technology Development Actors across both California and the country at-large. Articulating the program's priorities with direct market engagement, including urgent portfolio needs via Fast Track, will drive submission of focused ideas that are more likely to align with the portfolio's needs. To solicit the portfolio aligned ideas SWEETP will conduct targeted Request for Ideas (RFIs) based on the TPMs and designated Fast Track Projects. In addition to RFIs, the Program team will conduct stakeholder outreach to solicit ideas. This outreach may include but is not limited to individual meetings with energy efficiency program managers, quarterly meetings with CalTF, and ad hoc meetings with technology developers and technology development actors.

Scanning and Screening Projects are intended to solicit Project ideas for the Technology Development Research, Technology Support Research, and Focused Pilots Project types from the market, and then screen the submitted ideas against the Prioritization Framework for viability and feasibility to match short-term, medium-term, and long-term portfolio needs. These Projects

will enable targeted solicitation and prioritization of ideas from the market to continually deliver value to the portfolio.

Submitted Project ideas will be reviewed and evaluated monthly, where one or two TPM technology areas will be reviewed each month on a rotating schedule. Evaluation entails utilizing the Prioritization Framework to determine which Project ideas are to become actual Projects, with feedback provided to submitters of ideas which will not initiate Projects in order to increase program transparency and improve quality of future submissions.

Additionally, SWEETP will leverage funding, where possible, to maximize its reach and scale. This approach to co-funding projects will take advantage of Program team networks of state and national programs and initiatives.

During the scanning and screening process, SWEETP staff will collaborate with California Energy Commission (CEC) Electric Program Investment Charge (EPIC) program and other Emerging Technology (ET) funders' work, identifying opportunities to collaborate on project scope development that can support ET program and EE portfolio objectives.

Technology Research: Technology Research activities may range widely in their goal of supporting broad market adoption of emerging and underutilized technologies. Project types may include but are not limited to:

- Verifying a technology's technical (i.e., savings) claims, via a lab study or field evaluation.
- Better understand market barriers or assess a technology's scalability of savings for the portfolio.
- Evaluate new program approaches to increase adoption.
- Specialized Fast Track Projects that provide focused outputs addressing immediate portfolio needs, such as technical data required for a workpaper update.[6]

Focused Pilots: Focused Pilots will be composed of a group of research Projects that collectively address a comprehensive set of barriers associated with a specific technology (e.g., residential heat pump water heaters). During the TPM development process, the Program team will create Blueprints that map the end-to-end market barriers for each high-potential technology being considered for a Focused Pilot. The Blueprints will detail the most cost-effective and scalable approach to incorporate the Focused Pilot technology into the portfolio, at scale, as per Recommendation 1 of the Emerging Technologies Program Handoff Process Evaluation to leverage Focused Pilots and market transformation (MT) that will enable more flexibility in program deployment to promote innovative emerging technologies. This may be through resource acquisition programs, the MT framework, Codes & Standards (C&S), other portfolio structures, or a combination of all of the above. Each Focused Pilot Project will have a unique, stated hypothesis to test on how to overcome these documented market barriers for the Focused Pilot technology along with metrics to determine whether the hypothesis is plausible or should be rejected. Focused Pilots will address true end-to-end market pain points for the technology with a holistic view of how each market pain point or barrier can be solved by building on previous solved pain points. Moreover, SWEETP strategically will engage with regional and national

[6] These Projects will be limited to specific types of Projects with predetermined outputs that can be applied to the portfolio, streamlining Project design and implementation.

collaboratives to gather further information on ongoing or completed applied research efforts focused on the Focused Pilot technology, then adapt the Focused Pilot Project scope for CA context.

Workpaper Development: Workpaper Development will create new measures for technologies or technology applications, establishing savings claims and enabling them to be integrated into the energy efficiency portfolio. If a completed research project provides data that can contribute to a new workpaper or the update of an existing one, SWEETP will develop and/or update existing workpapers to create new measures. By clearly linking ET studies and subsequent Workpaper Development, the SWEETP program will help introduce additional savings opportunities into the energy efficiency portfolio.

Dissemination: SWEETP will focus on communicating program activities and results of programs and projects to SWEETP stakeholders. Dissemination activities may include a series of Outreach Events, publishing of program and project reports to the program website, and Dissemination tools include marketing collateral, webinar facilitation services, and a website.

For market engagement to contribute to the desired portfolio impacts, SWEETP dissemination to the market ecosystems is necessary via Outreach Events. Outreach Events may also entail publishing the portfolio priorities (via the TPMs) on the SWEETP website to gather ideas, hosting targeted events and industry conferences with market actors such as manufacturers and distributors, holding webinars on Project results to inform SWEETP progress on a regular cadence along with frequent website updates, and providing public visibility of SWEETP activities to engage with key stakeholders including but not limited to the market supply of new and emerging technologies, as per Recommendation 3 of the Emerging Technologies Program Handoff Process Evaluation to provide additional transparency to Technology Developers and Technology Development Actors.

Technology Transfer: The final, crucial element of SWEETP is its objective to transfer promising and vetted technologies into the portfolio, in the mechanism that allows for the most scalable and cost-effective inclusion into the portfolio to generate high impacts – and help achieve portfolio goals. SWEETP does not actually transfer the technology into the portfolio but rather provides strategies and recommendations, and continually monitors progress of the technology's inclusion (or lack thereof) to support the technology's portfolio impact as its potential may indicate. Strategic considerations on technology transfer into the portfolio is embedded into the Project from the moment a solicited idea is selected to proceed to Project execution stage and continues through the Project's final report. For non-Focused Pilot designated technologies, SWEETP convenes a specific stakeholder group per recommended technology to identify the technology's transfer pathway, which can be a deemed measure through the development (or update) of a workpaper, the Normalized Meter Energy Consumption (NMEC) framework, suitable for future Codes & Standards cycles, hand-off to the Market Transformation Framework, or an alternative pathway into the portfolio. Similarly, Focused Pilot-designated technologies utilize the Focused Pilot Blueprint to identify the technology's transfer pathway through the Focused Pilot's stakeholder groups. Each recommended technology's specific stakeholder group not only determines the optimal pathway for the technology to be included in the portfolio, but also monitors the recommended modifications and adjustments to overcome obstacles highlighted by the Project reports through Focused Pilot implementation. Per Recommendation 4 of the Emerging Technologies Program

Handoff Process Evaluation, the Focused Pilot will track metrics to assess the effectiveness of the handoff process upon Project completion. Through this end-to-end critical-thinking approach of how to transfer the technology into the portfolio right from Project idea selection, new and emerging technologies have higher probabilities to meet portfolio needs and deliver impacts throughout the technologies' effective useful lives (EUL).

Fast Track: High impact project ideas that can result in immediate benefits to the portfolio are addressed by designated Projects that streamline and accelerate the process to approve Projects able to meet those urgent needs – the Fast Track process. This process SWEETP to rapidly initiate Projects with potential to update existing or underutilized portfolio measures by aligning standard data models with Electronic Technical Reference Manual (eTRM) to develop workpapers faster, facilitating faster workpaper approval.

Disadvantaged Communities and Hard-to-Reach Customers: SWEETP includes a dedicated focus to align emerging and underutilized technologies with the specific needs of Disadvantaged Communities (DAC) and Hard-to-Reach (HTR) Customers. The SWEETP team will engage with community-based organizations to provide insight into technical and non-technical opportunities and challenges for DAC and HTR communities, directly influencing the types of SWEETP Projects targeted for DAC and HTR customers. Based on feedback from these organizations, SWEETP will prioritize technologies that demonstrate additional potential or address specific barriers for DAC and HTR communities.

3. Program Design and Best Practices

California is fortunate to have multiple significant programs focused on early-stage technology research, demonstration, and deployment. Each initiative has specific strengths and roles. SWEETP's role within the landscape is primarily to support demonstration, deployment, and technology transfer specific to the utility portfolio, identifying and engaging with the most applicable pathways to larger-scale deployment.

SWEETP identifies and tracks pre-commercialization activities across a variety of initiatives and organizations such as CEC EPIC, screening them for potential portfolio fit and data gaps that SWEETP can proactively address. The Program team will engage IOU program administrators, MT, and C&S staff as Program Advisors to support coordinated roadmaps, align data needs, and optimize SWEETP Project scopes. Key state priorities like equity, building decarbonization, and IDSM will be incorporated into the flexible Prioritization Framework. SWEETP will utilize the following groups:

Program Leadership Team: Energy Solutions will be responsible for overall SWEETP management, with oversight from SCE, the lead PA, and input from a Program Advisory Committee composed of external organizations. SWEETP will designate Team Leads who consult on program strategy and manage their organization's contributions to the program, which may include operational support.

Technology Area Teams: A cross section of Program team subject matter experts that will lead planning and prioritization, scanning and screening, and project selection.

Technology Area Leads manage these teams, oversee technology portfolio performance and metrics, and coordinate dissemination and technology transfer.
Project Implementers: Qualified Program team staff will implement projects and report to the Technology Area Lead.

SWEETP will continue using the tactical strategies of technology assessment, development support, and transfer, combining the key elements into one comprehensive program with these best practices.

Table 8: Overview of market barriers, strategies, tactics and best practices

Market Barrier	Strategy	Tactics	Best Practice
More portfolio needs are identified than can be addressed by available funding and resources.	Maximize impact of funding to address portfolio needs.	- Coordinate regionally and nationally with other programs. - Establish clear priorities to source project ideas that have a high probability of addressing portfolio needs.	Leverage funding and reduce duplication of efforts.
Key Technology Developers (TD)[7] and Technology Development Actors (TDAs)[8] are not aware of SWEETP priorities.	Utilize transparent, accessible program information.	- Maintain an online presence and publish priorities to inform idea submissions. - Gather industry contacts and maintain a service list to consistently distribute program information. - Hold targeted Outreach Events.	Provide information in an accessible and transparent format across a large network of interested parties.
Projects are not actively meeting milestones due to unforeseen circumstances.	Minimize delays and employ risk mitigation strategies.	- Develop plans that document anticipated risks, mitigation strategies, dependencies, and constraints for each project. - Gather stakeholder feedback during planning process to flag risks.	Document and prepare for potential risks during the early stages of project implementation.
The level of data rigor does not meet minimum requirements for measure development.	Establish and align data requirements to facilitate transfer to the portfolio.	- Coordinate with relevant stakeholders including the California Technical Forum (CalTF) and the CPUC to meet data requirements. - Identify Workpaper Development opportunities early in the project implementation process.	Optimize the output of information from projects to improve data quality required for measure development.

[7] Technology Developers are market actors that manufacture or develop technologies.
[8] Technology Development Actors are market actors and organizations that are involved in the research and development of technologies.

New measures receive insufficient uptake after transfer into the portfolio.	Implement a needs-driven approach for selecting projects.	- Implement Focused Pilots to understand and address market barriers for high-potential technologies. - Align portfolio needs with Prioritization Framework. - Engage market and program administrators early to identify portfolio needs.	Focus on engaging outreach and clear communication to identify portfolio needs and integrate them into the program.
Standard emerging technology projects take longer than required to effectively meet portfolio needs.	Accelerate the timeline from identifying portfolio needs to project completion.	- Provide oversight across all projects and streamline operations. - Deploy project management software and standardized contracting resources.	Streamline project timelines to improve operational efficiency.

4. **Innovation**

Implementation Plan

SWEETP will enhance the existing prioritization process, accelerate the adoption of measures into the portfolio, and declare the key focus of each Focused Pilot through the use of innovative processes, all of which will minimize lost opportunities and increase transfer of effective energy efficiency technologies into the energy efficiency portfolio and broader market. The innovative processes include:

Table 9: Overview of innovative program elements by program area

Program Area	Innovation	Improvements	Description	Metrics
Planning and Prioritization	Quarterly TPM Cycles	- Consistent, communicated update process. - TPMs updated on an annual basis to inform idea selection.	The seven TPMs (six TPMs for each technology area and one TPM for Focused Pilots) will be organized into four groups. One group will be reviewed each quarter to promote consistent updates to the TPMs and utilize subject matter expertise efficiently.	- ETP-M2: Number of Technology Priority Maps updated.
Scanning and Screening	Flexible Prioritization Framework	- Publicly shared priorities for idea selection. - Flexible approach for adjusting framework based on stakeholder feedback. - Inclusion of a low-income advisor to define priorities for DAC and HTR opportunities.	A Flexible Prioritization Framework will be utilized to continually adjust how SWEETP Projects are selected based on, for example, business plan objectives and market development of technologies. This flexibility enables SWEETP to dynamically adjust the direction of SWEETP impacts based on changing market conditions or portfolio needs. The Program team will leverage the experience of a subcontractor who specializes in low-income communities to encourage inclusion of DAC and HTR opportunities in the Flexible Prioritization Framework.	- ETP-M3: Number of projects initiated. - ETP-T6/T7: Number and source of potential emerging technology project ideas.

Focused Pilots	Blueprint	- Map the end-to-end barriers associated with high-potential technologies. - Use Blueprint as a means of coordinating with stakeholders such as the Market Transformation Administrator.	"Blueprint" is the documentation of the market adoption barriers for a Focused Pilot technology as part of the TPM development process. Projects will be implemented to address these documented barriers.	- ETP-T2: Number of technologies added as new measures to the energy efficiency resource portfolio that were previously supported by SWEETP. - ETP-T5: Number of savings of measures currently in the portfolio that were supported by emerging technologies programs
Fast Track	Request for Ideas	- Request project ideas from the industry by clearly outlining a desired portfolio need. - Review these project ideas on a frequent basis to implement them quickly.	Fast Track process will be developed to accelerate the project sourcing and execution of projects to deliver specific needs. Fast Track can spur the approval (and inclusion) of deemed measures into the portfolio by aligning standard models with eTRM. Fast Track can also identify other opportunities in addition to Workpaper Development. including technology interventions such as financing.	- ETP-T2: Number of technologies added as new measures to the energy efficiency resource portfolio that were previously supported by SWEETP.

5. **Metrics**

The Program team will use the metrics and key performance indicators (KPIs) to track and assess progress. The metrics below represent the ET sector-level metrics listed in the CPUC Decision 18-05-041:

Table 10: Sector-level program metrics

Sector Metric	Description
ETP-M1	Number of Technology Priority Maps initiated, including one Focused Pilot TPM, identifying market barriers for a diverse range of high-impact technologies through studies, and subsequently breaking down identified barriers via cooperative projects initiated in coordination with Workforce Education and Training, Marketing and Outreach, and other relevant IOU programs.
ETP-M2	Number of Technology Priority Maps updated.
ETP-M3	Number of projects initiated.
ETP-M4	Number of Outreach Events with developers of energy efficiency products (in whole or in part) that are less than one (1) year from commercialization (where developers include new technology vendors, manufacturers, and entrepreneurs).
ETP-M5	Number of Outreach Events with developers of energy efficiency products (in whole or in part) that are less than five (5) years from commercialization (where developers include new technology vendors, manufacturers, and entrepreneurs).
ETP-M6	Number of projects initiated with cooperation from other internal IOU programs associated with each Focused Pilot.
ETP-M7	Number of Focused Pilots initiated as part of the Focused Pilot TPM.
ETP-T1	For each year, the percent of technologies added as new measures to the energy efficiency resource portfolio that were previously supported by SWEETP.
ETP-T2	For each year, the number of technologies added as new measures to the energy efficiency resource portfolio that were previously supported by SWEETP.
ETP-T3	For each year, the percent of new codes or standards adopted and that were previously supported by SWEETP.
ETP-T4	For each year, the number of new codes or standards adopted and that were previously supported by SWEETP.
ETP-T5	Number of savings of measures currently in the portfolio that were supported by emerging technologies programs, added since 2009. Ex-ante with gross and net for all measures, with ex-post where available.

ETP-T6	Number and source (as reported by submitter) of potential emerging technology project ideas submitted outside of the Technology Priority Map research planning process, submitted by an IOU, a national lab, a manufacturer, or an entrepreneur.
ETP-T7	Number and source (as reported by submitter) of potential emerging technology project ideas submitted during the Technology Priority Map research planning process, submitted by an IOU, a national lab, a manufacturer, or an entrepreneur.
ETP-T8	Number of SWEETP projects and technologies aligned with specific statewide goals, with specificity as to what aspect of each goal it is fulfilling.

The Program team will track KPIs to assess program progress in addition to using the sector-level metrics defined above.

Table 11: SWEETP Key Performance Indicators (KPIS)

KPI	KPI Definition	Measurement (how KPI will be Measured)	KPI Source Data (source data to measure KPI)	KPI Reporting Frequency	Purpose of the KPI
Website visits	Number of website visits to the SWEETP website.	Number of site visits per quarter across each section of the SWEETP website	Program website data	Quarterly	Stakeholder awareness of SWEETP goals and processes
Idea evaluation approval rate	Percent of unique ideas submitted that move to Technology Development Research Projects or Technology Support Research Projects approval.	% of unique ideas that move to project screening	Program tracking data	Quarterly	Stakeholder awareness of SWEETP goals and processes; a project pipeline aligned with SWEETP objectives and TPM priorities
Project Selection for DAC and HTR customers	Number of Technology Development Research Projects or Technology Support Research Projects for HTR or DAC customers sites.	Number of Technology Development Research Projects or Technology Support Research Projects	Program tracking data	Quarterly	A project pipeline aligned with SWEETP objectives and TPM priorities
Idea Submission Process Satisfaction	Percent of idea submitters that have a favorable experience with the submission process.	Stakeholder Satisfaction Survey will have values 1 to 5, 1 being not satisfied, 5 being very satisfied. Scores of 4 or 5 are considered a favorable experience.	Satisfaction Surveys	Annually	A project pipeline aligned with SWEETP objectives and TPM priorities
Technology Projects Discontinued	Percent of Technology Support Research or Technology Development Research Projects discontinued. This KPI ultimately informs and improves screening and project implementation.	% of projects discontinued	Program tracking data	Quarterly	Project selection effectiveness
Technology Project Final Reports	Number of Final Reports completed, broken out by Technology Support Research, Technology Development Research, and Focused Pilots.	Number of Technology Support Research or Technology Development Research Projects Final Reports	Final Reports	Monthly	Completed projects with Final Reports

Technology Transfer Rate	Number of technologies recommended for transfer compared to new measures adopted in the portfolio - this KPI monitors the extent to which technology transfer is occurring for each measure.	% of technologies recommended for transfer or new measures adopted in the portfolio	Program tracking data	Annually	New measure integration into the portfolio
Diverse Business Enterprises Spend	Aggregate amount paid to Diverse Business Enterprises.	Aggregate amount paid to Diverse Business Enterprises	Program financial tracking data	Monthly	Support IOU goal
Measures spend performance with Disadvantaged Workers	Total funds spent with Disadvantaged Workers	Cumulative-to-date, spend achieved with Disadvantaged Workers	Program financial tracking data	Quarterly	Measures compliance with legislative goals
Measures spend performance with HTR and DACs	Total funds spent through Projects in HTR/DAC Communities	Cumulative-to-date, spend achieved in HTR/DAC markets	Program financial tracking data	Quarterly	Measures compliance with legislative goals
Sustainability Ratings	Evaluates the SWEETP against environmental and sustainability practices and metrics	% of SWEETP subcontractors with an environmental management system in conformity with ISO 14001:2015	Program tracking data	Quarterly	Measures SWEETP subcontractors' ability to manage their environmental responsibilities
Safety Ratings	Maintain ISNetworld (ISN) grade of B or better	ISN Grade	ISN	Annually	Measures safety of Contractors and Subcontractors

6. **For Programs Claiming To-Code Savings**

This section is not applicable because SWEETP is a non-resource program that does not claim savings.

7. **Pilots**

Focused Pilots are a key element for the SWEETP, with a holistic approach for high-impact new or underutilized measures that helps overcome supply chain and market barriers to support scaling of technology adoption. Focused Pilots will have a larger, more comprehensive scope and have a longer duration than individual technology demonstration projects. The approach for implementing Focused Pilot Projects is described as follows:

1) SWEETP will identify and select which candidate high-impact technologies should be included in a separate Focused Pilot TPM.
2) SWEETP will identify market barriers through studies, and design and pilot test interventions against the identified barriers.
3) As necessary, SWEETP will coordinate with relevant programs. This step includes coordinating with relevant IOU energy efficiency programs as well as the MT Initiatives Administrator[9] to help define how one or more Focused Pilot Projects for each selected technology are mapped into the MT Framework.
4) Focused Pilots may need to be reviewed and approved via a formal pilot project Advice Letter process. As necessary, the Program team will obtain relevant information required for the CPUC Advice Letter for each potential Focused Pilot.

8. **Workforce Education & Training (WE&T)** [10]

This section is not applicable because SWEETP does not directly support workforce education and training.

9. **Workforce Standards**[11]

HVAC Projects:

Workforce Standards are applicable when a contractor installs, modifies, or maintains HVAC technology in a non-residential customer site where the project is seeking an energy efficiency incentive of $3,000 or more through a Focused Pilot project. For these projects, SWEETP shall

[9] "MT Initiatives Administrator" means the responsible party for planning and execution of the California's efforts to advance electricity and natural gas energy efficiency through long-term market transformation strategies.
[10] D.18-05-041, Page 20-21 and Ordering Paragraph 7.
[11] D.18-10-008, Ordering Paragraph 1-2 and Attachment B, Section A-B, Page B-1.

ensure that each worker or technician involved in the project meets at least one of the following criteria:

1. Completed an accredited HVAC apprenticeship.
2. Is enrolled in an accredited HVAC apprenticeship.
3. Completed at least five years of work experience at the journey level according to the Department of Industrial Relations definition, Title 8, Section 205, of the California Code of Regulations, passed a practical and written HVAC system installation competency test, and received credentialed training specific to the installation of the technology being installed.
4. Has a C-20 HVAC contractor license issued by the California Contractor's State Licensing Board.

This standard shall not apply where the incentive is paid to any manufacturer, distributor, or retailer of HVAC equipment, unless the manufacturer, distributor, or retailer installs or contracts for the installation of the equipment.

Advanced Lighting Control Projects:

For all Program Projects and for each measure, installed in a nonresidential setting where the project is seeking an energy efficiency incentive of $2,000 or more through a Focused Pilot project, SWEETP shall ensure that all workers or technicians involved in the project are certified by the California Advanced Lighting Controls Training Program (CALCTP). This requirement shall not apply where the incentive is paid to a manufacturer, distributor, or retailer of lighting controls unless the manufacturer, distributor, or retailer installs or contracts for installation of the equipment.

10. Disadvantaged Worker Plan:[12]

N/A - This section is not applicable because SWEETP does not directly provide Disadvantaged Workers with improved access to career opportunities in the EE industry for programs that directly involve the installation, modification, repair, or maintenance of EE equipment.

11. Additional Information

N/A - This section is not applicable because SWEETP is not required by a CPUC decision or ruling to publish additional information.

[12] D.18-10-008, Attachment B, Section D, page B-9.

3. Supporting Documents

1. **Program Manuals and Program Rules**

Program Manual

Eligible Measures or measure eligibility, if applicable

N/A - This section is not applicable to the Program.

Customer Eligibility Requirements

Customers who receive service from a California electric investor-owned utility are eligible.

Contractor Eligibility Requirements

HVAC Projects:

For all HVAC projects and for each measure, installed, modified, or maintained in a non-residential customer site where the project is seeking an energy efficiency incentive of $3,000 or more through a Focused Pilot project, SWEETP shall ensure that each worker or technician involved in the project meets at least one of the following criteria:

1. Completed an accredited HVAC apprenticeship.
2. Is enrolled in an accredited HVAC apprenticeship.
3. Completed at least five years of work experience at the journey level according to the Department of Industrial Relations definition, Title 8, Section 205, of the California Code of Regulations, passed a practical and written HVAC system installation competency test, and received credentialed training specific to the installation of the technology being installed.
4. Has a C-20 HVAC contractor license issued by the California Contractor's State Licensing Board.

This standard shall not apply where the incentive is paid to any manufacturer, distributor, or retailer of HVAC equipment, unless the manufacturer, distributor, or retailer installs or contracts for the installation of the equipment.

Advanced Lighting Control Projects:

For all Lighting Control Projects and for each measure, installed in a nonresidential setting where the project is seeking an energy efficiency incentive of $2,000 or more through a Focused Pilot project, SWEETP shall ensure that all workers or technicians involved in the project are certified by the CALCTP. This requirement shall not apply where the incentive is paid to a manufacturer, distributor, or retailer of lighting controls unless the manufacturer, distributor, or retailer installs or contracts for installation of the equipment.

Participating Contractors, Manufacturers, Retailers, Distributors, and Partners

N/A – This section is not applicable to the Program.

Additional Services

N/A - This section is not applicable to the Program.

Audits

N/A - This section is not applicable to the program.

Sub-Program Quality Assurance Provisions

Quality assurance (QA) will be the responsibility of Energy Solutions, who will ensure SWEETP program staff and contractors are trained on all contract requirements, processes, and policies and procedures. The Program team's quality assurance processes are based on the substantive elements of ISO 9001, Six Sigma, and industry best practices, and are designed to both proactively prevent errors and to quickly identify, correct, and eliminate future errors through identifying root causes. All Program team members will be required to undertake and then follow QA procedures outlined below. Training logs will be maintained to ensure compliance and instances of non-compliance will be flagged for further action.

As described below, the QA protocols include operational processes to ensure each Project meets necessary program standards through rigorous quality and technical reviews. Additionally, the Program team will utilize process flows for the program with key tasks, responsibilities, and timelines. Documented procedures will include:

Scanning and Screening; Planning and Prioritization; Fast Track:

- Forecasting and reporting – The workflow management platform will allow for near real-time access to program and Project level budget and schedule forecasting as well as information necessary for regulatory and other reporting requirements set in the contract.
- Stakeholder input – Our program plan has specific touch points with TDs and TDA stakeholders to review Project plans, TPMs, and other Project deliverables. Stakeholder inputs will be weighed to address any potential bias for or towards the specific technology or solutions being studied.
- Regulatory requirements adherence and data request responses – The program will follow all relevant CPUC and SCE reporting requirements.

Technology Development Research and Technology Support Research Projects; Focused Pilot; Workpaper Development:

- Workflow management – SWEETP has built-in checks and balances via contractual obligations to SCE to ensure that Projects are properly vetted, designed, and executed. The Program team will use a workflow management platform to track Project schedules, budgets, deliverables, and progress towards KPIs. The Program team will verify that all Projects follow prescribed deliverables and milestones and incorporate required stakeholder input and reviews.
- Project data quality and integrity – Project screening, scanning, eligibility, and funding decisions will be vetted to ensure accuracy and avoid selection biases. For project types involving technology assessment, market studies, and other primary data collection, the QA procedures will include standardized data collection protocols and built-in error checking using both internal reviews and analytics tools. All personally identifiable information will be stored and accessed according to requirements separately outlined.
- Contractor/Vendor/Equipment procurement – Projects involving procurement of equipment (hardware/software/services) will follow protocols to ensure that vendors are legitimate businesses with known performance through verification of business licenses, W9 and other tax documentation, and customer testimonials. All equipment purchased through the program will need to meet appropriate certifications (e.g. Underwriters' Laboratories - UL listings), as well as have proper manufacturer warranties for quality and repairs in case there are equipment performance issues in the field.
  Equipment costs will be vetted against known industry standard practices such as comparing costs for similar equipment and Projects in the past or using industry databases like R.S. Means. All vendors selected for the Project will be required to meet appropriate requirements for business and individual licenses, insurance, workforce standards, safety procedures, and expertise.
- Equipment installation and commissioning – All equipment installations will be done by qualified professionals using criteria described in the item above. As is often the case with emerging technologies, the sphere of contractors capable of properly installing a new product is small and the Program team will work with the equipment manufacturer/distributor as well as the customer site (if installed in the field) to select appropriate installers/contractors. As a general practice, installations of equipment will follow manufacturer specifications subject to meeting all local code and fire safety requirements. Installation procedures will be vetted ahead of time with the manufacturer, customer and installation contractor to ensure compliance with all relevant standards/codes and that systems are fully commissioned.
- Documentation handling – All program and Project documentation will be maintained in a secure shared file management platform, Microsoft SharePoint. Access will be managed by Energy Solutions through differing permissions layers depending on the Project type and the entity responsible for a particular Project. The online platform enables tracking for document changes, has the ability to archive or reactivate older versions and provides an auditable trail for troubleshooting and internal audits. All information will be subject to an NDA.
- Internal review of all deliverables and Project plans – The Program team will conduct internal reviews of all Project deliverables before the deliverables are finalized and sent to SCE for approval. Internal reviewers will be chosen from among the SWEETP subcontractors not directly engaged with the specific study to ensure an unbiased review.

- Customer service – The Program team will vet participating customer eligibility using the customer account information and verify the applicant's account complies with program terms and conditions, guidelines, and any qualifying restrictions (e.g., rate code). Once customers are selected, the team will ensure that any customer impacts are minimized, and customers have access to the program team through both online and phone support lines as well as dedicated Project staff that can answer and manage customer expectations. Any customer complaints or concerns will be addressed in a timely manner through the dedicated project staff as well as dedicated project managers managing each project.
- Activities and processes to address fraudulent vendor behavior – All vendor claims will be vetted through a rigorous review process including review of associated receipts, testimonials, and verification.

Dissemination:

- Data review, verification, and validation – SWEETP will review all marketing output, including but not limited to informational materials, website language, and presentations, for accuracy and accessibility through a internal review process similar to the one described above,

Technology Transfer:

- Technology transfer quality assurance – The QA procedures for technology transfer will follow a prescribed set of activities and checks and balances outlined in deliverable structure of the contractual obligations between the Program team and SCE. Specifically, measure development (either new or updates to existing measures) will follow quality standards currently in place for CA TRM measure development and procedures being developed by the CalTF for the eTRM. Members of the Program team are part of the CalTF working groups and will seek feedback from the CalTF and SCE (as part of the oversight body on CalTF) to develop any new protocols and procedures. All technology transfer activities will be identified ahead of time as part of Project plans, and the team will do regular reviews of Projects to ensure that stated goals are met in a timely manner.

Other Program Metrics

There are no other Program metrics.

2. Program Theory [13] and Program Logic Model [14]

Program Theory

[13] The expected causal relationships between program goals and program activities in a way that allows the reader to understand why the proposed program activities are expected to result in the accomplishment of the program goals. A well-developed program theory can (and should) also describe the barriers that will be overcome in order to accomplish the goals and clearly describe how the program activities are expected to overcome those barriers. *California Evaluation Framework*, June 2004.

[14] The graphical representation of the program theory showing the flow between activities, their outputs, and subsequent short-term, intermediate, and long-term outcomes. *California Evaluation Framework*, June 2004.

SWEETP is the strategic investment, risk-mitigating vehicle for the electric IOUs' energy efficiency portfolios to scan, screen, evaluate and support information transfer of new and underutilized technologies that help achieve the evolving savings, market transformation, equity, and other portfolio goals. The Program is unique in its directive to scan the market for new and underutilized technologies, understand their potential from both a technical and market perspective, identify market barriers and recommend and support the most cost-effective and impactful mechanism(s) for the technology's inclusion and increased uptake in the portfolio. Market adoption is ultimately a product of a technology's customer value and the presence or absence of market barriers. The logic model for how SWEETP will address these barriers is outlined below.

Program Logic Model

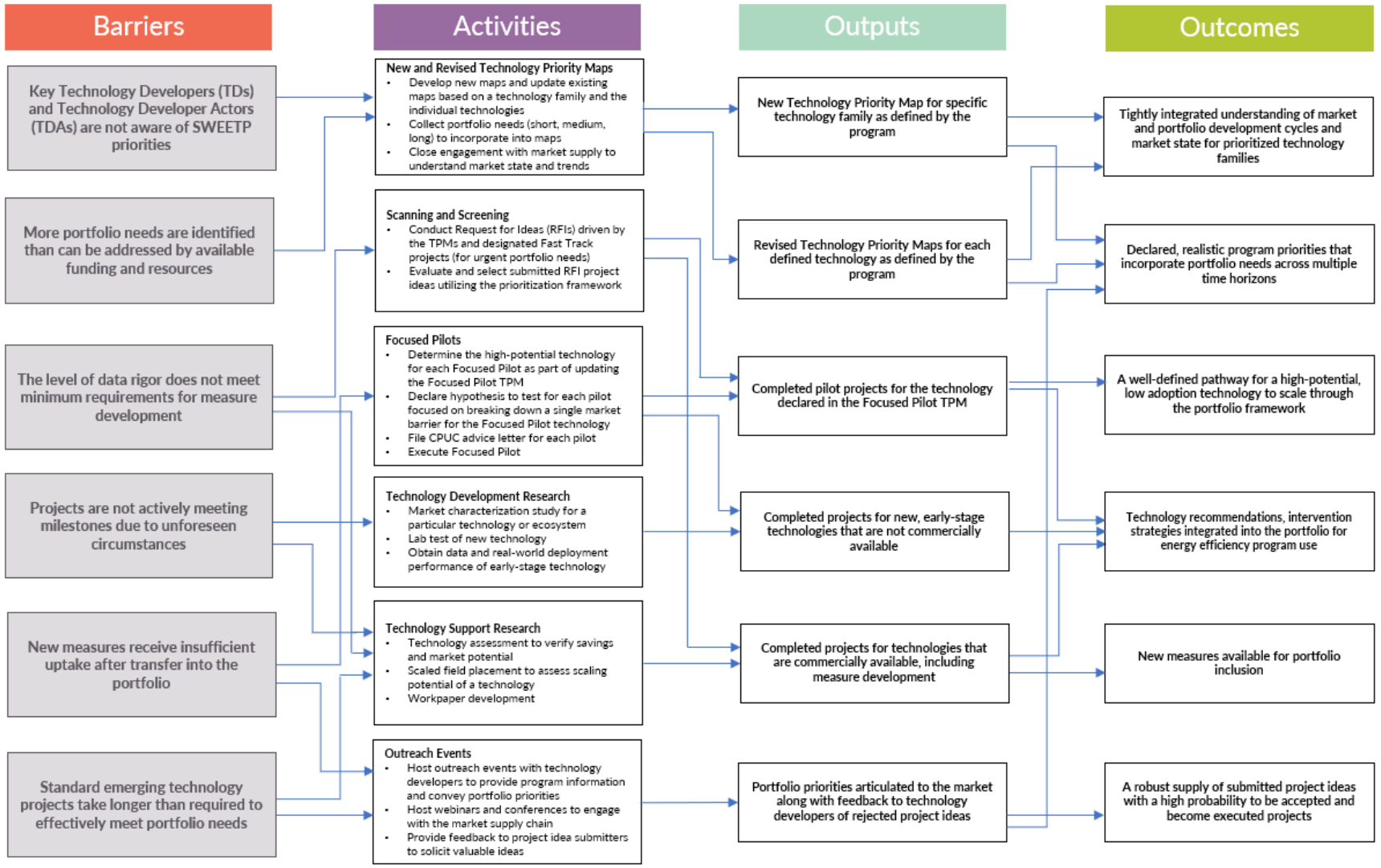


Figure 2: SWEETP Logic Model

3. Process Flow Chart

This section includes flowcharts for all relevant components of the SWEETP program.[15] As appropriate, the Program team will review and update these processes based on internal team and stakeholder feedback.

Planning and Prioritization:

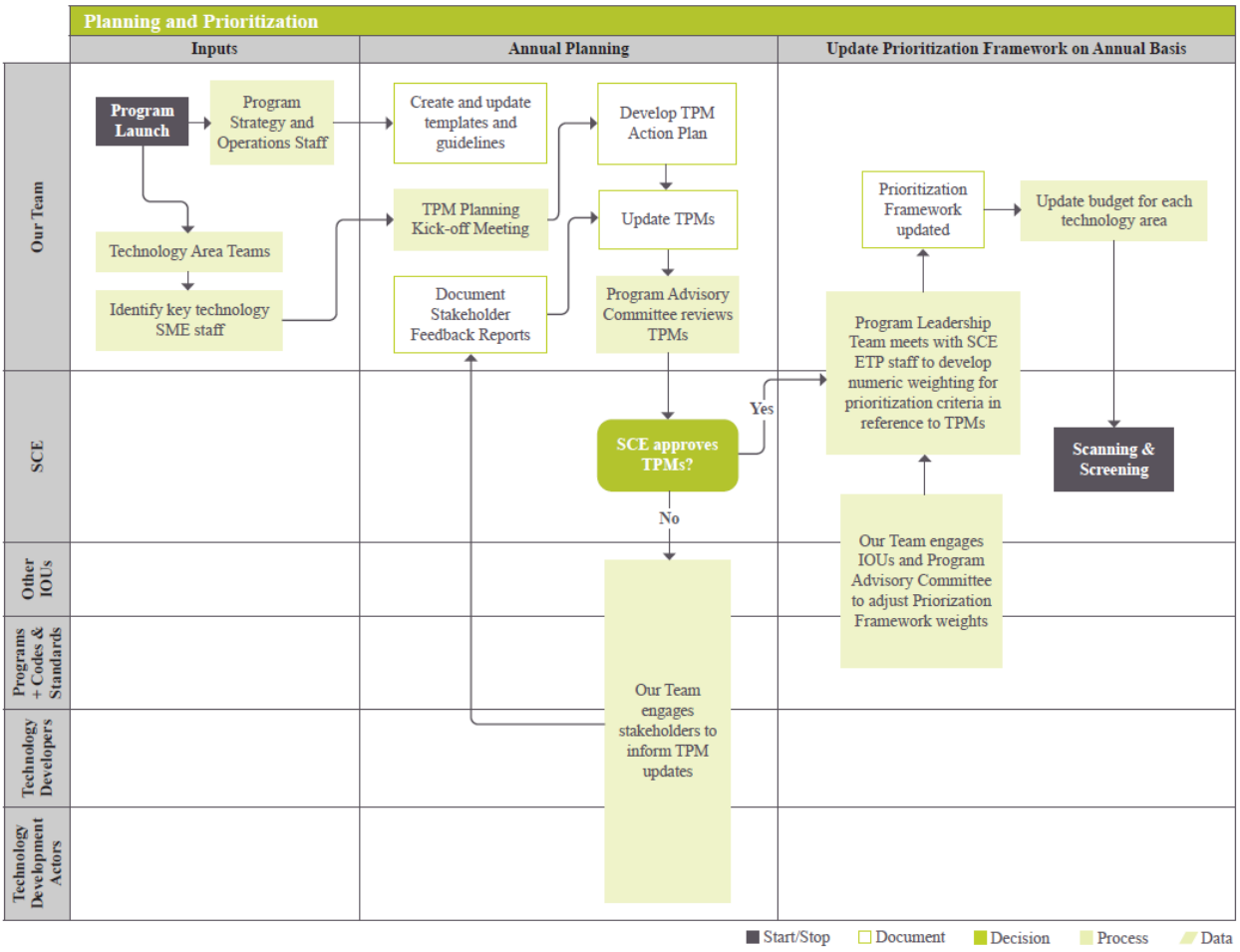


Figure 3: Planning and Prioritization Process Flow

[15] Note that the three types of project implementation (Technology Support Research, Technology Development Research, and Focused Pilots) each have their own process flow, as project processes may differ among them.

Scanning and Screening:

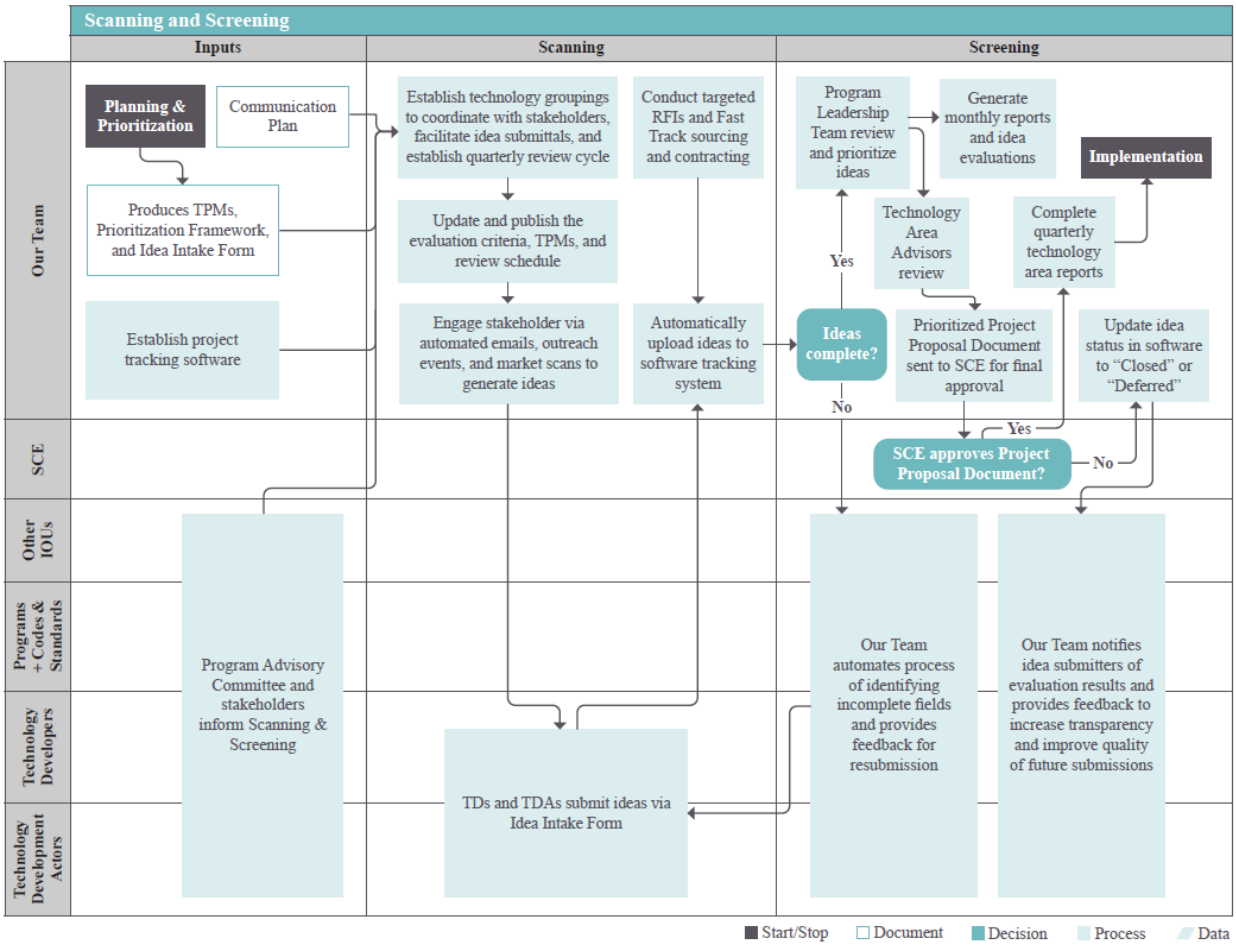


Figure 4: Scanning and Screening Process Flow

Technology Development Research and Technology Support Research:

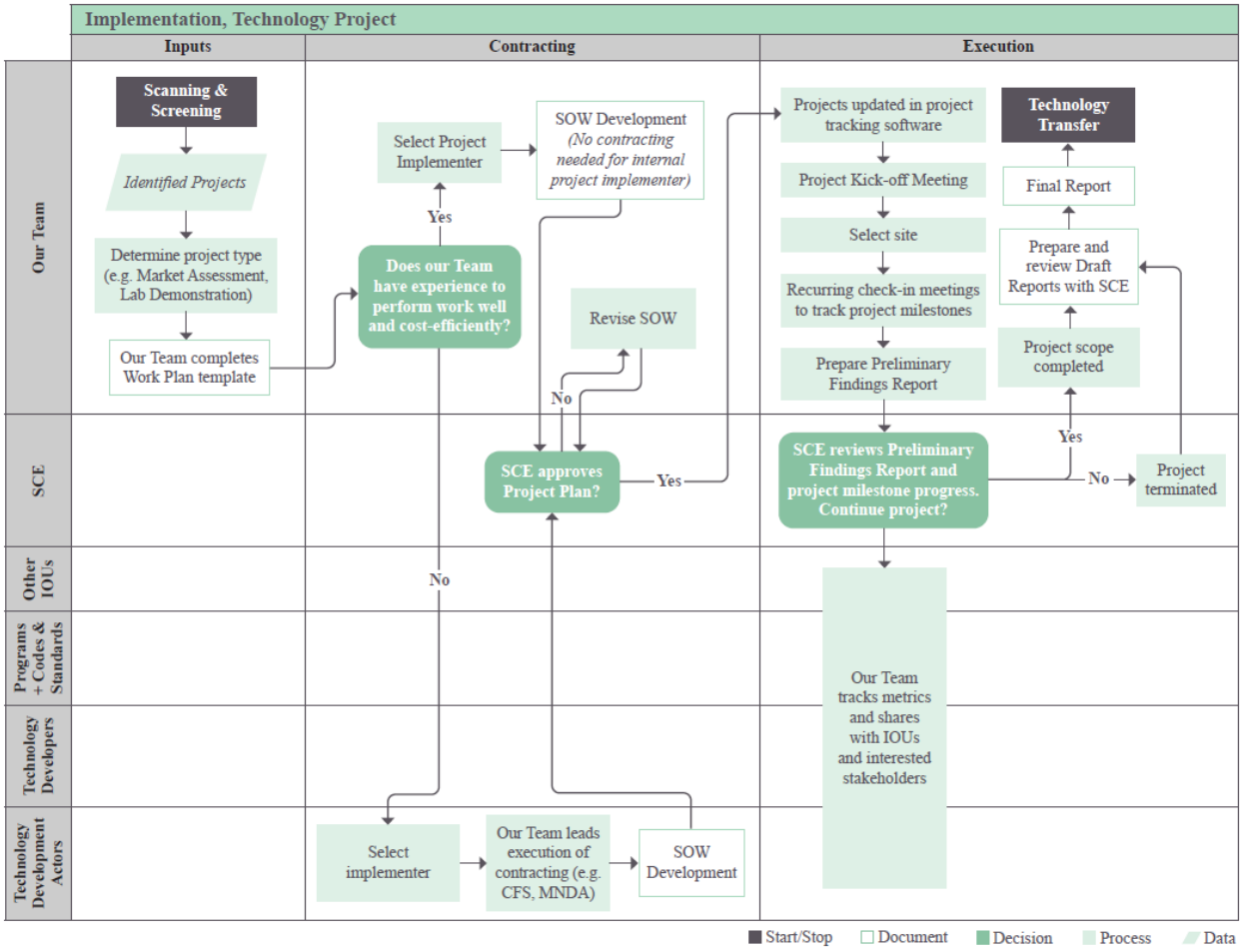


Figure 5: Project Implementation Process Flow

Focused Pilots:

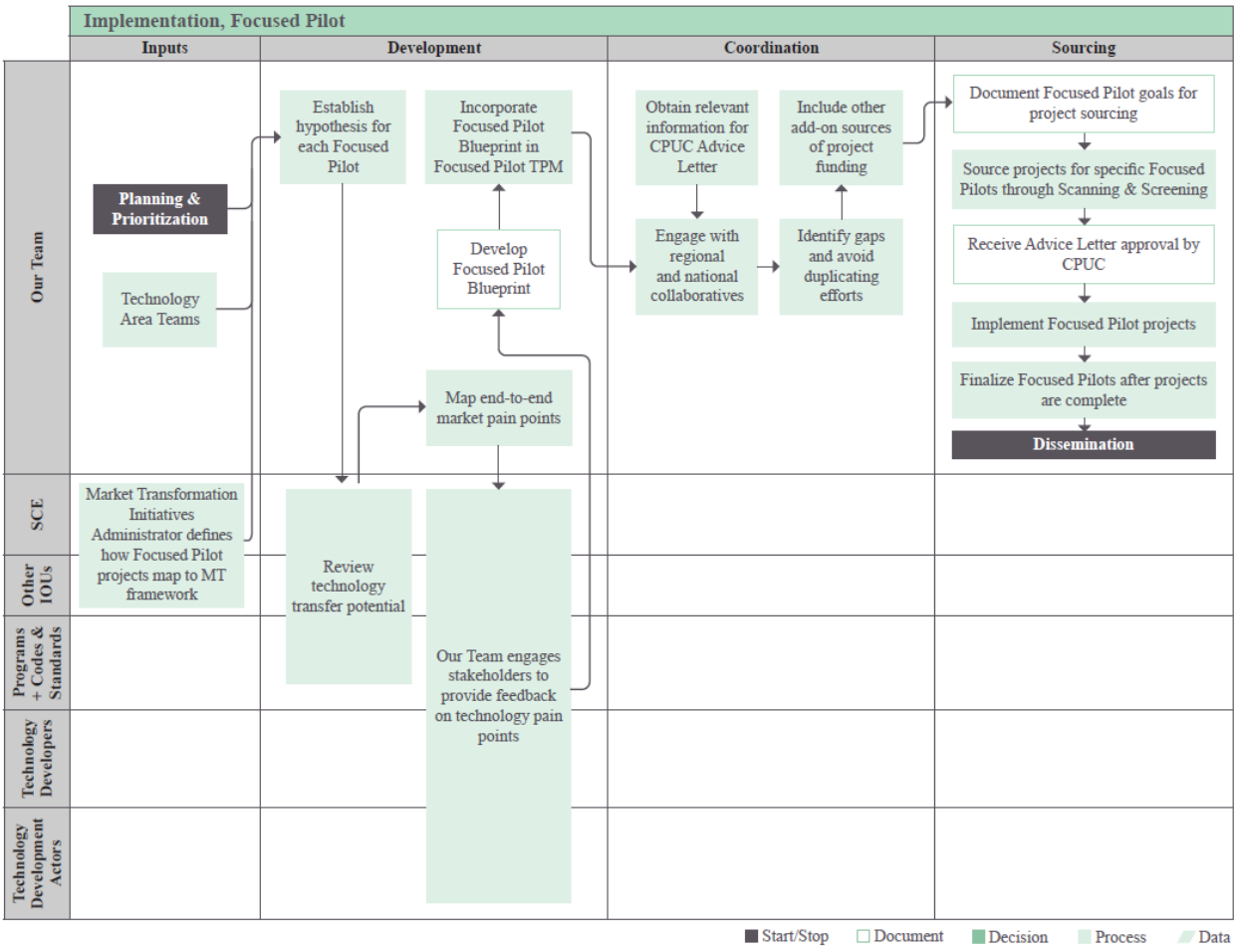


Figure 6: Focused Pilot Process Flow

Workpaper Development:

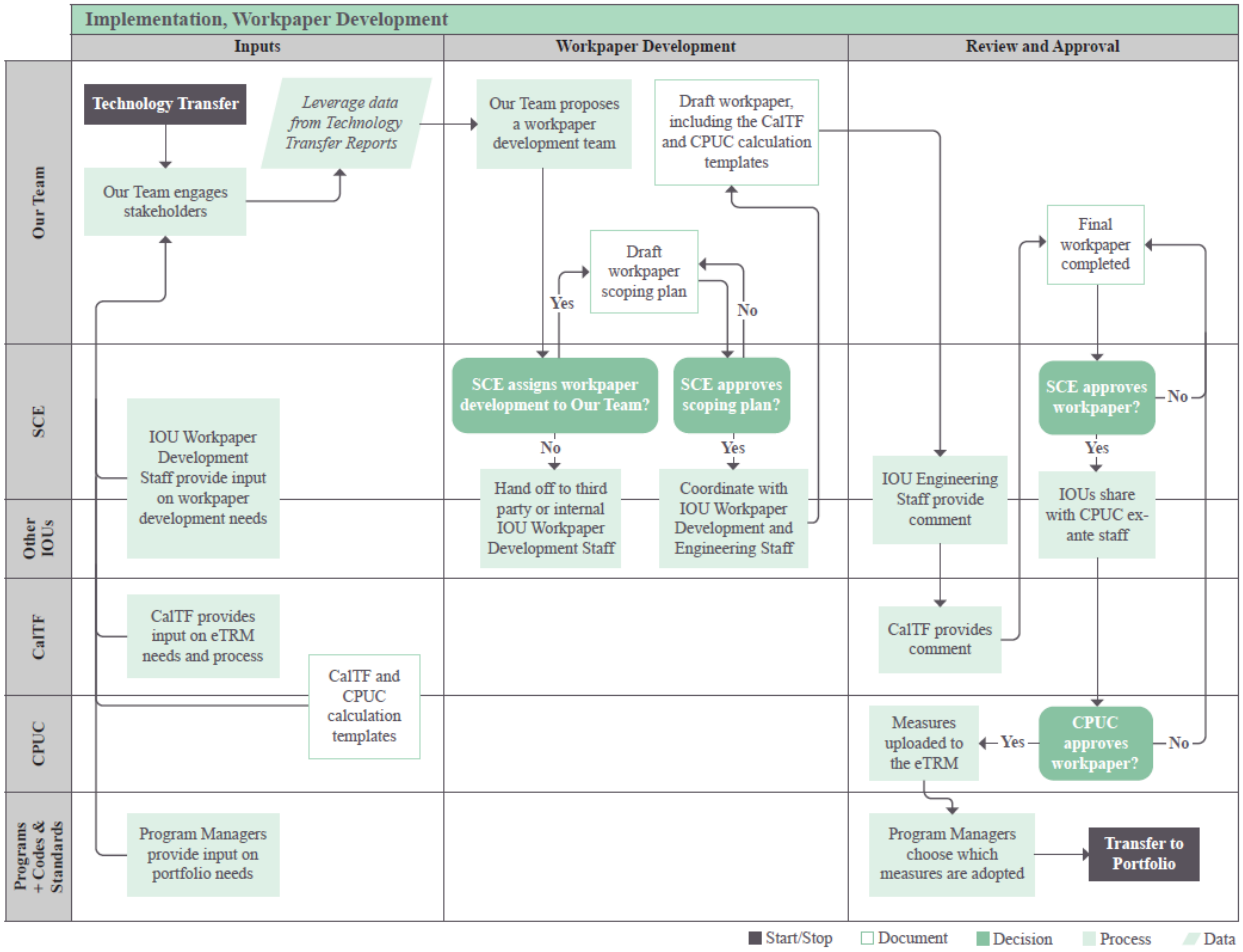


Figure 7: Workpaper Development Process Flow

Dissemination:

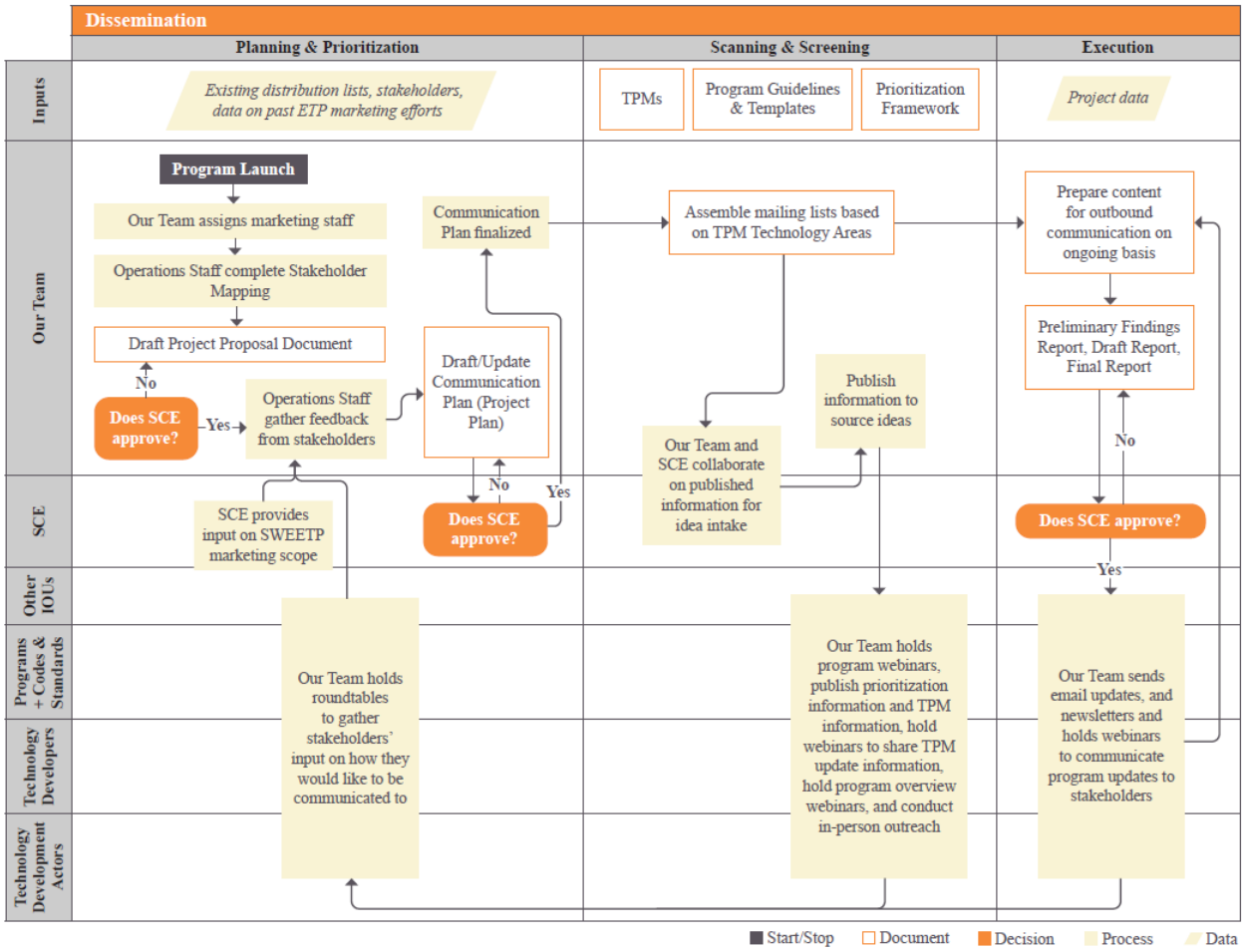


Figure 8: Dissemination Process Flow

Technology Transfer:

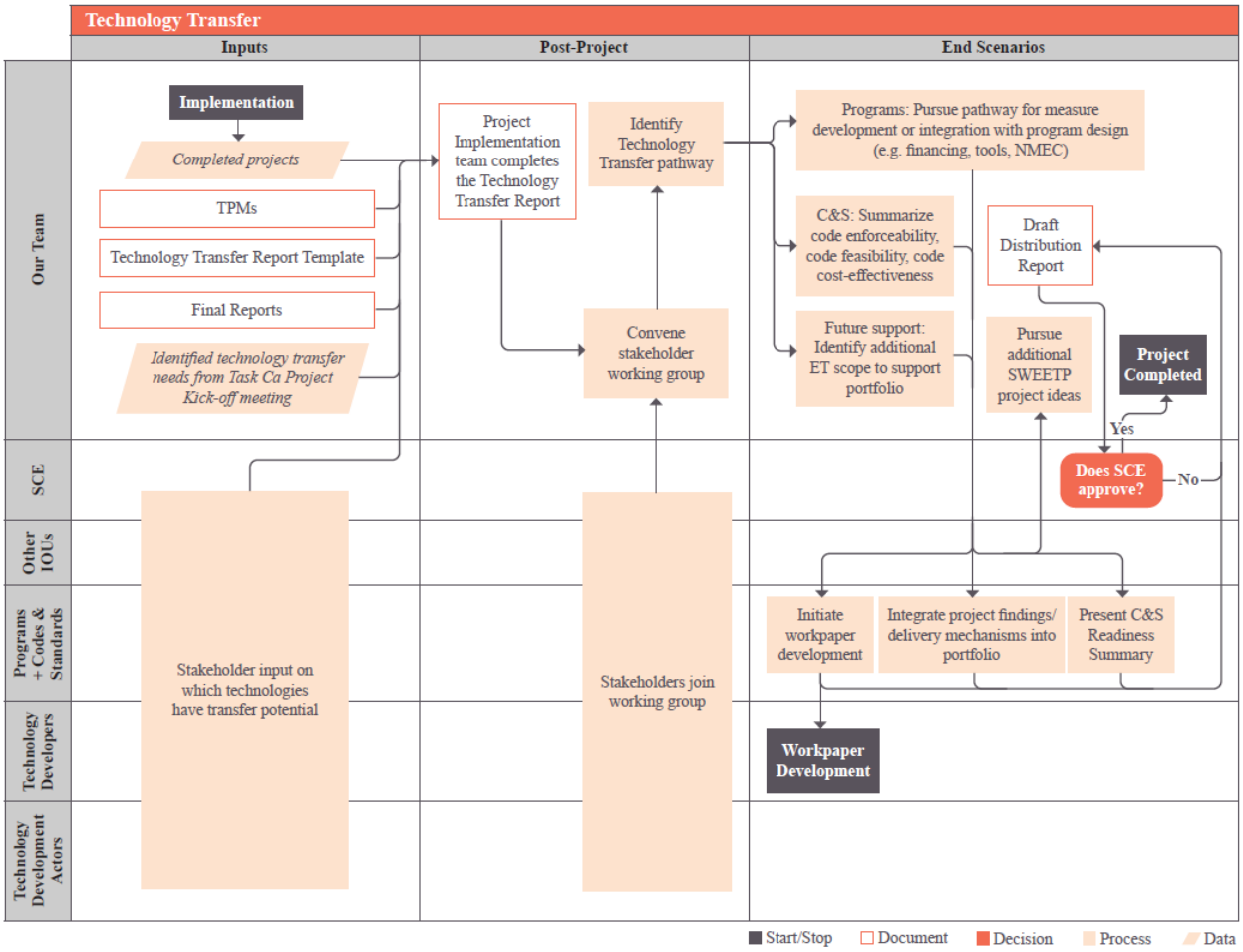


Figure 9: Technology Transfer Process Flow

Fast Track:

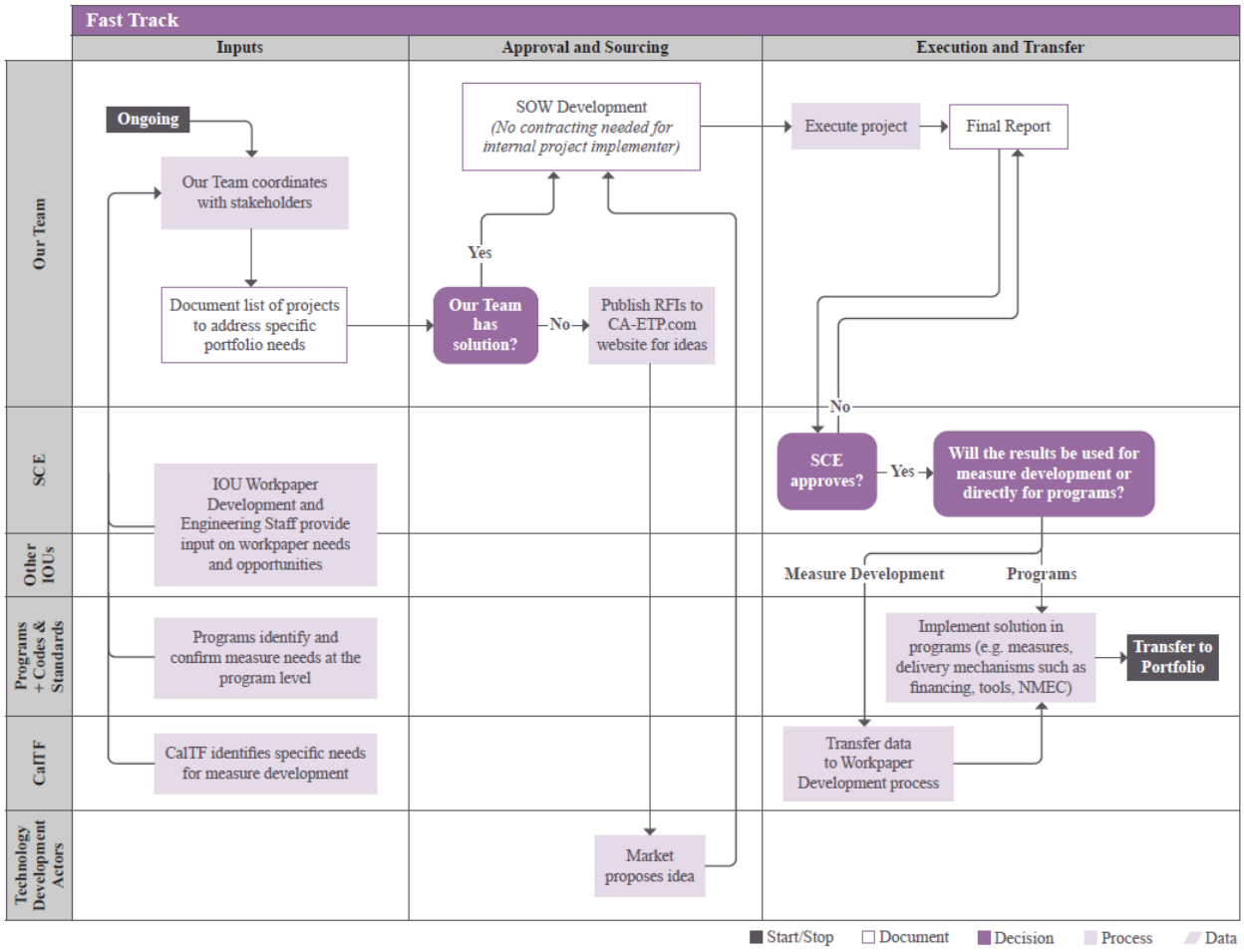


Figure 10: Fast Track Process Flow

4. **Incentive Tables, Workpapers, Software Tools[16]**

SWEETP expects to pay incentives as part of Focused Pilot project implementation. However, SWEETP has not determined the incentive levels at this time.

[16] Per D.19-08-009, for fuel substitution measures where the incentive exceeds the Incremental Measure Cost (IMC), the CPUC requires submission of a workpaper addendum using a separate template. Third-party implementers can request the template from their Contract Manager. SCE Program Managers should refer to the E-PPICs Smart Sheet.

5. **Quantitative Program Targets**

Table 12: SWEETP Program Targets

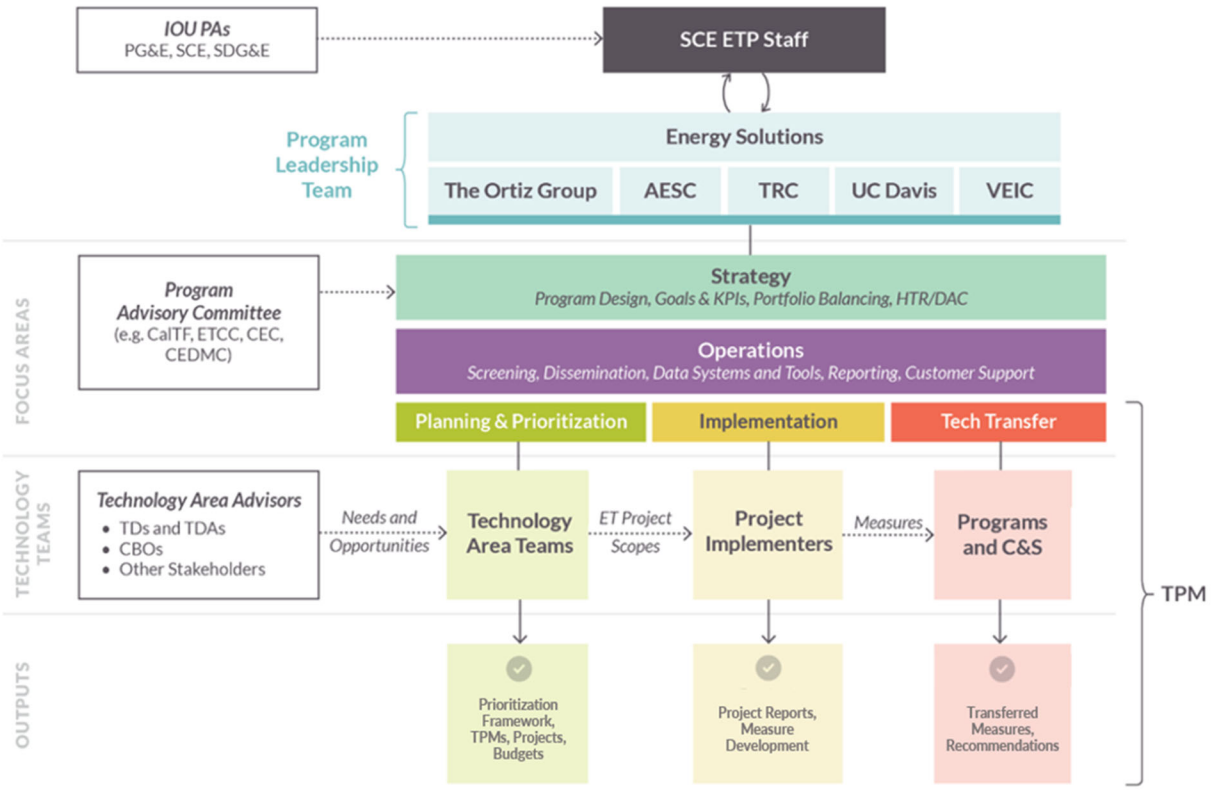
Delivery Period Year		Focused Pilot(s)	Technology Development Research	Technology Support Research	New Technology Priority Map(s)	Revised Technology Priority Map(s)	Outreach Event(s)	Scanning and Screening
2022	Committed Projects[17]	1	8	30	7	0	8	3
	Expected Projects[18]	0	2	3	7	0	8	3
2023	Committed Projects	3	8	32	0	7	13	4
	Expected Projects	1	8	27	0	7	13	4
2024	Committed Projects	3	8	32	0	7	13	4
	Expected Projects	3	8	32	0	7	12	4
2025	Committed Projects	3	10	32	0	7	6	4
	Expected Projects	3	9	32	0	7	4	4

[17] "Committed Projects" refers to the number of projects SWEETP expects to initiate during the associated Delivery Period Year.

[18] "Expected Projects" refers to the number of projects SWEETP expects to complete during the associated Delivery Program Year

2026	Committed Projects	0	0	0	0	0	0	0
	Expected Projects	2	5	26	0	0	2	0
2027	Committed Projects	0	0	0	0	0	0	0
	Expected Projects	1	2	6	0	0	1	0

6. **Diagram of Program**



7. **Evaluation, Measurement, and Verification (EM&V):**

SWEETP will support the EM&V efforts required to track the ET sector-level metrics listed in the CPUC Decision 18-05-041.

8. **Normalized Metered Energy Consumption:**

N/A - This section is not applicable to the Program.

APPENDIX. List of Acronyms and Abbreviations

Term	Definition
C&S	Codes & Standards
CA	California
CALCTP	California Advanced Lighting Controls Training Program
CBO	Community-Based Organization
CEDARS	California Energy Data and Reporting System
CPUC	California Public Utilities Commission
DAC	Disadvantaged Communities
DEER	Database for Energy Efficient Resources
DERM	Distributed Energy Resource Management
DSM	Demand-Side Management
EE	Energy Efficiency
EE PRG	Energy Efficiency Procurement Review Group
EM&V	Evaluation, Measurement & Verification
EPIC	Electric Program Investment Charge
ET	Emerging Technologies
eTRM	Electronic Technical Reference Manual
EUL	Effective Useful Life
FSU	Fractional Savings Uncertainty
HTR	Hard-to-Reach
HVAC	Heating, Ventilation, & Air Conditioning
IOU	Investor-Owned Utility
IMC	Incremental Measure Cost
IP	Implementation Plan
ISN	ISNetworld
KPI	Key Performance Indicator
kW, kWh	kilowatts, kilowatt-hours
M&V	Measurement & Verification (or, sometimes, Validation)
MT	Market Transformation
NMEC	Normalized Metered Energy Consumption
PA	Program Administrator
PAC	Program Administrator Cost
QA	Quality Assurance
RFA	Request for Abstract
RFI	Request for Idea

Term	Definition
RFP	Request for Proposal
SCE	Southern California Edison
SWEETP	Statewide Electric Emerging Technologies Program
TD	Technology Developer
TDA	Technology Development Actor
TPM	Technology Priority Map
TRC	Total Resource Cost
WE&T	Workforce Education & Training