Energy Efficiency Programs

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Statewide Gas Emerging Technologies Program

Implementation Plan

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Prepared by ICF

For SoCalGas

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The following information shall be uploaded to the California Public Utilities Commission (CPUC)-maintained website, the California Energy Data and Reporting System (CEDARS)[1], in accordance with CPUC decisions and Staff guidance.

Program Overview

The Program Overview, which consists of the Program Budget and Savings Implementation Narrative sections, shall be completed consistently by all IOUs for statewide programs.

Program Budget and Savings

Program and/or Sub-Program Name	Statewide Gas Emerging Technologies Program
Program/Sub-Program ID number	SCG3870
Type of Program/Sub-Program Implementer (PA-delivered, third party-delivered or Partnership)	Third party-delivered
Market Sector(s) (i.e., residential, commercial, industrial, agricultural, or public)	All market sectors
Program/Sub-program Type (i.e., Non-resource or Resource)	Non-resource
Market channel(s) (i.e., downstream, midstream, and/or upstream) and Intervention Strategies (e.g., direct install, incentive, finance, audit, technical assistance, etc.), campaign goals, and timeline.	Not applicable to this Program

Please refer to the California Energy Data and Reporting System (CEDARS) for the following program details.

- Program Budget Table
- Program Gross Impacts Table
- Program Cost-Effectiveness (TRC)
- Program Cost Effectiveness (PAC)

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[1] California Energy Data and Reporting System (CEDARS), https://cedars.sound-data.com/

Implementation Plan Narrative

Program Description

The Statewide Gas Emerging Technologies Program (GET or Program) is a comprehensive offering covering the full scope of the California utility emerging technology mission from scanning and screening to technology transfer. A key pillar of the Program is an enhanced Stakeholder engagement process that solicits market feedback throughout the Project lifecycle. This enhanced level of feedback is critical to the successful adoption of technologies as it brings Stakeholders actively into the process and allows them to share in the success. The Program also supports technology adoption by providing support to Resource program managers as they integrate new measures into their portfolios. This support minimizes an overlooked barrier of the high cost/high risk of devoting program resources to a measure that may not deliver immediate results.

Program Rationale

The rationale behind the Program is to identify promising emerging technologies and evaluate their use as measures within energy efficiency (EE) programs. New technologies are required to replace measures that are being sunset due to their adoption as industry standard practice (ISP), or into future releases of Title 24. The Program seeks to maintain a constant churn of technologies that can be readily integrated into the portfolio of EE programs implemented by program administrators (PAs) or third-party program implementers. This is accomplished through a transparent process that engages with a variety of stakeholders to ensure the most promising technologies are evaluated.

Program Objectives

The objective of the Program is to scan, prioritize and evaluate commercially available energy efficiency technologies and provide necessary data and information to help drive adoption of measures into energy efficiency resource programs. The advancement of technical knowledge and market readiness of promising technologies that are not yet commercially viable but may be ready within three to five years will also be an objective. An additional objective is to utilize a technology screening process that ensures that the diverse needs of California's disadvantaged communities (DACs) and hard-to-reach (HTR) customers are served through emerging technologies.

Program Delivery and Customer Services

Program delivery involves a methodical process that considers the entire life cycle of technology evaluation including:

Scanning and Screening

Potential technologies are identified and reviewed for viable market demand, a robust distribution and contractor channel to support the sales and installation of the technology, and sufficient producers of the technology to ensure product availability and customer choice. This includes review of any publicly available research that has already been conducted and how that influences the need for additional research.

To facilitate this screening process, a Technology Advisory Group (TAG) is formed to provide broad level market and technology perspectives. The TAG largely draws from efficiency program

implementers and industry associations that represent particular interest groups (e.g., Appliance Standards Awareness Project representing retail products).

An important element of the project screening process considers the needs of DACs and HTR customers. Technology Priority Maps (TPMs) are enhanced or created with a section focused on specific needs to increase adoption within DAC and HTR customer groups. The technology evaluation process also includes criteria to address inclusivity of these underserved customer groups.

Planning and Prioritization

Each technology that is prioritized for further research is supported by a detailed Project Plan that documents the project scope, budget, and timeline, as well as how the project advances the technology. The project scope identifies the approach that will be used to evaluate the technology (e.g., lab test, scaled-field placement, focused pilot, etc.) and is largely dictated by the hypothesis to be tested. The Project Plan is reviewed and approved by SoCalGas and once approved, the technology moves into the evaluation stage.

Technology Evaluation

Each technology is evaluated by the engineering team in accordance with the Project Plan. Throughout the evaluation process, stakeholder feedback is solicited via the TAG. This feedback loop enables technologies to be evaluated through a market perspective and better understand the ability for the existing infrastructure to support technology uptake once it is transferred to the measure portfolio.

As the technology evaluation progresses, an assessment of Preliminary Results and a Draft Final Report will be prepared in accordance with the Project Plan. Once the project is completed, a Final Report is prepared for each technology project to document the findings. The Final Report is peer reviewed to ensure that results and conclusions are accurate. Upon final review and approval by SoCalGas, the Final Report is published and then disseminated through a variety of outreach channels.

Dissemination

New technologies require significant investment of time and effort to educate the market and influence adoption, so the Program devotes significant effort communicating with industry Stakeholders. The Program focuses heavily on outreach to industry groups with membership composed of Stakeholders and leaders in the industries impacted by the Program. These groups offer a variety of communications channels including email newsletters, virtual and in-person events, and paid sponsorships (e.g., magazine advertisements, website banner ads, event/conference sponsorships, etc.). The Program will join and work with each relevant organization to determine the best and most effective partnerships. The Program may employ multiple communication channels such as industry association websites and publications, email marketing, and additional digital advertising and social media strategies in coordination with SoCalGas' overall energy efficiency and general awareness campaigns.

In addition, the Program provides ongoing technology support through the Program call center and targeted Outreach Events. These formal Outreach Events will be planned and scheduled to help increase transparency and engagement with Stakeholders throughout the program period. Regular

engagement through Outreach Events will establish a two-way dialog with Stakeholders by providing information on program results/accomplishments while soliciting input into program planning.

Technology Transfer

Technology transfer is closely tied to dissemination and provides additional technology support beyond communication of project results. The intent of technology transfer is to shepherd high potential technologies through the early adoption phase of the project life cycle. To facilitate technology transfer, a Business Model Canvas is developed that articulates the value proposition for program implementers and includes key information that can be used to accelerate adoption such as customer segmentation, marketing and outreach strategy, customer drivers, recommended delivery channels, and incentive approach. The Program works closely with program implementers (either PAs or third parties) to support integration of new technologies into their program offerings. This can include developing program workpapers to establish measure savings and/or providing recommendations such as marketing strategy, incentive design, delivery channels, etc. that reduce inherent barriers to introducing new measures into established programs. After technology transfer, the Program team then provides ongoing technical support to maintain momentum to increase the likelihood of near-term market adoption. Technologies that require long-term market support are referred to the Statewide Market Transformation Administrator.

Design and Best Practices

The Program goal is to identify energy efficiency technologies and/or applications of technologies and to quantify the level of energy savings available from those technologies. Promising technologies are recommended for transfer to PA and third-party implemented programs and are provided the initial support needed to help increase market adoption. Technologies that are not recommended for transfer are documented with specific outcomes and cataloged for future consideration. Several best practices are used in the identification and evaluation of technologies as described below in Table 1.

Table 1. Program Best Practices

Market Barrier	Strategy	Tactics	Best Practice
Ability to identify and deploy measures on a timely basis.	Maintain a consistent flow of ET opportunities.	• Engage industry Stakeholders throughout the identification, evaluation, and technology transfer phases. • Ongoing two-way dialog with Stakeholders to ensure alignment of activities. • Intake of technology ideas from	Consistent collaboration with Stakeholders helps to better align efforts and achieve long-term goals.

Market Barrier	Strategy	Tactics	Best Practice
		Stakeholders through online portal.	
Lack of understanding how market will respond to new technology.	Prioritize technologies based on energy *and* market potential.	• Focus on technology solutions from the customer perspective rather than the technology perspective. • Use National Renewable Energy Laboratory (NREL) modeling tools (ResStock™ and ComStock™) to analyze regional and statewide impacts of measure adoption.	A market-based approach will spark deeper levels of market penetration and drive increased levels of customer uptake and cost-effective energy savings.
Lack of measure adoption by ratepayer-funded incentive programs.	Provide measure support to facilitate adoption.	• Prepare deemed measure workpapers to codify claimable energy savings or coordinate with others developing workpapers by providing necessary research data. • Prepare a Business Model Canvas that helps Program Managers understand how to effectively deploy technologies.	Providing measure adoption support mitigates program implementation risks and helps programs achieve near-term success.

Innovation

The unique and innovative Program features described below are designed to improve the overall efficacy of California's Emerging Technology efforts.

Scanning and Screening

• Use of NREL's ResStock™ and ComStock™ tools to quickly assess the impacts of efficiency decisions at scale. Impacts can be evaluated by utility service territory, regionally, or at the state level, and help the Program quantify the level of investment required to assess technologies.

- Implementation of a Diversity, Equity, and Inclusion (DEI) screening lens to identify and prioritize technologies that ensure equitability for DACs and HTR customers.

Planning and Prioritization

- Increased engagement with Stakeholders to address market barriers preventing adoption of emerging technologies.

- Coordination with U.S. Department of Energy (DOE) market transformation efforts under the new administration—as well as in-state efforts including CPUC programmatic initiatives—broaden the scope of market outreach.

Dissemination

- Reach Stakeholders through engagement with key industry groups and formal Program outreach events.

Technology Transfer

- Introduction of a Business Model Canvas that assists with the transfer of technologies to program platforms and facilitates movement up the market adoption curve.

Metrics

Key Performance Indicators (KPIs) for the Program are the primary means of assessing the Program's performance on an ongoing basis. Tracking of reporting of KPIs is done on a monthly, quarterly, or annual basis depending on the specific KPI. The CPUC changes to the ET sector metrics (ETP-M1 through ETP-M7) may require changes to these KPIs.

Table 2. Key Performance Indicators

KPI	Metric Type	Description
Program Performance KPIs		
Invoicing and Billing Accuracy	Binary	Reviewed and accurate invoices submitted by the 10th of the month following any billable activity.
Program Reporting	Binary	Program reports including monthly, quarterly, annual, and ad hoc reports delivered on time, per requirements described in *Attachment 1 Reporting Requirements.*
Diverse Business Enterprises (DBE) Spend	Binary	Year-to-Date cumulative DBE subcontract spend meets or exceeds proposed commitment of 21% of spend.
Disadvantaged	Binary	Achieve program goal of two (2) internships per year

Worker Internships		
Contractor Safety	Binary	Maintain ISNetworld (ISN) grade of A or B.
Budget Utilization	Binary	Commit full budget for each Program year
Project Performance KPIs		
ETP-M3	Count	Number of projects initiated.
Program Data Quality	Binary	Project deliverables require no more than one (1) round of comments by SoCalGas. Project deliverables include reports, workpapers, test results, etc.
Project Milestones	Binary	Projects are completed within agreed to timeline. One (1) schedule adjustment of two (2) weeks maximum per project final deliverable is allowed if communicated to SoCalGas at least one (1) week prior to expected deliverable date.
Budget Compliance	Binary	Project deliverables are completed within 5% of approved budget amount provided in Project Proposal.
ABAL Metrics		
ETP-M1	Count	Number of TPMs initiated (gas and electric combined), including one (1) technology-focused pilot (TFP) TPM
ETP-M2	Count	Number of TPMs updated
ETP-M4	Count	Number of Outreach Events with technology developers with products <1 year from commercialization, including new technology vendors, manufacturers, and entrepreneurs
ETP-M5	Count	Number of Outreach Events with technology developers with products <5 years from commercialization, including new technology vendors, manufacturers, and entrepreneurs
ETP-M6	Count	Number of projects initiated with cooperation from other internal IOU programs associated with each TFP
ETP-M7	Count	Number of TFP initiated as part of the TFP TPM

For Programs Claiming To-Code Savings

The Program is a non-resource program that does not claim savings, including to-code savings.

Pilots

Per Decision 18-05-04, Emerging Technology Focused Pilots (ETFPs) shall identify market barriers for a diverse range of high-impact technologies through studies, design and pilot test interventions against identified barriers. ETFPs may occur sequentially following the results of a Technology Assessment or bypass the Assessment phase if appropriate. ETFPs are generally longer-term efforts that will work in collaboration with the statewide gas PAs and/or other program efforts. ETFPs may need to be reviewed and approved by the CPUC via an advice letter process.

Workforce Education and Training[2]

Workforce education and training is not applicable to emerging technology programs.

Workforce Standards[3]

HVAC workforce standards apply to GET when a contractor is used to install, modify, or maintain an HVAC technology project at a non-residential customer site. In these cases, GET ensures that each worker or technician involved in the physical installation of 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 Contractor's State License Board (CSLB).

Advanced Lighting Control Measures are not applicable to GET.

Disadvantaged Worker Plan[4]

The Program supports the CPUC's Disadvantaged Workers policies by offering paid internships to community college students who meet the CPUC's Disadvantaged Workforce requirements defined in Decision18-10-008. Internships are offered each program year to a college student enrolled in an engineering discipline. This complements the CPUC's efforts to promote economic mobility for Disadvantaged Workers while helping build a clean energy workforce.

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[2] D.18-05-041, page 20-21 and Ordering Paragraph 7

[3] D.18-10-008, Ordering Paragraph 1-2 and Attachment B, Section A-B, page B-1.

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

Additional information

Not applicable to GET.

Supporting Documents

Program Manual

Measure Eligibility

The Program seeks to identify emerging technologies that are commercially available, or near commercially available, but underutilized in the context of the current resource program offerings. By design, identified measures are intended to achieve therm savings and the savings potential will be quantified through the technology research project. However, not all research projects may result in energy savings. The results of those projects will be documented with recommendations for future action. Dual-fueled technologies, or technologies that may produce both gas and electric energy savings such as HVAC equipment. will be coordinated with the Statewide Electric Emerging Technologies program implementer.

Customer Eligibility Requirements

Customer test sites may be required for in-situ research projects. The characteristics for site selection include, but are not limited to customer segment, building type, vintage, location, etc. will be identified as part of the Project Plan and participating customers will be recruited for participation in the project according to those defined characteristics.

Contractor Eligibility Requirements

HVAC workforce standards apply to GET when a contractor is used to install, modify, or maintain an HVAC technology project at a non-residential customer site. In these cases, GET ensures that each worker or technician involved in the physical installation of 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 Contractor's State License Board (CSLB).

Advanced Lighting Control Measures are not applicable to GET and thus these standards do not apply.

Participating Contractors, Manufacturers, Retailers, Distributors, and Partners

A Technical Advisory Group (TAG) will be established to provide broad level industry insight into technology characteristics and market perspectives. The TAG will be consulted throughout the Program period to provide input into technology screening, prioritization, research questions to evaluate and dissemination of project results. The TAG is intended as a structured process to formally engage with important industry stakeholders critical to successful adoption of technologies. The TAG may include industry trade organizations, manufacturer associations, non-profits and/or

non-governmental agencies, labor representatives, efficiency program representatives, and other stakeholders.

Additional Services

A series of formal outreach events are planned to help increase transparency and engagement with Stakeholders throughout the program period. Events are designed to establish a two-way dialog with Stakeholders by providing information on program results/accomplishments while also soliciting input into program planning. Events described below are in addition to any meetings and/or other events tied directly to a specific Emerging Technologies (ET) project.

Audits

Not applicable to GET.

Program Quality Assurance Provisions

The Quality Assurance (QA) Plan ensures that each ET Program activity, complies with Applicable Laws and Industry Standards and results in successful outcomes. This document will evolve over time. We will collect feedback from IOUs, manufacturers, Subject Matter Experts, vendors, installers, and other Stakeholders to assist in improving these procedures.

The QA Plan has the following main features:

- Technology Advisory Group

- Technology Screening Process & Tools

- ET Project Plan and M&V Plans

- Quality Installation & Workforce Standards

- Field and Lab Testing Standards

- Instrument inventory and billing fee schedules, rental, or dedicated purchase ownership transfer protocols

- Instrument calibration standards

- EE Savings Analysis

- Computer modeling/simulation, qualified tools standards

- Statistical analysis standards

- Customer Satisfaction

- Continuous Improvement

Other Program Metrics

GET will utilize a software platform to track the screening and prioritization of technologies. Project ideas received via public input to the SW Portal will be entered into the GET platform for consideration. The GET platform will be used for documentation of all Program KPIs and Metrics

listed in Tables 2 and 3. These metrics are primarily binary (yes/no) or numeric (count) and do not require special calculations.

Program Theory[5] and Program Logic Model[6]

The underlying theory behind the Program is that increased collaboration with market Stakeholders will better align technology provider efforts with the needs of California gas IOUs and identify technologies with an increased likelihood of market adoption. Emerging technologies do not create benefit unless programs and customers adopt them at scale. To be successful, technologies must demonstrate clear customer value and address specific customer needs, or adoption will languish, and California ratepayers will not realize the benefit of the investment in the Program. Importing broader perspectives and national experience helps foster the increased collaboration necessary for success. The overall Program logic model is presented below.

Figure 1. Program Logic Model

Statewide Gas Emerging Technologies

BARRIERS & RISKS	Maintaining consistent flow of ET Opportunities		Prioritizing technologies that have market potential		Lack of adoption of new technologies
INPUTS & RESOURCES	Stakeholder input; Technology Advisory Group	Pipeline of emerging technologies	Project Plan	Project Plan; Final Report; Stakeholder input	Distribution Report
ACTIVITIES	Scanning and Screening	Planning and Prioritization	Validation of energy savings potential	Dissemination	Technology Transfer
OUTPUTS	Technology Priority Maps	Project Plan	Preliminary Findings Report, Draft Report and Final Report	Distribution Report	Business Model Canvas
OUTCOMES	Results of technology projects documented and made available to public	Technologies with energy savings potential adopted into energy efficiency programs	Increased savings contribution by new technologies		

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[5] 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.

[6] 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.

Process Flow Chart

The visual flow chart of GET processes, also known as iGET and SW GET, is displayed below.

Figure 2. Program Process Flow Chart

Incentive Tables, Workpapers, Software Tools
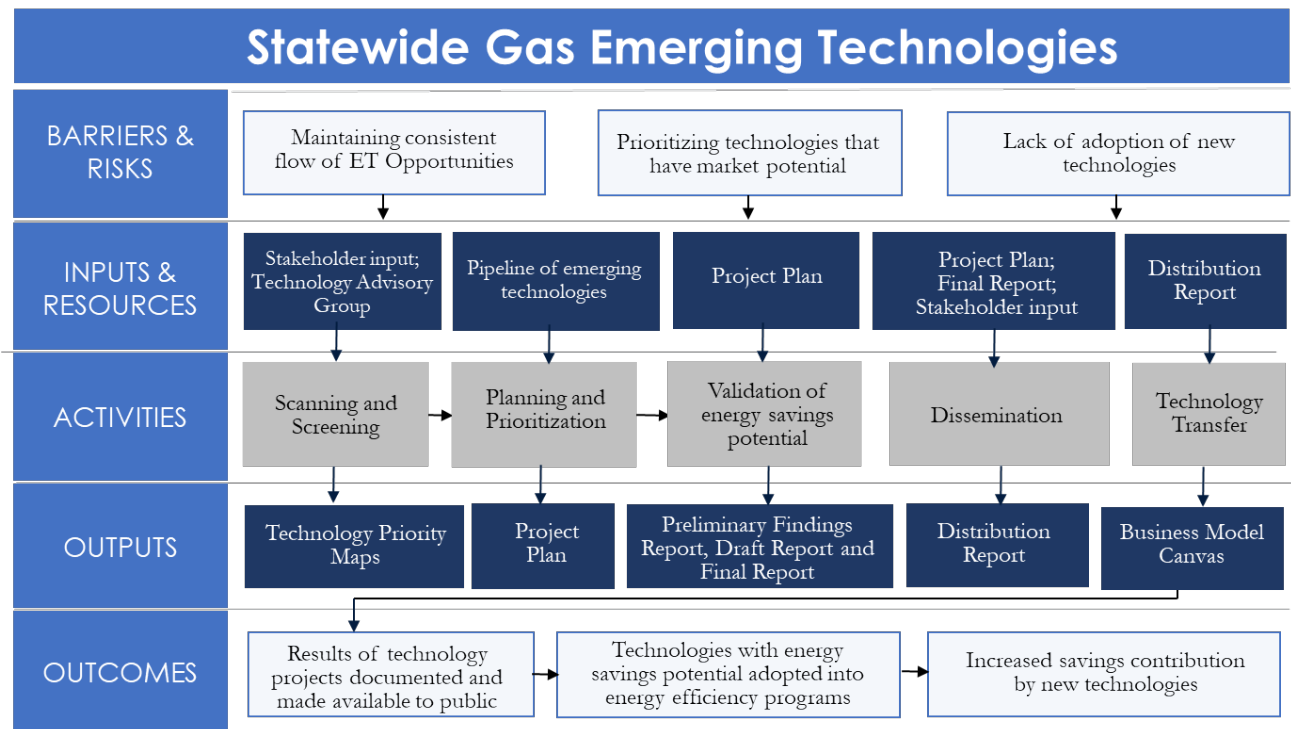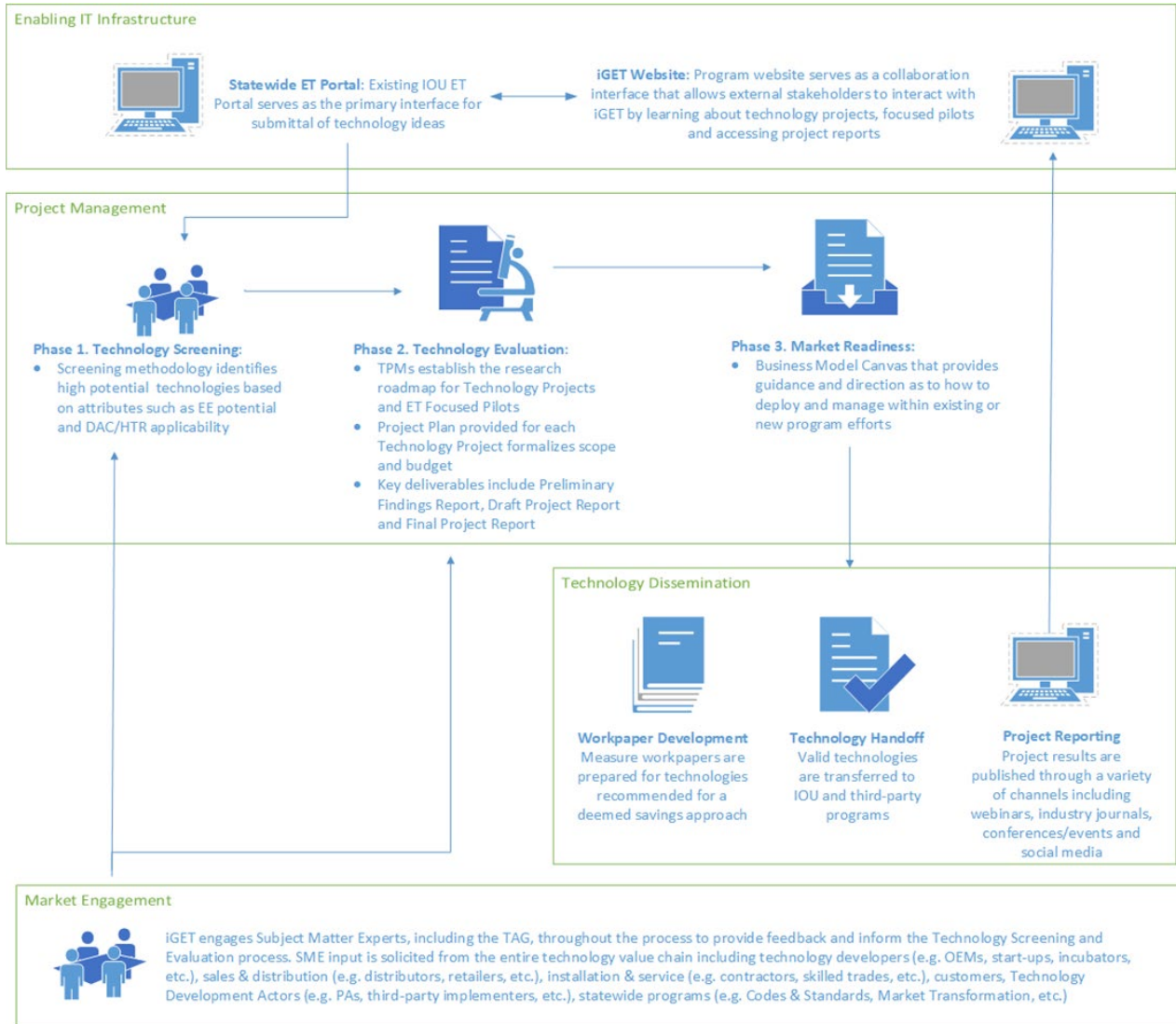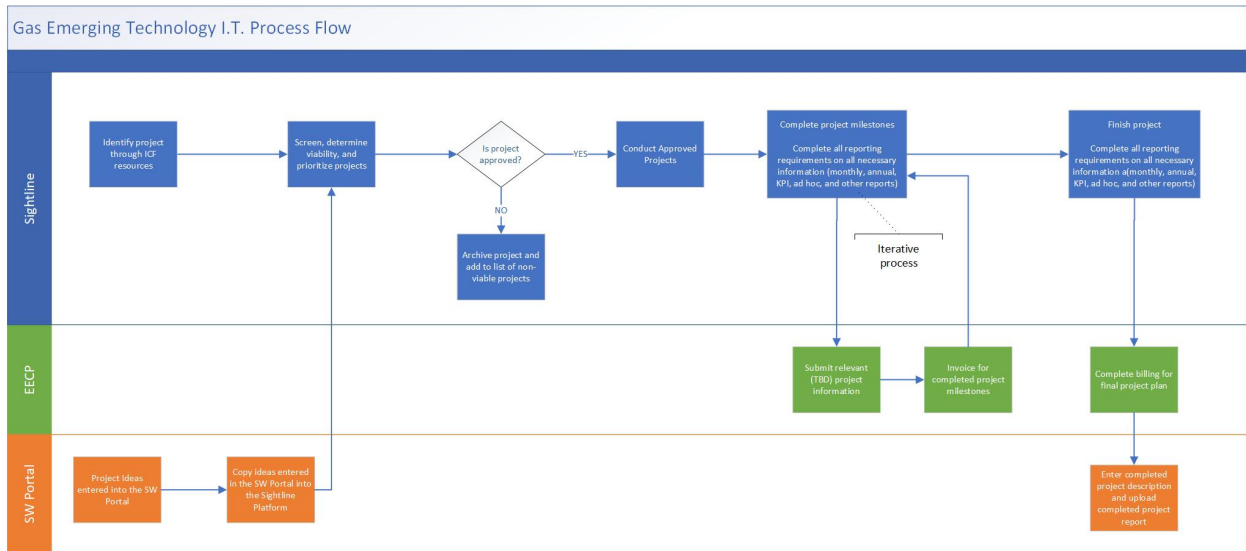
GET does not include measures and incentives.

GET will utilize a software platform to track the screening and prioritization of technologies. Project ideas received via public input to the SW Portal will be entered into the GET platform for consideration.

Figure 3. IT Process Flow

Quantitative Program Targets

Table 3. Quantitative Program Targets

Metric	Metric Description	2021	2022	2023	2024	Total
ETP-M1	Number of TPMs initiated, including one technology-focused pilot ("TFP") TPM	0	1	1	0	2
ETP-M2	Number of TPMs updated	0	0	1	1	2
ETP-M3	Number of projects initiated	0	8	14	9	31
ETP-M4	Number of outreach events with technology developers with products <1 year from commercialization, including new technology vendors, manufacturers, and entrepreneurs.	0	2	2	1	5
ETP-M5	Number of outreach events with technology developers with products <5 years from commercialization, including new technology vendors, manufacturers, and entrepreneurs.	See ETP-M4				
ETP-M6	Number of projects initiated with cooperation from other internal IOU programs associated with each Technology-focused Pilot.	0	0	1	0	1

ETP-M7	Number of TFP initiated as part of the TFP TPM.	0	1	0	0	1
	Annual GET Program Report	0	1	1	1	3
	Draft GET Final Program Report	0	0	0	1	1
	Final GET Final Program Report	0	0	0	1	1

Diagram of Program

Figure 4. Diagram of Program
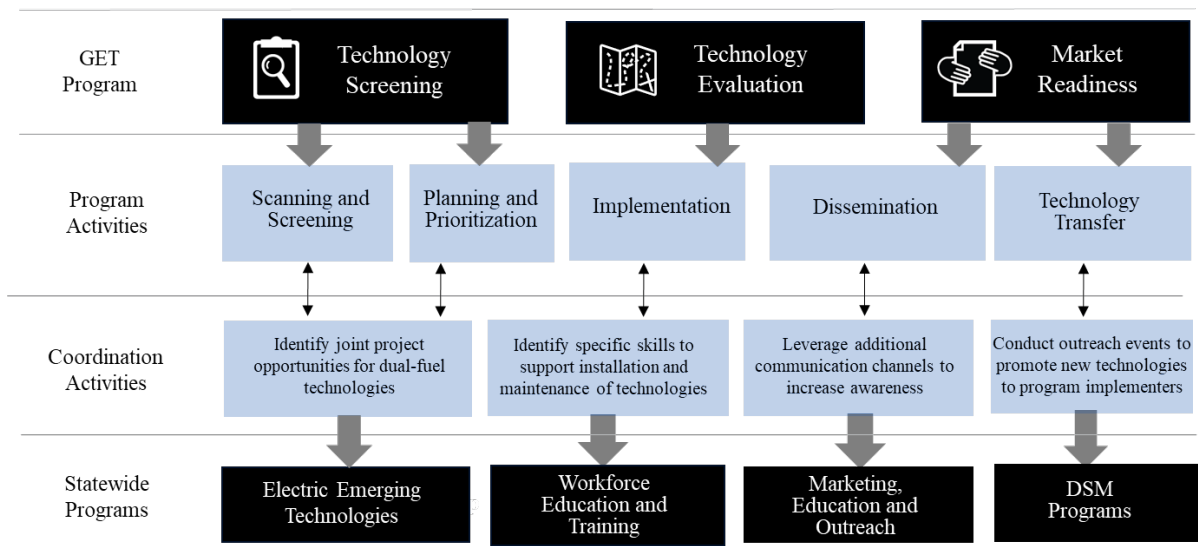
The Program provides the following linkages to other statewide efforts:

Electric Emerging Technologies

Measures sometimes cannot be justified economically solely from the gas perspective, but they often can be when taking a combined electric and gas perspective. The Program collaborates with the Statewide Electric Emerging Technology program on Measures that provide dual fuel savings; for example, HVAC systems and building energy management systems (EMS). In these cases, coordination is required to ensure that research efforts satisfy both Program needs and that efforts/costs are not duplicated.

Workforce Education and Training (WE&T)

Identification of market barriers preventing greater adoption of measures is critical to project implementation. Where such barriers include workforce education issues, the Program collaborates with WE&T providers and certification bodies (e.g., California Association of Sheet Metal and Air Conditioning Contractors National Association, United Association, etc.) to provide input on specific skills required to support design, installation, operation, and maintenance of measures.

Marketing, Education and Outreach (ME&O)

Dissemination of Project results are supported with a marketing communication strategy designed to increase the knowledge and awareness of Program efforts within the broader Stakeholder community. To reach these broad audiences, multiple communication channels such as trade journals, conference papers, webinars, workshops, and social media platforms are utilized.

Demand Side Management (DSM) Programs

Program Administrators and third-party program implementers are key Stakeholders in the successful delivery of the Program. Measures identified, prioritized, and evaluated through the Program need to be transferred successfully to resource programs to realize the full benefit of emerging technology efforts. The Program leverages a robust Stakeholder feedback process that includes several outreach events throughout the year. Demand-Side Management (DSM) program needs are filtered into the technology screening process to ensure that measures are evaluated through the lens of the end-user rather than strictly based on the technical savings potential.

Evaluation, Measurement & Verification (EM&V)

GET will not be undertaking any separate process evaluation efforts to identify program performance.

Normalized Metered Energy Consumption (NMEC)

NMEC is not applicable to GET.