Southern California Edison

Implementation Plan

ICF Resources Agriculture Energy Efficiency (AgEE) Program

Date: 05/25/2022

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1. Program Budget and Savings Information

1. Program and/or Sub-Program Name

Agriculture Energy Efficiency (AgEE) Program

2. Program and/or Sub-Program ID Number

SCE_3P_2021AGPUB_001

3. Program and/or Sub-Program Budget Table

Table 1. AgEE Program Budget

	2022	2023	2024	2025	Total
Administration	$55,588	$75,866	$115,139	$114,021	$360,615
Marketing and Outreach	$41,691	$56,899	$86,354	$85,516	$270,460
Incentives and/or Rebates	$1,805,191	$2,051,596	$1,560,614	$1,574,731	$6,992,132
Direct Implementation	$597,573	$815,555	$1,237,748	$1,225,731	$3,876,607
Total	**$2,500,042**	**$2,999,916**	**$2,999,855**	**$3,000,000**	**$11,499,813**

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

Table 2. AgEE Program Impacts

	2022	2023	2024	2025	Total
Gross Demand Reduction (kW)	1,953	2,374	1,071	1,083	6,481
Net Demand Reduction (kW)	1,390	1,693	932	943	4,959
Gross Energy Savings (kWh)	7,884,658	9,314,141	8,803,225	8,809,001	34,811,025
Net Energy Savings (kWh)	5,555,650	6,666,480	6,666,344	6,666,666	25,555,140

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

Table 3. AgEE Program Expected TRC

Delivery Period Year	Expected TRC
2022	1.40
2023	1.47
2024	1.02
2025	1.07

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

Table 4. AgEE Program Expected PAC

Delivery Period Year	Expected PAC	PAC w/ 6% SCE Admin Cost
2022	2.32	2.18
2023	2.42	2.27
2024	1.36	1.28
2025	1.43	1.34

8. **Type of Program and/or Sub-Program Implementer**

Table 5. Implementer Type

Program Implementer	
PA-Delivered	☐
Third Party-Delivered	☒
Partnership	☐

9. **Market Sector**

Table 6. Market Sector

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

10. **Program and/or Sub-Program Type**

Table 7. Program Type

Program Type	
Resource	☒
Non-Resource	☐

11. **Market Channels and Intervention Strategies:**

Table 8. Market Channels and Innovation Strategies

Market Channels	
Upstream	☐
Midstream	☐
Downstream	☒
Intervention Strategies	
Direct Install	☒
Incentive	☒
Finance	☐
Audit	☒
Technical Assistance	☒
Other	☐

12. **Campaign Goals and Timeline:**

Table 9. Program Timeline and Key Milestones

Program Stage	Key Deliverables/Milestones	Estimated Completion Date
Preparation	• Program Implementation Plan and Stakeholder Presentation Drafted and Approved	May 25, 2022
	• Stakeholder Presentation Conducted	May 25, 2022
	• Program Website Created	June 15, 2022
	• Program Implementation Plan and Supporting Documents Approved	June 16, 2022
	• Upload Implementation Plan and Supporting Documents to CEDARS	June 21, 2022
	• Program Marketing Collateral Completed and Approved	June 30, 2022
Ramp-Up	• Program Marketing Activities Commence • Trade Ally and Customer Outreach • Project Development	July 5, 2022
Delivery	• Ongoing Trade Ally and Customer Engagement • Project Development • Deliver Energy Savings	July 5, 2022 through December 31, 2025
Closeout	• Program Closeout • Shutdown Notification	September 1, 2025 through December 31, 2025

2. Implementation Plan Narrative

13. **Program Description**

The Agriculture Energy Efficiency Program (AgEE or Program) cost-effectively serves Southern California Edison's (SCE's) agricultural customers by delivering relevant energy efficiency solutions that meet the diverse needs of the sector. The Program objective is to increase customer participation and achieve greater savings within the agriculture sector by maximizing energy savings through customized solution sets that provide quantifiable operating cost reductions.

AgEE is implemented by ICF and its partners EnSave, Dr. Greenhouse, and ERI. Roles and responsibilities for each entity is detailed in the table below.

Company	Role	Responsibilities
ICF	Implementation lead	▪ Program management ▪ Budget management ▪ Marketing ▪ Information technology
EnSave	Subcontractor partner	▪ Program management ▪ Account management ▪ Engineering and design services support
Dr. Greenhouse (DBE)	Subcontractor partner	▪ Account management ▪ Engineering and design services support
ERI	Subcontractor partner	▪ Account management ▪ Engineering and design services support

AgEE identifies and works with agriculture customers to help them understand the benefits of implementing energy saving projects and measures; provides technical and project development assistance as needed; and leverages financing solutions such as On-Bill Financing (OBF), if such solutions are available; and, for Disadvantaged Communities (DAC) and Hard-to-Reach (HTR) customers, provides higher levels of incentives and technical support to overcome participation barriers.

The following activities will be conducted in support of achieving Program goals:

- Offer the AgEE program to agriculture customers who have a valid SCE Service Account on an eligible rate code. All eligible sizes and types of customers that are engaged in growing and producing various on-farm crops and animal products, as defined by the two-digit North American Industry Classification System (NAICS) Code 11. Post-harvest production (e.g., wine production, nut drying, etc.) is eligible when performed directly on-farm as defined by NAICS Code 11.
- Employ a multi-level outreach strategy that leverages the Program's account management team, local contractors, equipment vendors, key industry associations including universities, and other types of trade allies and service providers who engage the agricultural community.
- Utilize industry data to identify and engage HTR Customers and DACs.

- Translation of Program materials and advertising content into different languages, primarily simplified Chinese and Spanish as this represents more than 70% of the non-English-speaking farming community in California. Other languages will be added as necessary in response to market demand.
- Offer higher levels of financial support exclusively for DACs and HTR Customers to reduce participation cost and ensure specific barriers, including up-front investment costs and lack of staff support, are addressed.
- Provide agriculture customers with access to an AgEE Program information hotline and Program website.
- Offer a variety of incentive payments and technical assistance suitable for the customer size, capabilities and resources, and project scope.
- Identify and evaluate non-IOU funding opportunities (e.g., USDA grants for energy audits and improvements[1]) to sponsor demonstration projects for new and underutilized technologies. These demonstration projects will be used to develop case studies that will be used for marketing and outreach efforts and not submitted through the program. Program staff time allocated to grant activities is managed internally using separate timekeeping codes to avoid comingling grant activities with AgEE program activities.

Customer Segments

AgEE targets specific segments within the agricultural sector as classified under NAICS Code 11. This includes livestock operations, irrigated crops, Controlled Environment Agriculture (CEA), and on-farm post-harvest processing which comprise the majority of SCE's Agricultural market sector.

Geographic Location of Offering

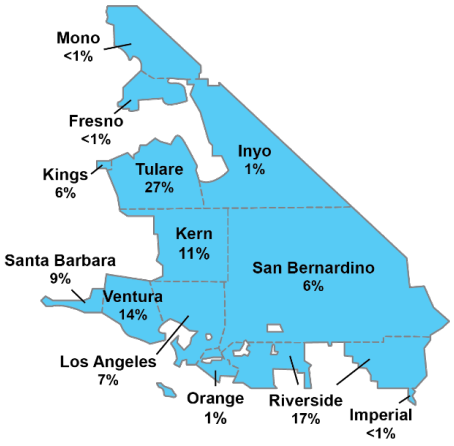
As shown below, eligible agricultural customers are located in SCE's service territory with the largest pocket being in the San Joaquin Valley followed by Ventura, Riverside, and San Bernardino counties. This widespread customer base will be targeted through direct customer outreach for larger customers combined with additional support from trade allies such as agricultural engineering firms and farm equipment suppliers to reach smaller agricultural accounts.

Small customers are those customers that have peak usage of less than 50 kW per month, medium customers are those customers that have peak usage greater than 50 kW per month and less than 250 kW per month, and large customers are those customers that have peak usage of greater than 250 kW per month.

Figure 1. SCE Service Territory Counties and Percentage of Agriculture Customer

[1] Rural Energy for America Program (REAP) Energy Audit & Renewable Energy Development Assistance Grants | Rural Development (usda.gov)

Accounts



Eligible Customers

All Agriculture customers who have a valid SCE Service Account are eligible to participate in the AgEE program. Agriculture customers are defined by two-digit North American Industry Classification System (NAICS) Code 11. Post-harvest production (e.g., wineries, packing houses, baghouses, etc.) is eligible when performed directly on-farm as defined by NAICS Code 11. Agriculture sub-segments further defined by four-digit NAICS Codes 1111, 1112, 1113, 1114 (including cannabis production which does not have a specific NAICS Code), 1119, 1121, 1122, 1123, 1124, 1125, 1129, 1151, and 1152.

Measures

The AgEE Program features a comprehensive suite of measures that are designed to engage agriculture customers of all sizes within each customer segment. In addition to measures that have been historically featured in SCE agricultural programs, AgEE emphasizes several underutilized measures that have high savings potential but low levels of customer adoption and awareness. Measures included in the AgEE program are detailed below.

Table 10. Program Measures and Incentives

Measure	Unit	Incentive per Unit
Custom and NMEC Measures	kWh kW	$0.15 $150
Lighting		
Lighting controls		
Horticulture lighting		
Exterior LED lighting		
Interior high/low bay LED lighting		
HVAC		
Horticulture HVAC system improvement		
HVAC controls and VFDs		
HVAC retro-commissioning		
Chiller (HVAC) compressor - VFD		

Measure	Unit	Incentive per Unit
Ventilation fan - VFD Efficient dehumidification system **Refrigeration** Refrigeration system insulation Refrigeration system controls and VFDs Condenser fan - VFD Chiller (process) compressor - VFD Evaporator coil fan - VFD Efficient refrigeration condensing unit Oversized air-cooled condenser Efficient refrigeration compressors **Irrigation** Sprinkler/flood to drip irrigation conversion Distribution uniformity improvement Irrigation scheduling **Compressed air** Compressed air controls Compressed air system optimization **Pumping** Pump controls and VFDs Pumping system retro-commissioning Agricultural pumping system upgrades VFD on Ag well pump serving non-pressurized system - add-on equipmer VFD on Ag Pump serving non-pressurized system Milk transfer pump - VFD Vacuum pumps - VFD Milking vacuum pump -VFD **Wastewater** Wastewater system controls and VFDs High efficiency blowers High efficiency pumps High efficiency aerators Wastewater treatment management system Wastewater chemically enhanced primary treatment/sedimentation		
Glycol Pump VFD		

Measure	Unit	Incentive per Unit
3 hp	Each	$1,500
5 hp		$1,750
7.5 hp		$2,000
10 hp		$2,500
15 hp		$3,000
20 hp		$3,750
25 hp		$5,000
High-Low Bay LED Horticultural Lighting		
4500 < 5400 lumens, >= 130 LPW and < 150 LPW	Fixture	$30
5400 < 6500 lumens, >= 130 LPW and < 150 LPW		$30
6500 < 7800 lumens, >= 130 LPW and < 150 LPW		$30
7800 < 9400 lumens, >= 130 LPW and < 150 LPW		$30
9400 < 11800 lumens, >= 130 LPW and < 150 LPW		$30
11800 < 14800 lumens, >= 130 LPW and < 150 LPW		$30
14800 < 18500 lumens, >= 135 LPW and < 150 LPW		$30
18500 < 23100 lumens, >= 135 LPW and < 150 LPW		$30
23100 < 30000 lumens, >= 135 LPW and < 150 LPW		$30
30000 < 39000 lumens, >= 135 LPW and < 150 LPW		$30
39000 < 50700 lumens, >= 140 LPW and < 150 LPW		$30
50700 < 65900 lumens, >= 140 LPW and < 150 LPW		$30
4500 < 5400 lumens, >= 150 LPW		$45
5400 < 6500 lumens, >= 150 LPW		$45
6500 < 7800 lumens, >= 150 LPW		$45
7800 < 9400 lumens, >= 150 LPW		$45
9400 < 11800 lumens, >= 150 LPW		$45
11800 < 14800 lumens, >= 150 LPW		$45
14800 < 18500 lumens, >= 150 LPW		$45
18500 < 23100 lumens, >= 150 LPW		$55
23100 < 30000 lumens, >= 150 LPW		$55
30000 < 39000 lumens, >= 150 LPW		$55
39000 < 50700 lumens, >= 150 LPW		$55
50700 < 65900 lumens, >= 150 LPW		$55
Efficient Ag Ventilation Fans		
24-46 inch	Each	$200
36 inch		$200
48 inch		$200
VSD	Horsepower	$195
Dust Collection Fan VSD		

Measure	Unit	Incentive per Unit
VFD on 10 hp motor	Each	$2,000
VFD on 15 hp motor		$3,000
VFD on 20 hp motor		$4,000
VFD on 25 hp motor		$5,000
VFD on 30 hp motor		$6,000
VFD on 40 hp motor		$7,000
VFD on 50 hp motor		$9,000
VFD on 75 hp motor		$10,000
VFD on 100 hp motor		$11,000
VFD on 125 hp motor		$13,000
VFD on 150 hp motor		$15,000
VFD on Ag Well and Booster Pumps		
Mid-tier VFD Ag pump, booster, <= 75 hp, AOE	Horsepower	$200
Mid-tier VFD Ag pump, booster, <= 75 hp, NC		$160
Mid-tier VFD Ag pump, booster, > 75 to <= 150 hp, AOE		$120
Mid-tier VFD Ag pump, booster, > 75 to <= 150 hp, NC		$75
Mid-tier VFD Ag pump, well, <= 75 hp, AOE		$200
Mid-tier VFD Ag pump, well, <= 75 hp, NC		$160
Mid-tier VFD Ag pump, well, > 75 to <= 600 hp, AOE		$120
Mid-tier VFD Ag pump, well, > 75 to <= 600 hp, NC		$75
Enhanced VFD on Ag Well and Booster Pumps		
Tier 3 Enhanced Specification VFD on Ag Booster Pumps <=75hp	Horsepower	$230
Tier 3 Enhanced Specification VFD on Ag Booster Pumps >75hp to <=150hp		$150
Tier 3 Enhanced Specification VFD on Ag Well Pumps <=75hp		$230
Tier 3 Enhanced Specification VFD on Ag Well Pumps >75hp to <=600hp		$150

14. Program Delivery and Customer Services

The AgEE program brings a comprehensive suite of tested strategies and tactics to drive customer participation and overcome the unique barriers faced by California's agricultural sector. Specific outreach activities and services provided to customers to achieve savings are described below.

Customer Outreach

AgEE is a relationship-based program, and all marketing and outreach work to facilitate the Program's account management team's customer engagement activities by:

- Ensuring that eligible agricultural customers in the SCE service territory and trade allies serving those customers are aware of the program.
- Driving customer participation and enrollment.
- Supporting achievement of energy savings goals.

Customer outreach is facilitated through the following tactics:

- **Digital Outreach:** Implementer will have a dedicated website that features important program information and content such as customer eligibility, measure availability, terms and conditions, contact information, etc. Customer-facing emails will be used to provide promotional information about the AgEE program including incentives, services, and events, updates on new technologies and special offers that may be available during the program period. Emails are planned on a quarterly schedule to maintain an overall level of customer awareness.
- **Industry Engagement:** Implementer will work with a wide variety of industry allies such as colleges and universities (e.g., UC/CSU), government agencies and affiliated groups (e.g., California Department of Food and Agriculture), service and equipment providers and trade and industry associations (e.g., California Cannabis Industry Association) to connect with agriculture customers. Marketing opportunities associated with these allies will include:
    - Membership and engagement
    - Event sponsorship and participation
    - Delivering program training and education via industry workshops and webinars
    - Digital advertising including banner advertisements on organization websites, content in member newsletters, and website articles/blog posts
- **Direct Marketing:** While the Program's overall strategy focuses primarily on direct outreach to targeted businesses by Implementer's account managers, it is important to enhance these direct outreach efforts through limited, highly targeted direct marketing. Implementer will distribute three (3) letters and/or postcards to targeted customer groups throughout the first year and assess the efficacy of this approach for subsequent years.
- **Collateral Materials:** A variety of collateral materials will be produced to assist in the sales and delivery of program services. These materials include a general Program Overview, Sector Fact Sheets (i.e., CEA, Dairies, Non-Dairy Animal Production, Irrigated Crops, Post-Harvest Production), and Case Studies that focus on specific projects. Collateral materials will be produced in multiple languages (e.g., Spanish, Hmong, etc.) to ensure all SCE customer audiences can access Program information.

Program Services Provided

- **Customer Education:** Promote the benefits of EE upgrades beyond utility cost savings considering crop/product quality improvement and build long-term relationships with agriculture customers as part of the education process.
- **Energy Assessments:** Evaluate facilities and processes directly with agriculture customers and advise them on EE solutions that best meet their needs allowing for multiple paths and a layered approach to making EE upgrades over time and at the right time in the growing cycle.
- **Energy Benchmarking**: Use agricultural performance benchmarking tools as part of the sales process to quantify customer facility energy performance and provides a comparison against peers.

- **Technical Support:** Engineering and project management support provided to help customers quantify opportunities and determine project scope.
- **Verification/Commissioning:** Verify completion of work to ensure all measures are installed and operational prior to project close-out and incentive payment.
- **Direct Install:** Provide specific measures through a direct install delivery approach to HTR/DAC customers that introduce them to the benefits of energy efficiency and serves as an entry point for broader participation.
- **Incentives:** Provide incentives to overcome first-cost barriers and commit to a Service Level Agreement (SLA) of 2-4 weeks after verified installation to maintain a high-level of customer satisfaction and be respectful to financial hardships often endured by agriculture customers.
- **Financing Assistance:** Help customers access OBF, if available, and other third-party financing opportunities such as USDA REAP.

Table 11. AgEE Savings Delivery Strategies and Tactics

Strategy	Tactics	Market Channel	Primary Targeted Customer Group
Increase customer awareness of program incentives and technical offerings	▪ Establish strategic partnerships to provide information through trusted communication channels ▪ Collaborate with industry partners to promote case studies and technical assistance opportunities ▪ Direct mail campaigns ▪ Co-develop and co-brand marketing materials and subsegment-specific technical resources that can be distributed by service providers ▪ Target customers at the optimal time in their decision-making cycle	▪ Equipment vendors, contractors, and manufacturers ▪ Agricultural cooperatives ▪ Trade associations ▪ University extension ▪ Groundwater Sustainability Agencies (GSAs)	▪ All customers and subsegments
Assist customers with overcoming first cost barrier	▪ Provide substantial measure incentives and adjust incentives periodically to address market dynamics ▪ Provide customer education on OBF and USDA financing ▪ Assist customers with OBF applications ▪ Provide technical assistance to help customers to visualize project cash flow	▪ USDA ▪ Financial institutions	▪ Medium and large customers
Provide customers with meaningful insight into farm energy use and performance	▪ Promote free energy benchmarking tools directly to customers and through strategic partnerships ▪ Assist customers with setting up energy dashboards through third-party providers using Green Button Connect ▪ Use data analytics to identify	▪ Customers ▪ Trade associations ▪ Agricultural cooperatives ▪ Third-party software companies ▪ GSAs	▪ Medium and large customers (energy benchmarking) ▪ Large customers (energy dashboarding)

Strategy	Tactics	Market Channel	Primary Targeted Customer Group
	customers with high potential for energy savings		
Increase participation of historically underserved customers	▪ Offer direct install lighting and ventilation measures ▪ Promote program through community-based organizations ▪ Provide educational opportunities such as workshops, funded through non-IOU sources	▪ Community-based organizations ▪ Government agencies ▪ Agricultural cooperatives ▪ University extension	▪ Small customers ▪ DAC and HTR customers
Provide customized technical assistance to make the business case for energy efficiency	▪ Offer facility energy audits and retrocommissioning (RCx) assessments ▪ Highlight non-energy benefits of efficiency projects, such as improvements to product yield and streamlining reporting	▪ Equipment vendors and contractors ▪ Manufacturers	▪ Large customers (facility energy audits ▪ Medium and large CEA customers (RCx assessments)
Drive customer awareness and adoption of new and underutilized technologies	▪ Work with trusted parties and thought leaders in agricultural community to promote specific technologies through webinars and site demonstrations ▪ Develop case studies to promote success of new and underutilized technologies ▪ Leverage USDA grants to fund technology demonstration and education projects	▪ Groundwater Sustainability Agencies ▪ USDA	▪ Medium and large CEA and irrigation customers

15. Program Design and Best Practices

Table 12. Strategies to Overcome Market Barriers

Market Barrier	Strategy	Tactics	Best Practice
Information or search costs: Customers have varying levels of knowledge regarding energy efficiency opportunities	Provide a comprehensive suite of technical and program support services.	▪ Leverage relationships with trade associations, agricultural cooperatives, university extension offices, government agencies, equipment vendors, manufacturers, and other relevant stakeholders to make program information readily available. ▪ Assign a Program Account Manager to facilitate customer	This approach has been shown to increase participation as agricultural customers rely heavily on industry partners and thought leaders to help identify/validate business solutions.

Market Barrier	Strategy	Tactics	Best Practice
		participation.	
Performance uncertainties: Customers are hesitant to adopt new or unfamiliar farming methods because of unknown risk to product yield and quality	Provide case studies and other evidence of project results.	▪ Apply for USDA grant funding opportunities to fund demonstration projects that can be used to showcase EE projects. ▪ Provide technical and engineering support to estimate energy cost savings. ▪ Quantify non-energy benefits that result from project installations.	Evidence of actual results help to mitigate customer concerns about performance risk.
Hassle or transaction costs: Energy efficiency ranks low in priority compared to other operating costs	Promote energy efficiency solutions tailored for unique customer subsegments.	▪ Coordinate efforts and offerings with strategic partners. ▪ Highlight how projects can address non-energy benefits such as product yield and quality.	Solutions that solve particular pain points have a greater chance of adoption.
Access to financing: Customer lack capital to fund projects	Provide financial incentives to reduce project costs.	▪ Retrofit projects are incentivized to mitigate initial cost barriers and influence adoption of higher levels of efficiency. ▪ Promote SCE OBF to further overcome the high first cost barrier. ▪ Facilitate access to other financial incentives such as USDA REAP which provides more than $280 million in incentives and low-interest loan options for agricultural producers who make EE improvements.	Financial incentives have the greatest impact on influencing customer's decision-making process.
Organization practices or custom: Traditional farming practices and multiple decision makers result in long project sales cycle	Utilize agricultural SMEs to deliver program services.	▪ Work closely with trusted parties and thought leaders to promote new/unfamiliar technologies to the farming community. ▪ Assign a Program Account Manager to facilitate customer participation.	Customers place more trust in those who fully understand their business operations.
Misplaced or split incentives: Landowner and lessee have different cost/benefit criteria	Deliver comprehensive project solutions that benefit both parties.	▪ Use a mix of direct installation (DI) deemed, custom and NMEC measures that provide both near-term benefits for the farmer and long-term benefits for landowner.	Providing measures for both landowner and farmer enable installation of more comprehensive projects.
Product or service unavailability: Whole system opportunities are missed by individual equipment vendors	Work directly with customers to develop projects and coordinate project completion through trade ally network.	▪ Leverage local contractor network with specialties in various trades to deliver comprehensive project solutions. ▪ Deliver technical training through equipment dealers/supply houses.	Vendor support is a critical element to the successful delivery of the AgEE program.
Seasonality: Project installation needs to be	Develop segment-specific marketing	▪ Marketing and outreach efforts are timed to align with agriculture preparation, input, growth and	Targeted messaging that resonates with customers

Market Barrier	Strategy	Tactics	Best Practice
timed to align with growing season.	and outreach efforts.	harvesting seasons.	drive greater levels of participation.
Biosecurity: Contamination of food product introduces potential catastrophic business risk	Develop program policies and procedures that address potential customer concerns.	▪ Standard industry precautions are followed while on site visits to ensure diseases are not spread from farm to farm.	Demonstration of thorough understanding of customer concerns creates a sense of trust and partnership.

16. Innovation

The AgEE team follows developments in solutions for farm owners and operators. Below are strategies the team will employ to ensure the program remains innovative and offers Customers the latest and best options.

Facility Benchmarking. Use publicly available agricultural performance benchmarking tools such as Resource Innovation Institute's PowerScore tool, EnSave's National Greenhouse Database and Benchmark tool, and the National Milk Producer Federation's FARM Environmental Stewardship tool to quantify customer facility energy performance. Facility benchmarking will help drive customer awareness of energy use versus their peers, identify areas of opportunity, and provide a basis for customers to conduct ongoing internal benchmarking. Farms are benchmarked against themselves (year over year) to demonstrate energy efficiency progress, or against anonymized ranked data sets to compare their performance relative to peer operations.

Advanced energy efficiency technologies. Drive customer awareness and adoption of innovative technologies including greenhouse dynamic climate control and adaptive lighting control which provide energy savings opportunities but have a largely untapped market. Implementer will develop case studies of customers who have implemented these technologies to highlight their success and energy savings and will work closely with thought-leaders and early adopters in the agricultural community to overcome broader customer adoption barriers. Highlighting the non-energy benefits of new and innovative technologies, such as improved product quality or yield, will be part of the effort to drive customer adoption.

New software strategies. Collaborate with existing vendor software platforms that provide web-based electricity use dashboarding to CEA customers. This will enable CEA growers to gain insight into when and where electricity is being used in their facilities and will be used to identify potential opportunities for implementing advanced thermal management strategies, such as greenhouse temperature integration.

Energy dashboarding. Utilize SCE's Green Button Connect My Data program, which allows customers to securely access and share their energy use data with third-party vendors. There is no cost to customers to use Green Button Connect My Data, and any cost associated with third party dashboarding software subscriptions will be paid by participating customers. Dashboarding is an underutilized tool with certain subsegments of agricultural customers with high energy use, particularly indoor CEA operations. Dashboarding is complementary to energy benchmarking but provides more detailed real-time insights into daily and seasonal energy use patterns, which can be used to identify opportunities for energy efficiency improvements and demand reduction.

17. **Metrics**

The AgEE Program will have Key Performance Indicators integrated into the program to measure and track program success. The majority of the KPIs will be tracked monthly or quarterly throughout the program cycle once launched. Metrics will include:

Table 13. AgEE Program KPIs

Category	KPI	Frequency	Description
Program Performance	Energy Savings (kWh, kW, Therms)	Monthly	Total net lifecycle energy savings achieved versus expected net lifecycle energy savings
	Project Pipeline Target (kWh, kW, Therms)	Monthly	A comparison of net life cycle energy savings associated with future project pipeline in relation to the net life cycle energy savings required under Agreement
	Schedule Adherence	Quarterly	Expected Energy Savings vs. Ex Ante Energy Savings; Expected Demand Savings vs. Ex Ante Demand Savings; Expected TRC Ratio vs. Ex Ante TRC Ratio
	Cost Management (TRC ratio) (Levelized cost)	Annually	[Incentive/non-incentive] spend based on paid [incentive/non-incentive] spend vs forecasted [incentive/non-incentive] spend
	Customer Satisfaction Rating	Quarterly	Maintain a customer satisfaction rating of 90%
Marketing Performance	Lead Conversions	Quarterly	Maintain an average Conversion Rate of 2% for paid digital advertising
	Digital Advertising	Quarterly	Maintain an average Click Through Rate and Conversion Rate of 1.5% for paid digital advertising
Supply Chain Responsibility	Safety Ratings	Annually	Maintain ISNetworld (ISN) grade of B or better
	Diverse Business Enterprises Spend	Monthly	To date Diverse Business Enterprise (DBE) spend as percent of total spend.
	Hard-to-Reach Customers	Quarterly	Ex Ante Energy Savings, Ex Ante Demand Savings, and Ex Ante TRC Ratio installed at Hard-to-Reach Customer Sites relative to the Program's total Ex Ante Energy Savings, Ex Ante Demand Savings, and Ex Ante TRC Ratio. Total incentives paid to Hard-to-Reach Customer
	Disadvantaged Communities	Quarterly	Ex Ante Energy Savings, Ex Ante Demand Savings, and Ex Ante TRC Ratio installed in Disadvantaged Communities relative to the Program's total Ex Ante Energy Savings, Ex Ante Demand Savings, and Ex Ante TRC Ratio. Total incentives paid to Customers within Disadvantaged Communities.
	Sustainability Ratings	Quarterly	• 50% or higher post-consumer recycled paper content • Plant trees to offset paper consumption • All printed materials sourced from a B Corp certified printer

18. For Programs Claiming To-Code Savings

To-code potential within the agricultural sector primarily resides with lighting and process refrigeration end uses. The most common to-code savings potential is found on farms that do not comply with Title 24 facility lighting power density allowances, and farms that use legacy equipment that predates industry standard practice (ISP).

Equipment Types, Building Types, Geographical Locations, Customer Segments

Equipment Types: High-bay lighting, compressed air controls, and process refrigeration controls provide the greatest opportunity for to-code savings. Additional to-code savings potential may emerge in 2023 if the Codes and Standards Enhancement (CASE) Initiative's recommendations to update the California Energy Code (Title 24, Part 6) for Controlled Environment Horticulture operations are approved. These recommendations include minimum lighting and HVAC efficiency and efficacy allowances and would go into effect no earlier than January 1st, 2023. To-code savings potential would increase substantially for CEA customer (particularly indoor cannabis facilities) if these codes are enacted.

Building Types: Older building types and processes present significant to-code opportunities.

Geographical Locations: To-code savings potential exist throughout SCE territory particularly in DACs.

Customer Segments: To-code savings occurs throughout the entire agricultural sector including dairies, wineries, packing houses, and cold storage facilities. The greatest potential for to-code savings is with smaller, disadvantaged farmers who generally do not have the financial resources to invest in their facilities and commonly lease farm equipment.

Barriers Preventing Code-Compliant Equipment Replacement

The main barrier that prevents installation of code-compliant equipment is the capital cost of the upgrade. The 2017 USDA Census of Agriculture indicates that 51 percent of California farmers cannot finance energy improvements or do not think that cost reductions will offset the installation costs. Utility costs (electricity, telephone charges, internet fees, and water) account for 4.9 percent of total farm operating expenses versus 13.6 percent for feed and 18.5 percent for labor. As a result, farmers prioritize other investments over energy efficiency. To overcome these barriers, financial incentives and technical support are needed to bring the efficiency retrofit on par with other investments and provide confidence that energy cost savings will materialize.

Reason Why Natural Turnover does not Occur

Natural turnover does not occur organically within the agricultural sector due to financial and technical barriers. Based on direct experience with this segment, farmers tend to be laggards in the adoption of new equipment or processes. Adoption only occurs after the benefits in terms of production improvements can be demonstrated in real world applications. A fundamental strategy for AgEE is to identify early adopters and use them as ambassadors for the program. Farmers that see their peers having success with a particular technology are more open to adopting it as well.

Program Interventions to Accelerate Equipment Turnover

Program intervention to accelerate equipment turnover includes: 1) marketing, education, and outreach (ME&O) about a specific measure or technology that is directly targeted to the relevant sector, 2) application for USDA and other grant opportunities to create a demonstration or showcase project that can be used for marketing and training and 3) sufficient incentives to address cost barriers make the decision to retrofit their facility financially viable for the customer. Relationships with equipment suppliers, manufacturer sales representatives, specialty engineering firms, agricultural coops, and universities will be leveraged by program account managers to educate customers on the benefits of improving existing processes to best-in-class industry practice. Incentives and financing are then used to remove the capital cost barrier that generally prevents greater adoption.

19. Pilots

Pilot projects are not part of the Agriculture Energy Efficiency Program.

20. Workforce Education & Training (WE&T) [2]

AgEE will use local representatives (account managers) to support the program and execute services as well as onboard contractors/trade allies onto the program. These account managers will focus on the communities the Program serves and through program training will become skilled agricultural auditors and will develop valuable sales skills. The Program will also use a diverse supplier to provide additional local support to the program, and this staff will receive the same training benefits.

Technical training will be provided to horticultural lighting vendors and electrical contractors to increase overall awareness of Adaptive Lighting Controls which is a nascent technology applicable to indoor growing customers. Training will be delivered on an as needed through web-based "lunch and learn" sessions throughout the program delivery period. Web-based training is ideal for this segment and equipment vendors and contractors are located across SCE service territory making in-person training impractical. Training will be delivered in partnership with Adaptive Lighting Control manufacturers and will introduce attendees to proper application of the technology for their customers.

21. Workforce Standards[3]

The Program will work closely with greenhouse solution providers who provide design and engineering services for the CEA segment. These providers typically contract to specialty trades for actual installation. These installation contractors will be required to comply with the following workforce standards:

HVAC Standard

All projects involving installation, modification, or maintenance of heating, ventilation, and air conditioning (HVAC) measures in non-residential buildings and reserving a project incentive of $3,000 or more, to utilize installation technicians that meet one of the criteria below:

- Completed an accredited HVAC apprenticeship.

[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.

- Be enrolled in an accredited HVAC apprenticeship.
- Completed at least five years of work experience at the journey level as defined by the California Department of Industrial Relations, passed a practical and written HVAC system installation competency test, and received credentialed training specific to the installation of the technology being installed.
- Have a C-20 HVAC contractor license from the California Contractor's State Licensing Board.

Lighting Standard

All projects involving installation of lighting controls measures in non-residential buildings and reserving a project incentive of $2,000 or more to utilize installation technicians that have been certified by the California Advanced Lighting Controls Training Program (CALCTP).

22. Disadvantaged Worker Plan:[4]

As outlined in CPUC Decision D.18-05-041, the workforce diversity metric is measured by "the percentage of incentive dollars spent on measures verified to have been installed by contractors with a demonstrated commitment to provide career pathways to disadvantaged workers." The Program manages project installations through trade allies. These trade allies are selected through a thorough evaluation process that includes a documented commitment to providing job access to disadvantaged workers measured by six unique criteria including: 1) workforce training programs; 2) hiring from high unemployment areas; 3) paying family-supporting wages; 4) hiring from designated training providers; 5) providing health care insurance to employees; and 6) employing a diverse workforce.

Trade professionals that satisfy the Disadvantaged Worker requirements will be identified and the percent of incentive dollars installed by trade allies that provide career pathways to disadvantaged workers will be reported annually.

23. Additional Information

No additional information has been requested by any CPUC decision or ruling.

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

3. Supporting Documents

24. Program Manuals and Program Rules

Eligible Measures or measure eligibility, if applicable

The AgEE Program delivers a comprehensive suite of energy efficiency measures targeted to the predominant end uses within the agricultural sector including HVAC, lighting, pumping and irrigation as listed below in Section 12 "Incentive Tables, Workpapers and Software Tools.".

The AgEE Program leverages the deemed, custom and NMEC savings platforms. Deemed measures offered are supported by an approved eTRM measure package while custom and NMEC measures are offered in compliance with the Statewide Custom Project Guidance Document and the CPUC NMEC rulebook, respectively.

Customer Eligibility Requirements

AgEE program services will be offered to agriculture customers who have a valid SCE Service Account on an eligible rate code. All eligible sizes and types of customers that are engaged in growing and producing various on-farm crops and animal products, as defined by the two-digit North American Industry Classification System (NAICS) Code 11. Post-harvest production (e.g., wine production, nut drying, etc.) is eligible when performed directly on-farm as defined by NAICS Code 11. Agriculture sub-segments further defined by four-digit NAICS Codes 1111, 1112, 1113, 1114 (including cannabis production which does not have a specific NAICS Code), 1119, 1121, 1122, 1123, 1124, 1125, 1129, 1151, and 1152.

Contractor Eligibility Requirements

AgEE will develop a network of qualified, trained trade allies who will serve as Program ambassadors. This trade ally network will be available to contractors and vendors who provide services and products to assist SoCalGas customers with the implementation of Program energy efficiency measures. Customers will not be required to use a network trade ally to qualify for Program incentives. Participating contractors are required to:

- Have an active California State License Board B (General Building Contractor) or C (Specialty) license
- Comply with local business license requirements
- Possess additional certification (e.g., CALCTP) as defined by CPUC Workforce Standards
- Possess general liability and workers compensation insurance
- Comply with OSHA safety requirements as established by the governing statutes, standards, or regulations
- Attend all required program training
- Follow program specified complaint/dispute resolution procedures
- Follow program specified standards for all work performed
- Follow program quality assurance procedures

The AgEE Program will also work closely with greenhouse solution providers who provide design and engineering services for the CEA segment. These providers typically contract to specialty trades for actual installation. To the extent possible, compliance with CPUC HVAC Workforce Standards will be ensured by identifying local contractors that meet the following minimum requirements:

- Completed a California or federal accredited HVAC apprenticeship.
- Be enrolled in a California or federal accredited HVAC apprenticeship.
- Completed at least five years of work experience at the journey level as defined by the California Department of Industrial Relations and passed a practical and written HVAC system installation competency test and received credentialed training specific to the installation of the technology being installed.
- Has a C-20 HVAC contractor license from the Contractors State License Board (CSLB).

Participating Contractors, Manufacturers, Retailers, Distributors, and Partners

AgEE is a downstream program. Direct installation of certain measures will be completed by contractors selected to offer direct install services.

Additional Services

No additional services are offered by AgEE.

Audits

Specialized Technical Assistance and Facility Energy Pre-Audits: Each agricultural segment requires a unique approach and an understanding of specific processes, policies, and technologies relevant to that segment. Emphasis will be placed on providing comprehensive facility energy audits to the largest customers to identify opportunities for retrofits and RCx. Facility audits will provide a platform for engaging large customers through other means, including ongoing benchmark monitoringParticipating customers will have access to local engineers and subject matter experts to quickly provide decision support, answer technical questions, and provide basic analysis.

Audits will involve interviewing key operations personnel to gain a picture of facility operations. Facility utility bills and BAS controls will be reviewed and information on the age and specs of existing equipment will be collected. Auditors will also be looking for under-performing systems; these issues can often come to light through discussions with the customer.

Verification/Commissioning Post-Audits: AgEE will verify completion of work to ensure all measures are installed and operational before payment of incentive to customer or trade ally. Where applicable, equipment model numbers are verified to ensure they match what was supposed to be installed. Operational procedures are also confirmed through discussions with facility managers. If the measures are related to the building controls, pictures of the BAS screens will be used where possible to verify the project goals have been met. If the post-audit reveals any significant discrepancies (i.e., 10% change in savings or more) from the initial analysis, the saving analysis and incentive will be revised to capture the changes. All changes in scope should be brought to the attention of the program implementer and any increases in incentive will be subject to Program approval. The differences and analysis revisions will all be thoroughly documented in the final report.

Sub-Program Quality Assurance Provisions

AgEE has no sub-programs.

Other Program Metrics

The AgEE Program will have Key Performance Indicators integrated into the program to measure and track program success. The majority of the KPIs will be tracked monthly or quarterly throughout the program cycle once launched. Metrics will include:

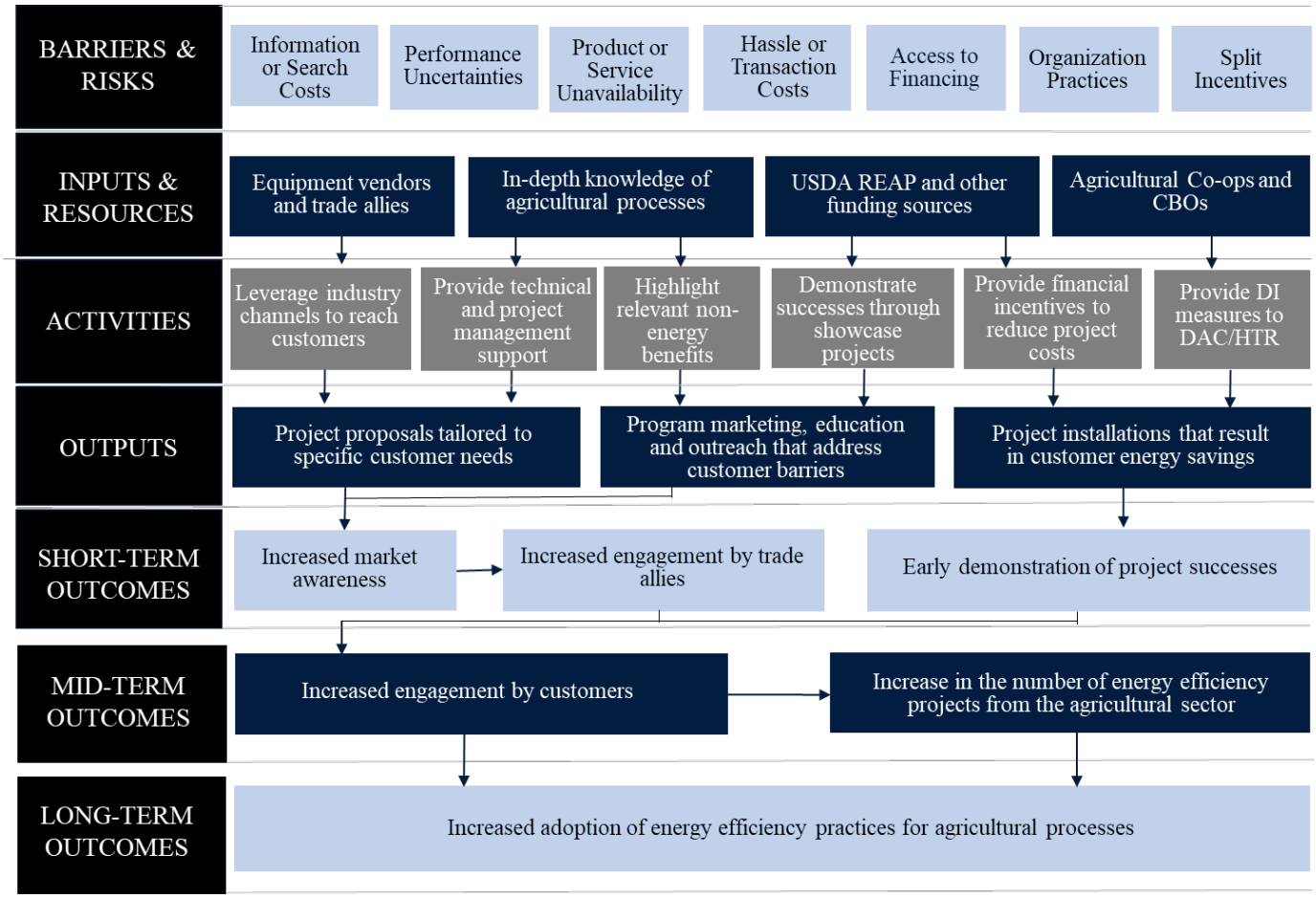
Table 14. AgEE Program KPIs

Category	KPI	Frequency	Description
Program Performance	Energy Savings (kWh, kW, Therms)	Monthly	Total net lifecycle energy savings achieved versus expected net lifecycle energy savings
	Project Pipeline Target (kWh, kW, Therms)	Monthly	A comparison of net life cycle energy savings associated with future project pipeline in relation to the net life cycle energy savings required under Agreement
	Schedule Adherence	Quarterly	Expected Energy Savings vs. Ex Ante Energy Savings; Expected Demand Savings vs. Ex Ante Demand Savings; Expected TRC Ratio vs. Ex Ante TRC Ratio
	Cost Management (TRC ratio) (Levelized cost)	Annually	[Incentive/non-incentive] spend based on paid [incentive/non-incentive] spend vs forecasted [incentive/non-incentive] spend
	Customer Satisfaction Rating	Quarterly	Maintain a customer satisfaction rating of 90%
Marketing Performance	Lead Conversions	Quarterly	Maintain an average Conversion Rate of 2% for paid digital advertising
	Digital Advertising	Quarterly	Maintain an average Click Through Rate and Conversion Rate of 1.5% for paid digital advertising
Supply Chain Responsibility	Safety Ratings	Annually	Maintain ISNetworld (ISN) grade of B or better
	Diverse Business Enterprises Spend	Monthly	To date Diverse Business Enterprise (DBE) spend as percent of total spend.
	Hard-to-Reach Customers	Quarterly	Ex Ante Energy Savings, Ex Ante Demand Savings, and Ex Ante TRC Ratio installed at Hard-to-Reach Customer Sites relative to the Program's total Ex Ante Energy Savings, Ex Ante Demand Savings, and Ex Ante TRC Ratio. Total incentives paid to Hard-to-Reach Customer
	Disadvantaged Communities	Quarterly	Ex Ante Energy Savings, Ex Ante Demand Savings, and Ex Ante TRC Ratio installed in Disadvantaged Communities relative to the Program's total Ex Ante Energy Savings, Ex Ante Demand Savings, and Ex Ante TRC Ratio. Total incentives paid to Customers within Disadvantaged Communities.
	Sustainability Ratings	Quarterly	• 50% or higher post-consumer recycled paper content • Plant trees to offset paper consumption • All printed materials sourced from a B Corp certified printer

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

The underlying theory behind AgEE is that a high level of technical support and financial incentives specifically tailored to unique customer needs will increase participation within the agricultural segment and reach a higher level of market participation. This is depicted in the following logic model.

Figure 2: Program Logic Model

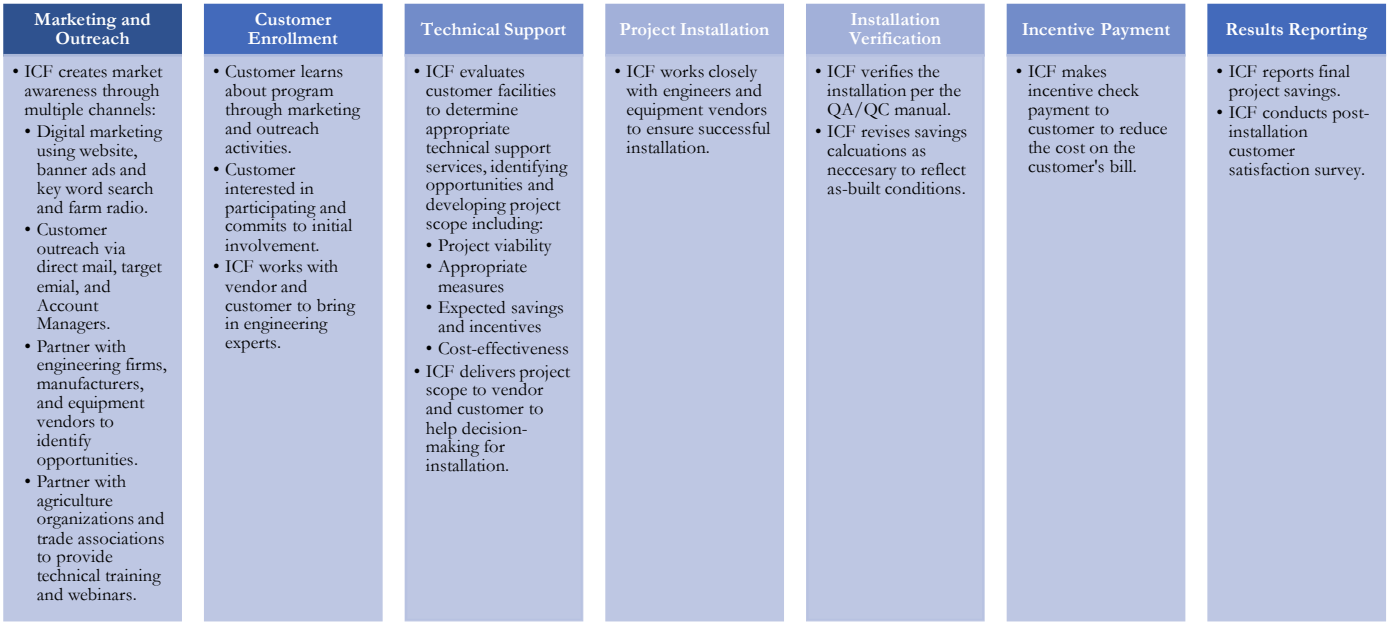


[5] The expected causal relationships between program goals and program activities in a way that allows the reader to understand why the proposed program activities are expected to result in the accomplishment of the program goals. A well-developed program theory can (and should) also describe the barriers 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.

26. **Process Flow Chart**

Figure 3. Process Flow Chart



27. Incentive Tables, Workpapers, Software Tools[7]

The table below details measures and associated incentives available through AgEE. NMEC measures will be offered pending CPUC approval of use in agricultural projects.

Measure Code	Measure ID	Measure Description	Unit	Incentive per Unit
N/A	N/A	**Custom and NMEC Measures**	kWh	$0.15
			kW	$150
		Lighting		
		Lighting controls		
		Horticulture lighting		
		Exterior LED lighting		
		Interior high/low bay LED lighting		
		HVAC		
		Horticulture HVAC system improvement		
		HVAC controls and VFDs		
		HVAC retrocommissioning		
		Chiller (HVAC) compressor - VFD		
		Ventilation fan - VFD		
		Efficient dehumidification system		
		Refrigeration		
		Refrigeration system insulation		
		Refrigeration system controls and VFDs		
		Condenser fan - VFD		
		Chiller (process) compressor - VFD		
		Evaporator coil fan - VFD		
		Efficient refrigeration condensing unit		
		Oversized air-cooled condenser		
		Efficient refrigeration compressors		
		Irrigation		

[7] 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.

Measure Code	Measure ID	Measure Description	Unit	Incentive per Unit
		Sprinkler/flood to drip irrigation conversion		
		Distribution uniformity improvement		
		Irrigation scheduling		
		Compressed air		
		Compressed air controls		
		Compressed air system optimization		
		Pumping		
		Pump controls and VFDs		
		Pumping system RCx		
		Pumping system upgrades		
		VFD on Ag well pump serving non-pressurized system - add-on equipment		
		VFD on Ag Pump serving non-pressurized system		
		Milk transfer pump - VFD		
		Vacuum pumps - VFD		
		Milking vacuum pump -VFD		
		Wastewater		
		Wastewater system controls and VFDs		
		High efficiency blowers		
		High efficiency pumps		
		High efficiency aerators		
		Wastewater treatment management system		
		Wastewater chemically enhanced primary treatment/sedimentation		
Deemed Measures				
PR-21031	SWPR002A	Glycol pump VFD, winery, 3 hp	Each	$1,500
PR-21032	SWPR002B	Glycol pump VFD, winery, 5 hp		$1,750
PR-21033	SWPR002C	Glycol pump VFD, winery, 7.5 hp		$2,000
PR-21034	SWPR002D	Glycol pump VFD, winery, 10 hp		$2,500
PR-21035	SWPR002E	Glycol pump VFD, winery, 15 hp		$3,000
PR-21036	SWPR002F	Glycol pump VFD, winery, 20 hp		$3,750
PR-21037	SWPR002G	Glycol pump VFD, winery, 25 hp		$5,000

Measure Code	Measure ID	Measure Description	Unit	Incentive per Unit
LT-21210	SWLG011A	LED, High-Low Bay, 4500 < 5400 lumens, >= 130 LPW and < 150 LPW, WRf, CZ14-Any	Fixture	$30
LT-21211	SWLG011B	LED, High-Low Bay, 5400 < 6500 lumens, >= 130 LPW and < 150 LPW, WRf, CZ14-Any		$30
LT-21213	SWLG011C	LED, High-Low Bay, 6500 < 7800 lumens, >= 130 LPW and < 150 LPW, WRf, CZ14-Any		$30
LT-21214	SWLG011D	LED, High-Low Bay, 7800 < 9400 lumens, >= 130 LPW and < 150 LPW, WRf, CZ14-Any		$30
LT-21215	SWLG011E	LED, High-Low Bay, 9400 < 11800 lumens, >= 130 LPW and < 150 LPW, WRf, CZ14-Any		$30
LT-21216	SWLG011F	LED, High-Low Bay, 11800 < 14800 lumens, >= 130 LPW and < 150 LPW, WRf, CZ14-Any		$30
LT-21217	SWLG011G	LED, High-Low Bay, 14800 < 18500 lumens, >= 135 LPW and < 150 LPW, WRf, CZ14-Any		$30
LT-21218	SWLG011H	LED, High-Low Bay, 18500 < 23100 lumens, >= 135 LPW and < 150 LPW, WRf, CZ14-Any		$30
LT-21219	SWLG011I	LED, High-Low Bay, 23100 < 30000 lumens, >= 135 LPW and < 150 LPW, WRf, CZ14-Any		$30
LT-21220	SWLG011J	LED, High-Low Bay, 30000 < 39000 lumens, >= 135 LPW and < 150 LPW, WRf, CZ14-Any		$30
LT-21221	SWLG011K	LED, High-Low Bay, 39000 < 50700 lumens, >= 140 LPW and < 150 LPW, WRf, CZ14-Any		$30
LT-21222	SWLG011L	LED, High-Low Bay, 50700 < 65900 lumens, >= 140 LPW and < 150 LPW, WRf, CZ14-Any		$30
LT-21223	SWLG011M	LED, High-Low Bay, 4500 < 5400 lumens, >= 150 LPW, WRf, CZ14-Any		$45
LT-21224	SWLG011N	LED, High-Low Bay, 5400 < 6500 lumens, >= 150 LPW, WRf, CZ14-Any		$45
LT-21225	SWLG011O	LED, High-Low Bay, 6500 < 7800 lumens, >= 130 LPW, WRf, CZ14-Any		$45
LT-21226	SWLG011P	LED, High-Low Bay, 7800 < 9400 lumens, >= 150 LPW, WRf, CZ14-Any		$45

Measure Code	Measure ID	Measure Description	Unit	Incentive per Unit
LT-21227	SWLG011Q	LED, High-Low Bay, 9400 < 11800 lumens, >= 150 LPW, WRf, CZ14-Any		$45
LT-21228	SWLG011R	LED, High-Low Bay, 11800 < 14800 lumens, >= 150 LPW, WRf, CZ14-Any		$45
LT-21229	SWLG011S	LED, High-Low Bay, 14800 < 18500 lumens, >= 150 LPW, WRf, CZ14-Any		$45
LT-21230	SWLG011T	LED, High-Low Bay, 18500 < 23100 lumens, >= 150 LPW, WRf, CZ14-Any		$55
LT-21231	SWLG011U	LED, High-Low Bay, 23100 < 30000 lumens, >= 150 LPW, WRf, CZ14-Any		$55
LT-21232	SWLG011V	LED, High-Low Bay, 30000 < 39000 lumens, >= 150 LPW, WRf, CZ14-Any		$55
LT-21233	SWLG011W	LED, High-Low Bay, 39000 < 50700 lumens, >= 150 LPW, WRf, CZ14-Any		$55
LT-21234	SWLG011X	LED, High-Low Bay, 50700 < 65900 lumens, >= 150 LPW, WRf, CZ14-Any		$55
PR-21038	SWPR001A	Efficient, Ag Ventilation Fans, 24-26 inch	Each	$200
PR-21039	SWPR001B	Efficient, Ag Ventilation Fans, 36 inch		$200
PR-21040	SWPR001C	Efficient, Ag Ventilation Fans, 48 inch		$200
PR-21475	SWPR006H	Ag Ventilation Fan VSD, 1 to 3 HP	Horsepower	$195
PR-21459	SWPR005A	Dust collection fan VSD (10 hp motor)	Each	$2,000
PR-21460	SWPR005B	Dust collection fan VSD (15 hp motor)		$3,000
PR-21461	SWPR005C	Dust collection fan VSD (20 hp motor)		$4,000
PR-21462	SWPR005D	Dust collection fan VSD (25 hp motor)		$5,000
PR-21463	SWPR005E	Dust collection fan VSD (30 hp motor)		$6,000
PR-21464	SWPR005F	Dust collection fan VSD (40 hp motor)		$7,000
PR-21465	SWPR005G	Dust collection fan VSD (50 hp motor)		$9,000
PR-21466	SWPR005H	Dust collection fan VSD (60 hp motor)		$10,000

Measure Code	Measure ID	Measure Description	Unit	Incentive per Unit
PR-21467	SWPR005I	Dust collection fan VSD (75 hp motor)		$11,000
PR-21468	SWPR005J	Dust collection fan VSD (100 hp motor)		$13,000
PR-21469	SWPR005K	Dust collection fan VSD (125 hp motor)		$15,000
PR-21470	SWPR005L	Dust collection fan VSD (150 hp motor)		
PR-21080	SWWP005K	Mid-tier VFD Ag pump, booster, <= 75 hp, AOE	Horsepower	$200
PR-21076	SWWP005C	Mid-tier VFD Ag pump, booster, <= 75 hp, NC		$160
PR-21081	SWWP005L	Mid-tier VFD Ag pump, booster, > 75 to <= 150 hp, AOE		$120
PR-21077	SWWP005D	Mid-tier VFD Ag pump, booster, > 75 to <= 150 hp, NC		$75
PR-21078	SWWP005I	Mid-tier VFD Ag pump, well, <= 75 hp, AOE		$200
PR-21074	SWWP005A	Mid-tier VFD Ag pump, well, <= 75 hp, NC		$160
PR-21079	SWWP005J	Mid-tier VFD Ag pump, well, > 75 to <= 600 hp, AOE		$120
PR-21075	SWWP005B	Mid-tier VFD Ag pump, well, > 75 to <= 600 hp, NC		$75
PR-21394	SWWP005G	Tier 3 Enhanced Specification VFD on Ag Booster Pumps <=75hp	Horsepower	$230
PR-21395	SWWP005H	Tier 3 Enhanced Specification VFD on Ag Booster Pumps >75hp to <=150hp		$150
PR-21392	SWWP005E	Tier 3 Enhanced Specification VFD on Ag Well Pumps <=75hp		$230
PR-21393	SWWP005F	Tier 3 Enhanced Specification VFD on Ag Well Pumps >75hp to <=600hp		$150

Table 15. Links to Workpapers

Workpaper Name	Short Description	URL link or location name
PGECOAGR111-R7	Sprinkler to Drip Irrigation	**http://deeresources.net/workpapers**
PGECOAGR122	Process Equipment	**http://deeresources.net/workpapers**
SWLG011-03	High-Low Bay LED	**https://www.caetrm.com/measure/SWLG011/03/**
SWPR001-01	Ag Ventilation Fans	**https://www.caetrm.com/measure/SWPR001/01/**

Workpaper Name	Short Description	URL link or location name
SWPR002-01	Glycol Pump VFD	**https://www.caetrm.com/measure/SWPR002/01/**
SWPR005-02	Dust Collection Fan VSD	**https://www.caetrm.com/measure/SWPR005/02/**
SWPR006-01	Ag Ventilation Fan VSD	**https://www.caetrm.com/measure/SWPR006/01/**
SWWP002-01	Ag Pumping VSD	**https://www.caetrm.com/measure/SWWP002/01/**
SWWP005-R1	Enhanced Specification VFD on Ag Well Pump	**https://www.caetrm.com/measure/SWWP005/01/**
SWWP005-01	VFD on Ag Well Pump	**https://www.caetrm.com/measure/SWWP005/02/**

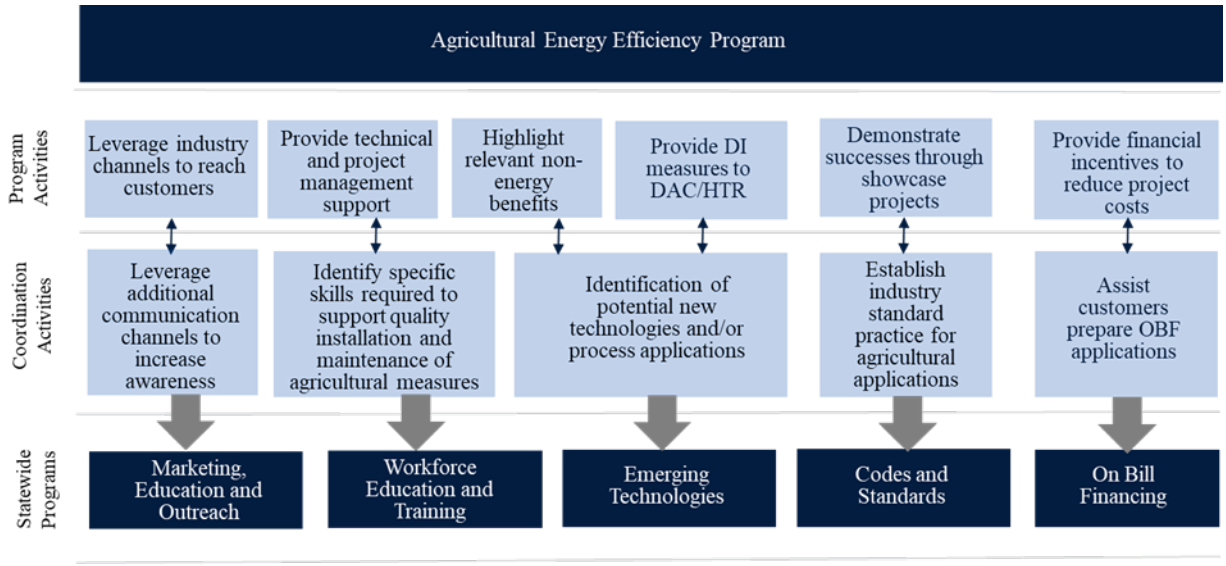
28. **Quantitative Program Targets**

Table 16. Quantitative Program Targets

Customer Type	No. of Participants	kWh (gross)	kW (gross)
HTR	162	1,554,050	18
DAC	527	10,101,328	3,251
Non-HTR/DAC	506	19,425,631	6,226
Total	**1,195**	**31,081,009**	**9,495**

29. **Diagram of Program**

Figure 4. Diagram of Program



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

The overall goals of the Quality Assurance Plan are to:

- Ensure the projects comply with the Agreement and current CPUC guidance including, but not limited to:
    - Deemed measures – all technical requirements established in the approved measure workpaper, as well as Resolutions E-4952 and E-5009.
    - Custom projects - Statewide Custom Project Guidance Document.
    - NMEC projects – Rulebook for Custom Program and Projects Based on Normalized NMEC.
- Verify the accuracy of existing and/or installed measures that affect the energy savings claimed by Implementer.
- Verify the accuracy of energy savings reported for each project.
- Verify the accuracy of any incentive payment made by AgEE to Program participants.

Quality Assurance Activities

The table below documents all quality assurance activities at a high-level, related to each phase of a project, including deemed, custom, and NMEC measures.

Table 17. Quality Assurance Activities

	Deemed	Custom	NMEC
Step 1 Marketing & Outreach	Implementer creates market awareness though digital marketing. Partnerships with the local agricultural community will be leveraged to identify customers and to run trainings/webinars. Marketing materials will be translated to other languages spoken by agricultural customers.		
Step 2 Contractor Enrollment	Implementer requires the use of participating contractors for installation of program measures. Participating contractors are required to: • Have an active California State License Board B (General Building Contractor) or C (Specialty) license • Comply with local business license requirements • Possess additional certification (e.g., CALCTP) as defined by CPUC Workforce Standards • Possess general liability and workers compensation insurance • Comply with OSHA safety requirements as established by the governing statutes, standards or regulations • Attend all required program training • Follow program specified complaint/dispute resolution procedures		

	Deemed	Custom	NMEC
	• Follow program specified standards for all work performed • Follow program quality assurance procedures		
Step 3 Customer Enrollment	Implementer assists interested participants with identifying and developing energy efficiency projects. Account managers work with equipment vendors and customers to orchestrate engineering support. At this stage, Program staff will identify whether the participant is classified as within a Disadvantaged Community based on the ZIP code of the facility or as a Hard-to-Reach Customer.		
Step 4 Pre-Installation CMPA Review Reservation	Customer will purchase the qualifying high efficiency equipment. Implementer will provide technical support to ensure equipment meets eligibility requirements from the workpapers.	**Project Eligibility -** Implementer's engineers complete a Pre-Installation Inspection to confirm customer and measure eligibility. For NMEC projects, estimated achievable savings must be ≥10% with a minimum incentive of $10,000, and it must be possible to produce a model with adequate confidence levels. For Custom projects, estimated achievable savings must equate to a minimum incentive of $2,500. Additional project site visits will be conducted by SCE and CPUC. **CMPA Review -** If the Project is approved, it will be submitted to the Custom Measure and Project Archive (CMPA) project list. The CPUC could select the project for in-depth review and would require the Implementer to respond to project-related data requests. The CPUC will decide if the project is approved or rejected at this stage.	
Step 5 Project Installation	The installation will be carried out following the guidance in the workpapers. Implementer's Account Managers will help ensure the completion of this step.	The installation will be carried out by a licensed HVAC contractor (C-20), electrical contractor (C-10), or appropriate contractor (B or other specialty trade).	
Step 6 Post-Installation Review/	Paid itemized invoices, photos of pre-existing and new equipment, specification sheets, project application, and	M&V will be carried out based on the IPMVP option identified in the M&V Plan. Engineering	Facility performance will be metered and checked throughout the measurement period (no less than 1 year in accordance with CPUC

	Deemed	Custom	NMEC
Inspection/ Incentive Approval	any supplemental measure-specific information will be supplied and checked by Implementer. Any Post-Installation Inspection activities required by the applicable workpapers or SCE will be conducted; a Deemed Primary Post-Installation report will be submitted to SCE for these inspections. Additionally, for quality control, site inspections for a minimum of 10% of projects will also take place (randomly selected facilities for site inspections). In addition, all projects with an incentive of more than $25,000 are also inspected.	calculations will be finalized for the measures. All installations will be verified through a Post-Installation Inspection. conducted by an engineer not involved with Project calculations, which will follow the requirements for the project's M&V plan. The level of M&V rigor will be determined by the nature of the project and the level of energy and demand savings and incentive. Invoices for the project will also be checked by Implementer. If specified on the initial CMPA review disposition, the project will be re-uploaded to the CMPA for a CPUC post-M&V review.	guidelines) for all projects. At the end of the metering period, energy use data will be collected, and a savings analysis will be performed using nmecr software. Non-routine events (NREs) will be identified and investigated; adjustments for NREs will be made to the model to generate a finalized pre and post project model. Invoices for the project will also be checked. If specified on the initial CMPA review disposition, the project will be re-uploaded to the CMPA for a CPUC post-M&V review.
Step 7 **Incentive Payment**	Customers will receive one incentive payment once installation and M&V is complete. It will be paid in accordance with the workpapers. Payments to customers will be made with an SLA of 2-4 weeks.	Customers will receive one incentive payment once installation and M&V is complete. It will be based on the energy and demand savings that result from the project installation. The incentive will be higher for customers within Disadvantages	Customers will receive three incentive payments. The first payment will be used to offset a portion of the upfront purchase cost. The second payment will occur at the end of Year 1 and will reflect the savings achieved to date. The remaining incentive will be paid at the end of Year 2 and will be used to true-up the total incentive based on

	Deemed	Custom	NMEC
		Communities and Hard-to-Reach Customers. Payments to customers will be made with an SLA of 2-4 weeks.	verified energy and demand savings. Customer incentives will be capped at 50% of project costs. The incentive will be higher for customers within Disadvantages Communities and Hard-to-Reach Customers. Payments to customers will be made with an SLA of 2-4 weeks.

Note 1: For behavioral, RCx, and operational (BRO) measures, a repair and maintenance plan that adheres to CPUC rules will be formulated. The participant must agree to carry out the plan for a minimum of three years, or longer, if required by this Agreement, via a signed customer agreement.

Note 2: Internal performance expectations are established within the program team through the QA/QC process. Program processes are managed in the Program's database platform. The database provides a complete digital experience and actionable lines of sight that optimize program tactics, improve results, and enhance participants' experiences by simplifying participation. Defined rulesets are built into the database that do not allow projects to progress from one stage to next without all requirements being met. One such ruleset is the engineering review that requires a QC review of any engineering analyses by engineering management to ensure that all savings calculations are accurate and meet all current regulatory guidance. AgEE's performance against program quality standards (e.g., number of errors/savings calculations corrections) are monitored throughout program delivery to inform any necessary process or personnel improvements.

Note 3: Customer projects are managed with strict Service Level Agreements (SLAs) to ensure that projects progress towards a construction completion date. At the commitment stage, the Implementer works with the customer on an agreeable schedule based on the scope of the project. Typical project stages consist of Enrollment, Assessment, Project Scope, Commitment, Construction, QA/QC, Installation Approved. The time within each stage is measured for each project so we can view the average time across the portfolio and identify outliers so we can mitigate project delays and meet performance expectations. Customers will be expected to complete installation by the date established on the applicable customer agreement, or within one year. Modifications to the installation date must be approved by Program staff after customer notifies Program in writing. If after two years, calculations such as baselines and assumptions must be reviewed to ensure savings are still viable.

Additional QA Activities

Custom and NMEC projects will undergo M&V as noted above. There are some more specific QA activities associated with NMEC M&V. Throughout the measurement period, metering equipment and data are monitored in accordance with the guidelines set by the CPUC. The key action items that will be completed in the monitoring period are as follows:

- Ensure proper function of metering equipment: confirm that the data is being properly collected in the early stages (1 -2 months after installation), which ensures that the metering equipment is functioning properly. Engineers will check to make sure that the

independent variables are reasonable. Anomalies in the data will be investigated and excluded if they are erroneous.

- Check for Non-Routine Events (NREs): periodically check for NREs at the facility. If any NREs are identified, they will be recorded and adjustments to the baseline model will be made. Visual checks, communication with the customer, and intermittent assessments of the data throughout the measurement period will help identify NREs (e.g., outliers in the data for independent variables which deviate +/- 3σ from the baseline mean; the 'three-sigma rule.')
- Verify Savings: periodically report on energy savings throughout the measurement period to ensure the ECMs are performing as expected by calculating the avoided energy use (final savings will be reported as normalized savings). Avoided energy use is the reduction in energy that occurred in the reporting period relative to what would have happened if the facility had been equipped as it was in the baseline period but under reporting period operating conditions. This information will be shared with the customer and will be an important component of delivering customer care.

NREs will also be checked for and identified in Custom projects if measurements are a part of the M&V process.

Verifying Hard-to-Reach Customers and Customers within Disadvantaged Communities

Properly classifying Hard-to-Reach Customers and customers within Disadvantaged Communities is important to ensuring the proper allocation of incentives and will each be identified in accordance with this Agreement.

Application Processing

Implementer will determine if the proposed measures on the application meet the minimum technical requirements to qualify. Implementer evaluates all the supporting documentation (i.e., spec sheets and information collected on site) needed to prove eligibility. If the project is Custom or NMEC, a study which estimates the savings will be developed and reviewed.

Guidelines for reviewing the cut sheets are outlined below:

- Highlight all specifications that meet or exceed the minimum requirements.
- Initial next to the qualifying criteria.
- Contact the customer/contractor if information is missing or if inaccuracies are found.

If any concerns arise, Implementer contacts the installation contractor or customer to resolve the issue. Implementer will pre-approve the project after all documentation is verified, and the application is complete.

Implementer will take care to enter all data with data quality and accuracy in mind. The lookups and calculations set up within the AgEE Program database verify if the measure qualifies for an incentive and determines the energy savings, demand savings and incentive amounts available.

Documentation

The following documentation will be collected for each eligible custom and NMEC project:

- Enrollment form
- Program application
- Baseline information (i.e., equipment, operations, production type and volume)
- Equipment specifications
- Invoices
- Project inspection verification documents including photographic evidence as applicable

Key Sources

The requirements for the deemed and the Effective Useful Life of measures can be found on the California Technical Forum website (**www.caetrm.com**).

Remediation

If an error or erroneous information is identified during a project, a remediation process will occur. The following steps are taken to remediate errors:

- Identify the error.
- Notify the customer and any other relevant stakeholders.
- Create and deliver formal corrective action report.
- Take corrective action.
- Perform onsite inspection and confirm corrections were made.
- Error and remediation action is documented in the Program database.

Deemed Projects

PART I. PROJECT AND MEASURE DESCRIPTION.

The Project and Measure Description must include the additional following components, as applicable:

- Lighting measures should follow the Design Lights Consortium (DLC) Tech Spec for all LED lighting measures; all lighting measures should be UL or Edison Testing Labs (ETL) certified.

PART II. PRE-INSTALLATION INSPECTION.

If required by the Workpaper, each Pre-Installation Inspection shall be conducted consistent with the Measurement and Verification Protocol and the timelines set forth in the Agreement.

The Pre-Installation Inspection Report, and data from the report, will be provided in a format provided by SCE. The report shall include, if required by the program design:

(a) For each Installation, the Customer's Name, retail service account number, and address.

(b) Equipment inventory, including nameplate data, location, condition (including photographs), and equipment operating procedures (e.g., schedules and set points, pressures, temperatures, etc.) that are associated with each Measure and with any Non-IOU Fuel Source(s)

(c) A statement, including supporting documentation, of whether the Pre-Installation Description is correct.

(d) A statement, including supporting calculations and documentation, of the Measurement Baseline and the proposed measure(s) (including how it relates to each of the Expected Energy Savings, Expected Demand Savings, Expected Gas Savings, and Expected TRC Ratio).

(e) A statement regarding measurement accuracy and data uncertainty of measurement equipment.

(f) Statement regarding any redundant, non-operational equipment for each Installation that is part of the Project. Savings from such units or any other equipment that does not contribute to each of the Expected Energy Savings, Expected Demand Savings, Expected Gas Savings, or Expected TRC Ratio shall not be included in the savings estimate.

PART IIII. PRIMARY POST-INSTALLATION INSPECTION.

Each Primary Post-Installation Inspection shall be conducted consistent with the Measurement and Verification Protocol. As part of those Inspections, among other things, it must be determined whether: (i) the Installation has been completed and installed in accordance with the applicable Workpaper; (ii) all Measures in the Installation are operating as planned and designed; (iii) the Installation reduced the capacity use at the Site; and (iv) the Installation will result (or has resulted, as applicable) in a reduction in the energy use at the Site.

Each Primary Post-Installation Inspection Report, and data from the report, will be provided in a format provided by SCE. The report shall include, if required by the program design:

(a) For each Installation, the Customer's Name, retail service account number, and address.

(b) Equipment inventory, including nameplate data, location, condition (including photographs), and equipment operating procedures (e.g., schedules and set points, pressures, temperatures, etc.) that are associated with each Measure and with any Non-IOU Fuel Source(s).

(c) A statement, and supporting documentation, as to whether each Measure in the Installation has been completed and installed in accordance with the applicable workpaper.

(d) A statement, and supporting documentation, as to whether each Measure in the Installation is operating as planned and designed.

(e) A statement, and supporting calculations and documentation, as to the amount the Installation reduced capacity use at the Site taking into account savings resulting from any Non-IOU Fuel Source(s).

(f) A statement, and supporting calculations and documentation, as to the amount the Installation will result in a reduction in the energy use at the Site taking into

account savings resulting from any Non-IOU Fuel Source(s).

(g) A statement regarding measurement accuracy and data uncertainty of measurement equipment, if applicable.

(h) Statement regarding any redundant, non-operational equipment for each Installation that is part of the Project. Savings from equipment that does not contribute to each of the Expected Energy Savings, Expected Demand Savings, Expected Gas Savings, or Expected TRC Ratio shall not be included in the savings estimate.

For Projects that utilize an NMEC-Based Site-Specific Approach or Customized Calculated Approach:

PART I. PROJECT AND MEASURE DESCRIPTION.

The Project and Measure Description must include the additional following components, as applicable:

- Lighting measures should follow the Design Lights Consortium (DLC) Tech Spec for all LED lighting measures; all lighting measures should be UL or Edison Testing Labs (ETL) certified;
- Residential lighting needs to incorporate ENERGY STAR in addition to the DLC lists; and
- For interior residential lighting, the lighting may be on the ENERGY STAR website and not the DLC.

PART II. MEASUREMENT AND VERIFICATION PROTOCOL.

All Inspections and create an M&V Plan for each Installation consistent with the following Measurement and Verification Protocol. In addition, all Inspections shall be consistent with, as applicable, the:

(a) NMEC M&V Plan attached as Attachment 1 to this Exhibit B, only applicable to NMEC-Based Site-Specific Approach.

(b) Customized Calculated Savings Guidelines for Non-Residential Programs, Southern California Edison V.17. (or its successor) for Projects with a Customized Calculated Approach (the "Customized Calculated Savings Guidelines"). The NMEC Rulebook, for Projects with an NMEC-Based Site Specific Approach.

(c) International Performance Measurement and Verification Protocol: Concepts and Options for Determining Energy and Water Savings, Volume 1, Efficiency Valuation Organization (December 2014) (or its successor) ("IPMVP").

(d) Energy Efficiency Evaluation Protocol, California Public Utilities Commission (2006) (or its successor).

In the event of any conflict between terms contained in this Agreement or any of the other documents identified in clauses (a)-(d) above, the conflict shall be resolved by the following priority of

documents: (i) Agreement (including this Exhibit B), (ii) Attachment 1 to this Exhibit B, (iii) Customized Calculated Savings Guidelines or NMEC Rulebook, as applicable, (iv) IPMVP, and (v) Energy Efficiency Evaluation Protocol.

PART III. PRE-INSTALLATION INSPECTION.

Each Pre-Installation Inspection shall be conducted consistent with the Measurement and Verification Protocol, the applicable M&V Plan and the timelines set forth in the Agreement.

The Pre-Installation Inspection Report, and data from the report, will be provided in a format provided by SCE. At a minimum, the report shall include:

(a) For each Installation, the Customer's Name, retail service account number, and address.

(b) Equipment inventory, including nameplate data, location, condition (including photographs), and equipment operating procedures (e.g., schedules and set points, pressures, temperatures, etc.) that are associated with each Measure and with any Non-IOU Fuel Source(s)

(c) A record of any person present during the Pre-Installation Inspection, and the role such individuals were taking.

(d) A record of any unusual or abnormal conditions or events that occurred during the Pre-Installation Inspection and any actions taken in response thereto.

(e) A statement, including supporting documentation, of whether the Pre-Installation Description is correct.

(f) A statement regarding measurement accuracy and data uncertainty of measurement equipment.

(g) Statement regarding any redundant, non-operational equipment for each Installation that is part of the Project. Savings from such units or any other equipment that does not contribute to each of the Expected Energy Savings, Expected Gas Savings, Expected Demand Savings, or Expected TRC Ratio shall not be included in the savings estimate.

PART IV. PRIMARY POST-INSTALLATION INSPECTION.

Each Primary Post-Installation Inspection shall be conducted consistent with the Measurement and Verification Protocol, the applicable M&V Plan. As part of those Inspections, among other things, it must be determined whether: (i) the Installation has been completed and installed in accordance with the applicable M&V Plan; (ii) all Measures in the Installation are operating as planned and designed; (iii) the Installation reduced the capacity use at the Site; and (iv) the Installation will result (or has resulted, as applicable) in a reduction in the energy use at the Site.

Each Primary Post-Installation Inspection Report, and data from the report, will be provided in a format provided by SCE. At a minimum, the report shall include:

(a) For each Installation, the Customer's Name, retail service account number, and address.

(b) For each Installation, a full description of each Customer's typical operations.

(c) Equipment inventory, including nameplate data, location, condition (including photographs), and equipment operating procedures (e.g., schedules and set points, pressures, temperatures, etc.) that are associated with each Measure and with any Non-IOU Fuel Source(s).

(d) A full description of each Measure installed as part of the Installation.

(e) A record of any person present during the Primary Post-Installation Inspection, and the role such individuals were taking.

(f) A record of any unusual or abnormal conditions or events that occurred during the Primary Post-Installation Inspection and any actions taken in response thereto.

(g) A statement, and supporting documentation, as to whether each Measure in the Installation has been completed and installed in accordance with the applicable M&V Plan.

(h) A statement, and supporting documentation, as to whether each Measure in the Installation is operating as planned and designed.

(i) A statement, and supporting calculations and documentation, as to the amount the Installation reduced capacity use at the Site taking into account savings resulting from any Non-IOU Fuel Source(s).

(j) A statement, and supporting calculations and documentation, as to the amount the Installation will result in a reduction in the energy use at the Site taking into account savings resulting from any Non-IOU Fuel Source(s).

(k) A statement regarding measurement accuracy and data uncertainty of measurement equipment.

(l) Statement regarding any redundant, non-operational equipment for each Installation that is part of the Project. Savings from equipment that does not contribute to each of the Expected Energy Savings, Expected Gas Savings, Expected Demand Savings, or Expected TRC Ratio shall not be included in the savings estimate.

PART V. PROJECT SUMMARY REPORT.

For each Project Summary Report, it must be determined whether: (i) each Measure and Installation has been completed and installed in accordance with the applicable M&V Plans; (ii) all Measures in each Installation are operating as planned and designed; (iii) the portion of the Project associated with the applicable Delivery Period Quarter or Delivery Period Year, as applicable that; (1) reduced the capacity use at the Sites in an amount equal to the Expected Demand Savings; (2) reduced the gas consumption use at the Sites in an amount equal to the Expected Gas Savings; (3) will result (or has resulted, as applicable) in a

reduction in the energy use at the Sites in an amount equal to each of the Expected Energy Savings; and (4) will result (or has resulted, as applicable) in a TRC Ratio equal to the Expected TRC Ratio.

Each Project Summary Report must be provided in a format provided by SCE. At a minimum, each Project Summary Report shall include:

(a) The Customer's Name, retail service account number, and address.

(b) A full description of each Customers' typical operations.

(c) Equipment inventory, including nameplate data, location, condition (including photographs), and equipment operating procedures (e.g., schedules and set points, pressures, temperatures, etc.) that are associated with each Measure and any Non-IOU Fuel Source(s) at each Installation.

(d) A full description of each Measure installed at each Installation.

(e) A statement, including supporting documentation, as to whether each Measure at each Installation has been completed and installed in accordance with the applicable M&V Plan.

(f) A statement, including supporting documentation, as to whether each Measure at each Installation is operating as planned and designed.

(g) A statement, including supporting calculations and documentation, as to whether the applicable portion of the Project reduced the capacity use at the Sites in an amount equal to the Expected Gas Savings and Expected Demand Savings associated with the applicable Delivery Period Quarter or Delivery Period Year, taking into account and savings resulting from any Non-IOU Fuel Source(s).

(h) A statement, including supporting calculations and documentation, as to whether the applicable portion of the Project will result in a reduction in the energy use at the Sites in an amount equal to each of Expected Energy Savings associated with the applicable Delivery Period Quarter or Delivery Period Year, taking into account savings resulting from any Non-IOU Fuel Source(s).

(i) A statement regarding measurement accuracy and data uncertainty of measurement equipment.

(j) A statement regarding any redundant, non-operational equipment for each Installation. Savings from such units or any other equipment that does not contribute to each of the Expected Energy Savings, Expected Gas Savings, Expected Demand Savings, and Expected TRC Ratio shall not be included in the savings estimate.

PART VI. POST-INSTALLATION INSPECTION.

Each Post-Installation Inspection Report, and data from the report, will be provided in a format determined by SCE. At a minimum, the report shall include:

(a) For each Installation that is part of the applicable portion of the Project, the Customer's Name, retail service account number, and address.

(b) For each Installation that is part of the applicable portion of the Project, a full description of each Customer's typical operations.

(c) Equipment inventory, including nameplate data, location, condition (including photographs), and equipment operating procedures (e.g., schedules and set points, pressures, temperatures, etc.) that are associated with each Measure and any Non-IOU Fuel Source(s) at each Installation that is part of the applicable portion of the Project.

(d) A full description of each Measure installed in each Installation that is part of the applicable portion of the Project .

(e) A record of any person present during the Post-Installation Inspection, and the role such individuals were taking.

(f) A record of any unusual or abnormal conditions or events that occurred during the Post-Installation Inspection and any actions taken in response thereto.

(g) A statement, including supporting documentation, as to whether each Measure in each Installation of the applicable portion of the Project has been completed and installed in accordance with the applicable M&V Plan.

(h) A statement, including supporting documentation, as to whether each Measure in each Installation of the applicable portion of Project is operating as planned and designed.

(i) Taking into account actual capacity savings and savings resulting from any Non-IOU Fuel Source(s), a statement, including supporting calculations and documentation, as to whether the applicable portion of the Project reduced the capacity use at the Sites in an amount equal to the applicable Expected Gas Savings and the applicable Expected Demand Savings.

(j) Taking into account actual energy savings and savings resulting from any Non-IOU Fuel Source(s), a statement, including supporting calculations and documentation, as to whether the applicable portion of the Project has resulted in a reduction in the energy use at the Sites in an amount equal to each of the applicable Expected Demand Savings, Expected Energy Savings, Expected Gas Savings, and Expected TRC Ratio.

(k) A statement regarding measurement accuracy and data uncertainty of measurement equipment.

(l) A statement regarding any redundant, non-operational equipment for each Installation that is part of the applicable portion of the Project. Savings from such units or any other equipment that does not contribute to each of the Expected

Energy Savings, Expected Demand Savings, Expected Gas Savings, and Expected TRC Ratio shall not be included in the savings estimate.

31. Normalized Metered Energy Consumption (NMEC):

Program use of normalized metered energy consumption (NMEC) based site specific projects is currently under CPUC review. Pending eligibility decision, the process outlined below will be followed if included in AgEE.

Section 1. Background

For each NMEC-Based Site Specific Project, site-level M&V Plans will be created.

Section 2. NMEC M&V Plan Overview

Determining M&V Plan Approach

The Program will follow IPMVP guidelines and conform to the latest version of the NMEC Rulebook when NMEC M&V is implemented.

The M&V Plan can fall under the IPMVP Option C category and employs more granular data with advanced metering infrastructure (AMI) in tandem with advanced analytics and automated processing. This approach helps to overcome limitations associated with traditional Option C M&V utility bill analysis and provides more accurate savings predictions. The M&V Plan can also follow IPMVP Option B using sub-meters.

Several key features of NMEC-Based Site Specific M&V Plan include:

- Quantifying the Savings at the meter which presents results in a form familiar to the customer.
- Provides fast and granular feedback on the Site's performance to better ensure Measures are achieving their full potential over the course of the Measure life.
- The increased granularity in data is important for grid management as system operator adapt to a changing landscape of energy sources (e.g., increased renewables on-line). Knowing hourly energy use profiles is important in the working towards decarbonization goals in the energy sector. NMEC can play a part in better understanding the demand side to make better decisions for the future.

Additional Eligibility Criteria for NMEC

All projects must be for existing buildings projects. It is expected that NMEC will be exclusive to large refrigeration and high-bay LED projects.

Guidance from IPMVP and the NMEC Rulebook will help determine when NMEC-Based Site Specific will be appropriate for a particular Project. NMEC-Based Site Specific is a favorable approach when:

- Interactive effects will be presented because of the energy conservation measures (ECMs)
- An existing condition's baseline is suitable to model the savings from the ECMs
- There is an ability to produce a baseline energy model that reasonably represents the performance of the facility. Goodness of fit will be assessed using industry standard metrics, which are as follows:
    - coefficient of variation of the root mean squared error (CV(RMSE)) < 25%

- normalized mean bias error NMBE between -0.5% and +0.5%
- coefficient of determination $R^2 > 0.7$

- The expected savings are large compared to the random or unexplained energy variations occurring at the facility level. If variations in energy use that are unrelated to the ECMs are too large, they can drown out the impact of the ECMs. IPMVP's rule of thumb is that savings should be 10% of total baseline energy or greater.
- There are a minimal number of expected non-routine events (NREs) and they can be characterized and accounted for to a reasonable extent. NREs with the potential to have a significant effect on the data can eliminate the ability to see the effects of the ECMs making the computation of non-routine adjustments extremely difficult.
- If submetering is required, the cost of metering equipment should be less than 10% of the projected annual energy savings from the project.

Section 3. Project Process

Each Site will receive a site-specific M&V plan, tailored to the specifics of the unique project while also adhering to the guidelines laid out in this document.

There are four overarching phases to an NMEC-Based Site Specific Project:

1. **Pre-screening phase (Baseline Period):** Each site will be pre-screened with a site-visit to assess whether there is an adequate savings potential (i.e., the ECM savings are likely to exceed 10% of the total baseline energy; this aligns with IPMVP's guidance for Option C and if it is achievable to produce a good model of the Site's performance. Data on energy use and weather for one year will be gathered to execute a high-level analysis to estimate the savings potential and confirm that they are significant enough to produce a NMEC analysis with a reasonable level of confidence. Sites that would not be good NMEC candidates will be filtered out.
2. **Project Feasibility Study (Baseline Period):** If a site passes the pre-screening phase, it will receive a more detailed assessment in the pre-feasibility phase. This phase involves completion of a study with the following elements:
    a. Baseline information (equipment, operations, and all static factors)
    b. Individual ECM savings, expected useful life (EUL), and costs.
    c. Risk potential and a plan to mitigate risk
    d. Site-specific M&V plan will be drafted for each NMEC project.

    Pre-feasibility savings estimations will be based on engineering calculations and judgment and any data that are available at the time, rather than logged data. These estimations will inform forecasting of facility energy use for the baseline and post-installation period.
3. **Measure Verification & Reporting:** Facility performance will be metered and checked throughout the measurement period (no less than one year in accordance with CPUC guidelines). Implementer will monitor for non-routine events (NREs) by periodically investigating the metered data, and by staying in contact with the participant. The detailed Pre-Installation Inspection baseline data, and historical production and facility energy use data will also contribute to NRE monitoring efforts. NREs (both temporary and permanent)

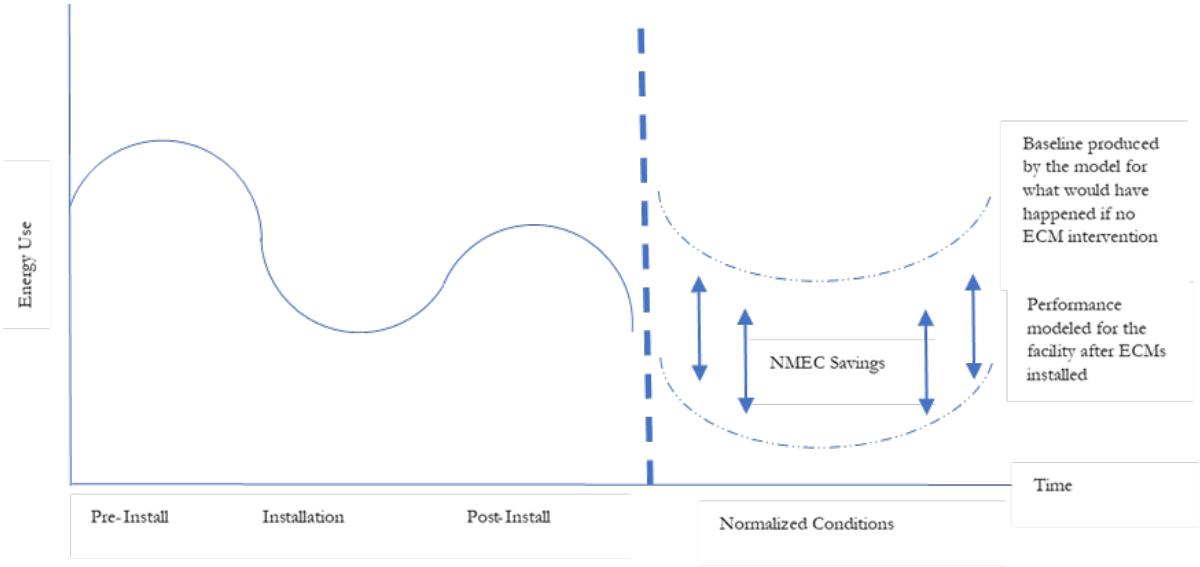
will be identified, and their impact on facility energy use will be determined. If the NRE is significant enough on the facility energy use, the baseline and/or performance period model(s) will be adjusted to ensure that the variations between baseline and performance period models are due to the Measures, and not the NREs. At the end of the metering period, energy use data will be collected, and a savings analysis will be performed with adjusting for NREs where applicable. After sufficient data are collected, a report will be completed. The report will present the savings and savings analysis and will describe the baseline, modeling methodology employed, measurement period, calibration, and adjustments for non-routine events. The report will address abnormalities and uncertainty in collected data, along with proposed remediation solutions. For behavioral, retro-commissioning, and operational measures, a repair and maintenance plan that adheres to CPUC rules will be formulated. The participant must agree to carry out the plan for a minimum of three years via a signed customer agreement. Utility, whole-facility meters will be used in projects where the savings will be at least 10% of the facility's baseline energy usage. If the savings are less than 10% of the whole-facility baseline energy use, customer-owned, sub-meters will be required to ensure that the savings of the measure are at least 10% of the baseline usage data. This threshold will allow the savings to be confidently distinguished from the baseline usage.

Section 4. Modeling

Overview

The overall process of site-level NMEC savings derivations involves the analysis of metered data before and after the installation of ECMs. Modelling methods are employed to establish a reliable and reasonable representation of the baseline for the facility (i.e., 'what would have happened' without intervention). The model is fit to energy usage of a baseline year and the associated outdoor air temperature data. The model's performance is evaluated to ensure it meets the goodness-of-fit criteria. The figure below gives a snapshot of the NMEC saving modeling process:

Figure 5. Modeling Savings with NMEC



The savings calculation is based on the type of model used, the interval of the energy data that are used in the analysis, the independent variables, and adjustments made for things like NREs. The independent and dependent variables in the analysis are as follows:

Variable Type	Variable
Independent	Weather (dry bulb temperature), operating schedule, shifts worked, seasonal distinctions, occupancy, production rate and type
Dependent	Energy consumption

Software

To execute the goals stated above, the Implementer will utilize the open-source, peer-reviewed tools that are commonly used in the M&V space to model building energy use profiles. Implementer will use KW Engineering's open-source, R package, nmecr. This tool is hosted on GitHub and is accessible for critical review and continuous improvement. nmecr can perform site-level, whole-building energy use analysis; it is a M&V practitioner's toolbox which builds upon existing work in the energy efficiency community to better model building performance and handle the growing complexities associated with tackling this challenge. The equations of the model are visible to the nmecr user which is preferred; it will enable the M&V practitioner to apply good judgement and to make appropriate modeling decisions. This tool calculates avoided energy (which will be helpful in the monitoring period) and normalized energy (for final reporting). It accepts multiple types of interval data (hourly, daily, monthly).

Algorithms

There are a range of algorithms available to model energy use and perform NMEC savings calculations. The IPMVP's recent white paper on advanced M&V notes that while different results will be produced based on the type of empirical model used, the variances are expected to be low. This notion is informed from findings of a pilot program. NMEC models are based on linear regressions of energy use to outdoor air temperature Overall, these models fall into one of three categories:

1. Change-point: This method is more advanced than linear ordinary least squares regression and was developed under the ASHRAE Research Project 1050-RP. It uses a piece-wise linear approach to model of energy use for segments of outdoor air temperature. Depending on the facility's individual load shapes the number of parameters needed in the model will be determined; caution is needed to avoid 'overfitting' by using too many parameters.
2. Time of Week and Temperature (TOWT) models: This model was developed by LBNL and uses a series of piece-wise linear and continuous temperature relationships using temperature bins. It uses hourly data to calculate energy savings by hour. This is also more advanced than linear ordinary least squares regression methods.
3. Heating and Cooling Degree Day Models: These models only use monthly time interval data. This method is less preferred.

There are ten modeling algorithms for energy savings analysis available for use in the nmecr tool. These algorithms differ from each other largely in terms in their ability to handle data sets with different intervals project (see the nmecr GitHub web page for a full listing of the algorithms available in nmecr). These modeling algorithms cover all three of the above categories. The wide range of available model types will be beneficial for accommodating different facility types and varying levels of energy data granularity available.

Dealing with Uncertainty

Errors in meter-based savings calculations occur from modeling, sampling, and measurement. With meter-based M&V methods, the error from the empirical model is typically the only error that is quantified. Measurement errors are usually not quantified to NMEC projects because the meters are revenue-grade. Modeling errors are errors in the mathematical modeling due to inappropriate function form, inclusion of irrelevant variable(s), or exclusion of relevant ones. The model may be based on insufficient or under-representative data. Pre-screening will help assess whether there is potential to produce a good model with a high enough confidence.

For cases where the baseline models are expected to use monthly data, the proposed M&V plan should demonstrate that the proposed modeling approach is likely to produce results with acceptable levels of precision (can be express in terms of uncertainty due to model error) the goodness-of-fit analysis described in Target Population & Eligibility Criteria, should be expanded to also conduct an uncertainty scenario analysis as described in ASHRAE Guideline 14.

Section 5. Data Collection Plan

The following data will be collected:

- **Baseline:** Baseline conditions will be fully documented in the M&V plan. All static factors will be recorded (e.g., equipment types, production, daily, operational hours by day, week, and season.). These data will serve to create a reasonable baseline model to which savings can be reliably derived from. As IPMVP guidance notes, these data will serve to allow NREs to be identified so the appropriate adjustments can be made for determining the NMEC savings.
- **Metered Energy Use Data:** Metered data will be obtained through customer-owned submeters or utility, whole facility meters. The program implementors will verify that

they have been recently calibrated and that the specifications meet the CPUC requirements (minimum accuracy of +/- 2%, and positive displacement meter type). Ideally, the time interval will be at least as granular as hourly. A year's worth of utility data will be collected; 12 months of data from submeters on site will be collected if utility data are unavailable. If there are gaps in the data, the technical reviewers will interpolate.

- **Weather Data:** The latest long-term average weather data will be used. These data will be sourced from CA Climate Zone 2022 weather files.

This data will be collected through an intake interview over the phone by an experienced agricultural program representative, and information relevant to M&V will be recorded in a secure database. Pre- and Post-Project site visits will be conducted by in-house staff in cases where data collection is necessary to supplement and/or validate customer-supplied information.

Section 6. Monitoring

Throughout the measurement period, Implementer will monitor the metering in accordance with the guidelines set by the CPUC and SCE. The key action items that will be completed in the monitoring period are as follows:

- **Ensure proper function of metering equipment:** Check that the data that are being properly collected in the early stages (1 -2 months after installation), ensuring that the metering equipment is functioning properly. Technical reviewers will check to make sure that the independent variables are reasonable. Anomalies in the data will be investigated and excluded if they are erroneous.
- **Check for Non-Routine Events (NREs):** Periodically check for NREs at the facility. If any are identified, they will be recorded and adjustments to the baseline model will be made. Visual checks, communication with the customer, and intermittent assessments of the data throughout the measurement period will help identify NREs (e.g., outliers in the data for independent variables which deviate +/- 3σ from the baseline mean; the 'three-sigma rule.')
- **Verify Savings:** Periodically report on energy savings throughout the measurement period to ensure the ECMs are performing as expected by calculating the avoided energy use (final savings will be reported as normalized savings). Avoided energy use is the reduction in energy that occurred in the reporting period relative to what would have happened if the facility had been equipped as it was in the baseline period but under reporting period operating conditions. This information will be shared with the customer and will be an important component of delivering customer care.

Section 7. Adjusting for Non-Routine Events (NREs)

Non-routine events that influence the facility energy use will be monitored for and recorded so that adjustments to the data can be made. These events are not related to the ECMs. The impact of NREs should be minimal and they can be temporary or permanent. Implementer will monitor for NREs by periodically investigating the metered data, and by staying in contact with the participant. Facilities with expected, significant NREs will not be considered for NMEC; this risk is assessed in the pre-screening phase. The following are examples of static factors that will be monitored for change:

- Amount of space being heated or cooled
- Production (type and number of shifts per day)
- Building envelope characteristics
- Equipment changes
- Indoor environmental standard (e.g., light levels, temperature, ventilation rate)
- Occupancy type or schedule

If changes occur in these areas, adjustments will be made to the savings model. Adjusting for NREs must be handled on a case-by-case basis. Simple calculations may suffice for many adjustments. If the NREs create more complexity and interactive effects, a simulation is preferred. If the NRE is permanent, it is more likely that a supplementary simulation will be required to model the facility performance, adjusted for the NRE impact. Measured data from a temporary period where a NRE occurred can be removed from the data set, keeping in mind that no more than 25% of the measured data should be removed.

Some events are non-routine but do not have an impact on facility energy use and therefore do not require adjustments to the models. For example, Covid-19 impacted protocols for workers in the agriculture industry but in general, did not slow production or impact facility energy use; this would not be considered a NRE to account for in the analysis.

Section 8. Savings Calculation

The gross savings will be calculated after the measurement period is over and the site-level M&V requirements are satisfied.

The savings will be documented in the final report along with EUL and ECM costs. If deviations from the original proposed M&V plan occurred, this will be documented and substantiated. If the customer is participating in other energy efficiency programs, the gross energy savings will be adjusted to ensure that incentivized measures from other offerings are not included in the scope of the NMEC savings analysis.

Section 9. Expected Useful Life

The project lifecycle savings will be based on a weighted average EUL method. The weighted EUL for the recommended ECMs will be determined in the feasibility study and will be updated as needed for the final report, after installation. EULs for the ECMs will be sourced from the Database for Energy Efficient Resources (DEER).

APPENDIX. List of Acronyms and Abbreviations

Term	Definition
C&S	Codes & Standards
CALCTP	California Advanced Lighting Controls Training Program
CEDARS	California Energy Data and Reporting System
CPUC	California Public Utilities Commission
DAC	Disadvantaged Communities
DEER	Database for Energy Efficient Resources
DSM	Demand-Side Management
EE	Energy Efficiency
EE PRG	Energy Efficiency Procurement Review Group
EM&V	Evaluation, Measurement & Verification
ET	Emerging Technologies
EUL	Effective Useful Life
FSU	Fractional Savings Uncertainty
HTR	Hard-to-Reach
HVAC	Heating, Ventilation, & Air Conditioning
IOU	Investor-Owned Utility
IP	Implementation Plan
kW, kWh	kilowatts, kilowatt-hours
M&V	Measurement & Verification (or, sometimes, Validation)
NMEC	Normalized Metered Energy Consumption
PA	Program Administrator
PAC	Program Administrator Cost
RFA	Request for Abstract
RFP	Request for Proposal
TRC	Total Resource Cost
WE&T	Workforce Education & Training