Southern California Edison

Implementation Plan

Willdan Commercial Energy Efficiency Program (CEEP)

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Table of Contents

1. Program Budget and Savings Information

1. Program and/or Sub-Program Name

Willdan Commercial Energy Efficiency Program

2. Program and/or Sub-Program ID Number

SCE-3P-2020RCI-005

3. Program and/or Sub-Program Budget Table

Costs	2021	2022	2023	2024	2025	Total*
Administration	$147,891	4,019,412	$7,150,000	$7,150,000	$7,150,000	$25,617,303
Marketing/Outreach	$133,463	$3,309,794	$5,500,000	$5,500,000	$5,500,000	$19,943,257
Incentive/Rebate	$1,187,794	$26,230,769	$39,271,542	$39,271,542	$39,271,542	$145,233,191
Direct Implementation	$893,500	$21,327,377	$35,895,124	$39,028,458	$39,028,458	$136,172,917
Total	**$2,362,648**	**$54,887,352**	**$87,816,667**	**$90,950,000**	**$90,950,000**	**$326,966,667**

*This total assumes that the program is active from 2021 to 2025. To extend into 2026, a revised CPUC request will be required. If approved, the 2026 budget will be as follows:

Costs	2026
Administration	$4,766,667
Marketing/Outreach	$3,666,667
Incentive/Rebate	$26,181,028
Direct Implementation	$26,018,972
Total	**$60,633,333**

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

	2021	2022	2023	2024	2025	Total
Gross Demand Reduction (kW)	1,897	19,104	27,063	27,063	27,063	102,189
Net Demand Reduction (kW)	1,197	12,497	18,216	18,216	18,216	68,342
Gross Energy Savings (kWh)	10,786,797	188,036,602	267,432,700	267,432,700	267,432,700	1,001,121,500
Net Energy Savings (kWh)	6,531,837	139,614,894	202,064,742	202,064,742	202,064,742	752,340,957

**This total assumes that the program is active from 2021 to 2025. To extend into 2026, a revised CPUC request will be required. If approved, the 2026 program impact will be as follows:

	2026
Gross Demand Reduction (kW)	18,043
Net Demand Reduction (kW)	12,145
Gross Energy Savings (kWh)	178,288,466
Net Energy Savings (kWh)	134,709,827

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

TRC values are annual averages. 2026 values are provided here but are dependent on future CPUC funding approval.

	2021	2022	2023	2024	2025	2026
Expected TRC	1.25	1.25	1.26	1.28	1.28	1.28

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

PAC values are annual averages. 2026 values are provided here but are dependent on future CPUC funding approval.

	2021	2022	2023	2024	2025	2026
Expected PAC	1.37	1.37	1.38	1.39	1.38	1.38

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

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

8. **Market Sector**

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

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

Program Type	
Resource	☒
Non-Resource	☐

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

Market Channels	
Upstream	☐
Midstream	☐
Downstream	☒
Intervention Strategies	
Direct Install	☒

Market Channels	
Incentive	☒
Finance	☒
Audit	☒
Technical Assistance	☒
Other	☐

Campaign Goals and Timeline:

Phase	Key Deliverable(s) / Milestone(s)	Dates/Duration	% of Energy Savings
Launch Readiness	•Implementation Plan •M&V Plan •Marketing Plan •QA/QC Plan •Program Management Plan •Program Marketing Materials	07/20/2021-10/31/2021	0%
Program Ramp Up	•Date Program is Available to Customers •Marketing Plan Implemented •Pipeline Development •Energy Savings •Workpaper Development / Updates	11/01/2021-12/31/2021	0.9%
Program Steady State	•Energy Savings •Workpaper Development / Updates	01/01/2022-12/31/2024	72.3%
Program Ramp Down / Transition	•Program Ramp-Down Plan •Energy Savings	01/01/2025-10/31/2025	26.9%

Measurement & Payment	•Date Program is No Longer Available to Customers •Completion of energy savings reporting/payments, if required	11/01/2025-12/31/2025	0%

2. Implementation Plan Narrative

1. Program Description

Program Description

The Willdan Commercial Energy Efficiency Program (CEEP) provides comprehensive energy efficiency for all commercial customers (NAICS Codes: 42xxx, 44xxx, 45xxx, 48xxx, 49xxx, 51xxx 52xxx, 53xxx, 54xxx, 55xxx, 56xxx, 61xxx, 62xxx, 71xxx, 72xxx, 81xxx) with a monthly maximum demand greater than 20 kW across Southern California Edison's (SCE's) service territory. NAICS codes 531110, 531190, 531311, 531390 will not be served by this program when they are associated with a multifamily property. This program seeks to influence a significant increase in the adoption of energy efficiency (EE) technology and/or measures among the end-users of this market sector. It complies with SCE and California Public Utilities Commission (CPUC) requirements and offers a consolidated approach. An integrated team of highly experienced firms from varied disciplines will implement the program and leverage experienced contractors and trade pros for project delivery as well as utilize direct install and do-it-yourself (DIY) strategies. This integrated team will motivate comprehensive projects through outreach, sales, technical assistance, and connecting customers to tailored funding and financing options. Quality assurance/quality control (QA/QC) and measurement and verification (M&V) processes designed by CPUC experts are embedded throughout all program steps. Integrated Demand Side Management (IDSM) and electrification upgrades are offered to customers, excluding any storage technology. This approach minimizes the barriers for customer participation. Energy efficiency (EE) / IDSM upgrades are delivered with a full-service, pay-for-performance approach.

Program Rationale

Willdan's CEEP will offer a full-service building approach to qualifying commercial customers. Due to the nature of the commercial segments included in this program, stakeholders are diverse and may include the building owner, property management, facilities management, and (in many cases) the tenant – who may themselves consist of multiple stakeholders. In addition, commercial buildings vary widely in size, configuration, use type, and energy needs. Willdan's CEEP has been designed to overcome the challenges of different building types, multiple decision-makers, and split incentives. This program will offer a single point of contact (SPOC) and a significant share of program services will be provided through open Trade Pro and community-based organization (CBO) networks, local contractors, and subcontractors who specialize in the commercial segment.

Program Objectives

The program's primary objective is to meet SCE's business goals and objectives and achieve deeper savings through comprehensive energy management solutions. An additional objective is to increase EE adoption rates by targeting large customers, as well as small and medium customers. Small and medium customers include many hard-to-reach (HTR) customers and/or those in disadvantaged communities (DACs).

2. Program Delivery and Customer Services

Program Offerings Delivery

The CEEP will deliver downstream savings using a variety of actions, many of which are listed below.

- SPOC or concierge-type support
- Community blitzes (i.e. door-to-door canvassing)
- Strategic partnerships
- Direct install (DI) and do-it-yourself (DIY) measures
- Financing options (i.e., debt or loan financing, lease financing, performance contracts, property assessed clean energy [PACE], and energy efficiency as a service)
- Targeted marketing collateral
- Simplified energy management technologies (EMTs) with demand response (DR) capabilities
- Leveraging existing relationships with property management firms, and
- Customer surveys.

The exhibit below shows the primary strategies and tactics that will be used to drive goal attainment.

Exhibit 1. Customer Service Approaches

Approach	Strategy/Tactic
Prioritize existing relationships	• Leverage relationships with contractors, municipalities, trade associations, and previous customers across segments • Strategic partnerships with community choice aggregators (CCAs), CBOs, and faith-based organizations (FBOs)
Outreach to HTR/DAC customers	• Partner with trusted HTR/DAC experts and community action partnerships (CAPs) to identify decision makers, build customer trust, and reduce costs
Build awareness	• Attend industry events • Perform customer education, relating EE/DR value to customer objectives and long-term planning goals
Instill confidence	• Provide risk mitigation, tailoring solutions to minimize risk and increase customer buy-in • Leverage open contractor network, using a customer's preferred and/or pre-approved contractors
Face-to-face	• Offer full-service approach by customizing program offerings (e.g., flexible incentives, technical support, financing, and DI services) to target customer needs • Determine the most applicable savings platform based on the measures identified, cost-effectiveness of the project, and the customer's needs (e.g., budget available, willingness to use financing, long-term property plans, etc.) • Translate EE and IDSM value through tailored reports and energy modeling that communicate benefits using relevant metrics • Offer zero-upfront-cost financing, including five financing options
Continuous engagement	• SPOC works with clients throughout journey to zero net energy (ZNE) with re-engagement and follow-up strategies • Annual recognition awards highlight achievers, re-engage leads, and motivate additional savings

Reaching Customers

The online platform's intelligent outreach function is key to the CEEP customer acquisition and marketing plan. This approach uses machine learning and advanced data analytics to identify the best customers to target, the correct EE measures to sell, and the appropriate messages needed to close the sale. The platform marketing tools include:

- Building benchmarking
- Participation analysis and sales team matching
- Vendor and contractor access to meet site needs
- Measure packages with energy modeling
- Grid analysis, load-shape targeting, and
- Material tailoring

In addition, the marketing collateral listed below will be leveraged to effectively reach all customers:

- General program flyers
- Customized flyers
- Personalized business cases
- Direct mailers/postcards
- Phone campaigns
- Email campaigns
- Radio campaigns, and
- Social media campaigns.

Lastly, a SPOC will assist customers throughout the process, leverage other opportunities, address outstanding issues, collaborate with multiple decision makers and ownership types, and educate stakeholders on the best, most cost-effective EE measures and savings expectations.

To reach those in CPUC-defined HTR and/or DACs, partnerships will be leveraged with trusted community based organizations such as the San Joaquin Valley Clean Energy Organization (SJVCEO), as well as private entity HTR / DAC experts including , Richard Heath & Associates, Staples, and Matrix to identify decision makers, build customer trust, and reduce costs.

Services Provided

As discussed previously, the commercial program will provide customer assistance through a SPOC or concierge approach that includes the following services:

- Intelligent outreach: targeted marketing efforts that leverage advanced software tools
- Bundled EE, demand response (DR), EMTs into IDSM solutions (excluding storage)
- Technical and financial services offered before cash incentives (i.e., providing a path to no incentives)
- DI or turnkey solutions, and
- DIY for simple, in-unit measures.

3. **Program Design and Best Practices**

The CEEP will leverage the following specific strategies and tactics to reduce market barriers. These tactics have been developed based on lessons learned and best practices identified through past program delivery.

Exhibit 2. Barriers, Strategies/Tactics and Best Practices

Barrier	Strategy	Tactics	Best Practices
Split incentive for multiple decision-makers	Transform energy savings to meet decision makers' needs	**Education:** Translate the value proposition to decision makers as increased control, revenue, resiliency, etc. Educate stakeholders about the financial benefit, the quality of products installed, and added benefits like extended equipment life and reduced maintenance.	Bringing multiple decision makers together to change leasing language has been demonstrated as an effective tool to overcome the split incentive in leased property.
		Benchmarking/Intelligent Outreach: Use program software to demonstrate to stakeholders how similar properties have implemented EE and realized actual savings. Target customers with the greatest benefit to participate and bundle measures for maximum benefit.	
Hassle and search cost	Concierge services bring every opportunity to the customer	**SPOC:** Simplify participation by consolidating program services and assigning a SPOC. This tactic improves customer satisfaction and improves perception of SCE.	A SPOC that can tailor offerings to specific customers, improve customer experience, and yield higher rates of customer enrollment.
		Simplify EE: Leverage small business do-it-yourself (SBDIY) for small commercial and perform DI whenever applicable to streamline the customer's experience. Recommend behavioral retro-commissioning and operational (BRO) measures, EMTs, and controls to align with customer's energy profile and reduce payback.	
		Partnering: Leverage partner relationships and maintain an open Trade Pro network to build on successful customer relationships.	
Performance uncertainty of EE benefits	Ensure reliable, efficient equipment is installed with accurate savings	**Quality Installations:** QA/QC projects during pre-installation and post-installation to confirm that the equipment installed meets program requirements and customer needs.	We have demonstrated through other EE programs that quality equipment that is installed correctly and accurate savings estimates are key to driving future program participation.

Barrier	Strategy	Tactics	Best Practices
		Training Trade Pros/Contractors: During program launch, lead training and shadowing for Trade Pros and contractors. Hold biannual Trade Pro trainings to cover new measure/technology implementation, best practices, and safety.	Training Trade Pro and Contractors ensures a higher rate of customer satisfaction and proper equipment installation.
Access to investment capital and sufficient return on investment	Expand procurement vehicles and intervention strategies	**Financing:** Offer financing options to overcome specific barriers associated with financing.	Many programs and financing vehicles have shown there is a market for financing EE and that this increases participation and project scope.
		Flexible Incentives: Offer flexible incentives to ensure programmatic investment is appropriately sized.	
		Leverage New Leases: Engage decision makers during new leases to install upgrades before space is occupied and support green leases and installations with lease renewal and signing to overcome split incentives.	

Key Software Tools

The online platform supporting the program will serve as a repository and single point of access for data integration and continuous stakeholder engagement. The platform is the center for all program processes and data. The online platform includes benchmarking and energy modeling applications to help visually convey the value of implementing EE and the benefit comparison of different measure bundles.

CEEP leverages proprietary software for intelligent outreach and modeling. This starts by identifying customers with high savings potential, applying factors for likelihood to participate, and specifying optimal measure mixes through simplified facility modeling. These resources can be used to target customers with the highest opportunities and propensity to participate in the benefits of the program.

The online platform reduces administrative costs and human error that are often associated with manual QA/QC efforts. It can be easily modified for any policy changes that may impact savings or documentation.

4. **Innovation**

The CEEP delivers increased savings through comprehensive multi-technology solutions. An integrated team located within SCE's service territory will leverage existing relationships to increase the number of completed projects.

Seven innovations (listed below) are combined in the CEEP, enabling all customers (including HTR/DAC) to be served cost-effectively. Additionally, the program will offer and promote IDSM and integrated distributed energy resource (DER) options, thereby improving the reliability of SCE's grid.

Major innovations include the following:

- **Integrated SPOC delivery:** a SPOC provides comprehensive services from an integrated team that operates as a one-stop shop.
- EE, DR and EMTs (excluding storage): DR-enabled EMTs integrated into EE sales, marketing, and installation.
- **Online platform:** a single repository tracks and manages all program activities, data, advanced analysis, communication, and key performance indicators (KPIs).
- **Simple, customer-friendly offer that provides path to no incentives:** overcome commercial customer barriers by first offering financing to eliminate upfront costs, technical assistance to support project development and implementation, and then flexible (tiered) incentives as needed.
- **Intelligent outreach:** advanced software and modeling technologies help to target customers by high-savings opportunities and to acquire customers with tailored messaging and best-match sales representatives.
- **SBDIY:** increases enrollment, improves cost effectiveness and customer satisfaction, and ensures recycling occurs.
- **Journey to ZNE:** captures full range of DER opportunities, establishes, and tracks customer goals, and provides customer assistance over time to reach ZNE.

The CEEP promotes continuous learning that will generate new innovations. As innovative practices are developed, they will be reviewed and considered for adoption in this program.

5. Metrics

An online platform tracks program processes and provides clear, detailed insight into program status by capturing the following KPIs:

- Program Performance: Ex Ante TRC Ratio
- Program Performance: Energy Savings (kWh)
- Program Performance: Demand Savings (kW)
- Program Performance: Pipeline Target Energy Savings (kWh)
- Program Performance: Pipeline Target Demand Savings (kW)
- Customer Satisfaction: Customer Satisfaction Rating
- Program Data/ Engineering Quality
- Supply Chain Responsibility: Safety Rating
- Supply Chain Responsibility: Diverse Business Enterprises (DBE) Spend
- Compliance: Hard to Reach (HTR) and Disadvantaged Communities (DAC) Penetration

6. For Programs Claiming To-Code Savings

Compliance with Applicable Law

This program will comply with all applicable laws as well as CPUC guidance. CPUC Decision 17-11-006 requires that program execution lend insight into to-code savings potential. An online platform will track and report the specific to-code measures and savings implemented through the program by customer and building type, segment, and geography for reporting to SCE. Implementer will collect and review Title 24 and other local code compliance documentation as a part of an individual project's eligibility review. The

program also offers a normalized metered energy consumption (NMEC) methodology to capture full to-code savings for comprehensive measure packages. A custom-calculated approach for accelerated replacement (AR) and BRO measures may also capture to-code savings. To-code savings potential for specific equipment, building types and segments, and geography follows in the section below.

Equipment/Building Types, Geographical Locations, and Customer Segments Promising To-Code Savings

Equipment Type: Mechanical ventilation is essential in commercial buildings to maintain acceptable indoor air quality. Heating, ventilation, and air conditioning (HVAC) equipment and water heating equipment promise cost-effective, to-code savings by capturing stranded potential through a combination of delivery methods (Deemed, Custom, and NMEC), add-on equipment and controls (e.g., variable-frequency drives [VFDs] and temperature resets), BROs, and enabling EMTs. For larger buildings with a common central plant serving the facility, other opportunities include retro-commissioning strategies with HVAC supply air static pressure and temperature reset strategies, ventilation reduction, and central plant controls optimization. The 2019 Navigant Energy Efficiency Potential and Goals Study and Assembly Bill (AB) 802 Technical Analysis prepared for the CPUC supports this, finding that a vast majority of below-code electric savings potential is in HVAC measures (such as fan motor VFDs, smart thermostats, and other retro-commissioning interventions like temperature resets).

Lighting and plug load opportunities have continued to see a decreased value in savings, coinciding with decreases in available incentives. The program supports to-code savings by offering NMEC and completing the preponderance of evidence on lighting measures when AR is applicable. It guides customers to the most efficient option to deliver to-code and beyond savings. Additionally, low-cost add-ons such as the addition of occupancy and/or plug load sensors or daylighting controls deliver significant savings at minimal costs.

Building Type: Older building types present significant to-code opportunities due to their outdated equipment. This program will address all commercial building types in the NAICS codes listed above.

Geographical Location: To-code savings potential spans all SCE territory geographies. Geographical targeting is focused on DACs within climate zones 8, 10, 13, and 15, which account for more than 65% of the total commercial electric usage. The inland area will be specifically targeted for HVAC measures to maximize to-code savings, as supported by the Navigant study. To-code measures have high uptake in DACs due to limited capital and low penetration.

Customer Segments: To-code savings potential remains greatest in HTR/DAC communities, particularly those within climate zones 8, 10, 13, and 15. Older office, retail and grocery facilities in these climate zones represent a high opportunity for to-code savings.

Barriers Preventing Code-Compliant Replacements

The following six barriers prevent code-compliant equipment replacements:

> **1. Lack of capital:** Commercial customers prioritize revenue-generating investments over energy-saving or building-improvement projects. This results in lowest first-cost decision-making, extending existing equipment life through short-term repairs (i.e., “repair indefinitely”) and “like-for-like” replacements with in-stock materials. Owners may also have restrictions on debt and liens. They often are unable to see the whole picture for energy upgrades, have limited experience with financing in the energy space, and face competing budget priorities.

2. Lack of information: Customers may not have sufficient knowledge of code requirements, awareness of higher-efficiency options, and estimates of avoided cost (savings) or installation costs. Owners may lack confidence in vendor and/or contractor savings claims. Code-compliant equipment replacements frequently result in capital-intensive measures with payback periods longer than a customer's budgetary timeframe. For deep, holistic upgrades, the costs far outweigh the potential savings. These customers prioritize immediate returns and rarely plan for future, long-term investments that would meet new code without necessarily improving a bottom line.

3. Lack of technical expertise: With uncertainty of EE performance, customers limit adoption of EE measures. Code-compliant equipment replacements require technical expertise to educate the customers specifically on how much they save using and extrapolating utility data, consumption hours, and understanding payback. Property owners may also have concerns about downtime during installation or how new solutions or equipment might impact their tenants. This uncertainty and lack of knowledge can stall or prevent a project.

4. Perception of risk: Customers, particularly those with 24/7 operations, may have concerns about downtime during installation or perceive risks to production quality and reliability with installation of new equipment. This uncertainty can stall or prevent replacement and upgrades.

5. Lack of time: Customers often do not have the time available to properly research codes and options for equipment replacements, upgrades, or modifications. They may also lack the time needed to manage installation and training on operations and maintenance (O&M) requirements.

6. Permits and regulations: Implementation for more complex measures may require permits and approval of engineering design drawings, adding complexity, time, and cost.

Why Natural Turnover is Not Occurring

Natural turnover does not occur due to "repair indefinitely" practices, where customers repair or bypass existing failed equipment rather than replace it with to-code (or higher-efficiency) equipment. It is only when equipment fails beyond repair that to-code normal replacement is triggered. Equipment replacements are delayed because customers choose lowest first-cost repairs over higher cost replacements, without consideration of operating and lifecycle costs. Repairs extend the life of the below-code equipment, keeping old, inefficient units in use. "Repair indefinitely" measures are most common in two parts of the market:

1. Small Commercial and HTR/DAC: These customers lack the time, awareness of higher-efficiency options and cost savings, technical expertise, and/or the capital to invest in new technologies. For these reasons, small commercial and HTR/DAC facilities do not experience natural turnover in near-end-of-life packaged air-conditioning units and heat-pumps, refrigeration systems, non-Title-24-compliant thermostats, air-cooled chillers, failed HVAC controls, VFDs, and economizers.

2. Large Commercial: Large capital replacements are intrusive, costly, and often require special design, permits, and long timelines. Due to these reasons, large commercial facilities do not experience natural turnover in boiler replacements, chiller replacements, HVAC modifications such as variable air-flow conversions, and controls upgrades. The program offers technical expertise to address these barriers.

Program Interventions to Accelerate Equipment Turnover

Commercial customers face increasing operational costs as their buildings continue to age. Maintenance and improvement priorities often compete with EE upgrades for limited financial capital and as a result, building owners often lack the upfront capital needed for EE retrofits. The primary intervention the CEEP uses to accelerate equipment turnover begins with offering NMEC and accelerated replacement (AR) measures to capture to-code and above-code savings. By including these two intervention approaches, the program identifies and includes the savings and associated benefits of replacing equipment, educates customers and recommends replacement equipment. The barriers that prevent to-code and above-code equipment replacements are listed below with the applicable program intervention used to overcome each.

1. Lack of Capital: Flexible Incentive Model: Willdan's CEEP will present customers with whole-building business case options of measure packages tailored to their financial criteria and payback expectations. Customers will be offered one (or more) of the five no-upfront-cost financing options when they can overcome customer barriers to financing. The options include EE as a service, where customers are billed monthly and pay back the loan with their energy savings. This may be shown as an operating expense rather than debt on balance sheets. The program may provide technical assistance and financial incentives when merely financing is not appropriate. The program offers incentives for to-code and/or above-code savings and motivates customers to select the highest-efficiency options by offering higher incentives for these options.

2. Lack of Information - Business Case: The program educates customers on the code requirements and presents measure packages that give them options to meet and exceed code, with accurate cost and cost avoidance estimates. Case studies from previous projects are shared with customers to give them confidence in the recommendations. A one-page business case is prepared and then tailored and presented to financial decision makers. The business case will encourage the decision makers to see the whole picture for owner-paid and tenant-paid utility accounts.

3 & 4. Lack of Time and Technical Expertise: Turnkey Options and Technical Assistance: The program offers customers turnkey options, where the customer can have a Trade Pro or program staff perform installation for their selected measures. In addition to turnkey options, the program provides technical assistance in the form of audits, specifications, scopes of work, bid document preparation, and construction management. Training on O&M requirements is also provided. Ongoing monitoring services using EMTs address customer concerns about persistency.

5. Permits and Regulations: Technical Assistance: The program provides plan reviews, performs inspections for eligible SCE facilities and supports customers, Trade Pros, and contractors with permitting processes to ensure they can obtain approval.

7. Pilots

As of the creation of this Implementation Plan, no pilots are planned.

8. Workforce Education & Training (WE&T) [1]

Willdan understands that Energy, Construction, and Utilities is one of the priority job sectors in demand in Southern California in need of skills gap training. The commitment to workforce education and training

[1] D.18-05-041, Page 20-21 and Ordering Paragraph 7.

includes expanding and initiating partnerships with community-based entities that do job placement. Creating successful pathways from the community to job training and subsequent placement is key to supporting economic development in disadvantaged and hard-to-reach communities.

For example, The Willdan Clean Energy Academy's energy auditing training course is designed to meet the needs of the clean energy job market. The Academy prepares students with real world, technical knowledge that matches the skills gaps that employers are looking for. The dedicated instructor team is composed of veteran engineers and educators passionate about clean energy, education, and accessibility. The course seeks to improve auditor skills both in helping customers with what have become standard technology upgrades (e.g. - lighting) and preparing themselves for various nationally recognized certifications.

The Clean Energy Academy will be utilized to create homegrown talent, providing opportunities for Willdan to hire a qualified and trained workforce, and facilitating job connections to local employers. To create "first source" hiring opportunities for this SCE program, the Academy will train potential employees to be energy service representatives, technicians in the field, installers in the field, and to work in quality assurance and quality verification of projects.

In addition to internal opportunities, energy training centers will also be utilized to support the training of the Willdan team and contractor partners.

9. **Workforce Standards**

HVAC Measures

The standards pursuant to Decision 18-10-008[2] are applicable. The program includes the installation, modification, and maintenance of incentivized HVAC measures (potentially greater than $3,000) in commercial buildings by program, subcontractor, and Trade Pro staff, triggering the applicable workforce standards. When required, the program verifies that the installation team has completed and/or is enrolled in a federally accredited or California-accredited HVAC apprenticeship, completed at least five years of work at the journey level, passed an HVAC system installation competency test, received training specific to the equipment being installed, and obtained a C-20 HVAC contractor license from California's Licensing Board.

To enhance quality and deliver deep, durable energy savings, the program:

- Establishes workforce standards that meet or exceed those set forth in its contract with SCE with respect to apprenticeship, journey-level experience, and licensing
- Requires and provides training that improves overall quality of installers, including subcontractors and Trade Pros
- Requires and provides training targeted at specific measures
- Tracks technicians for measures installed and maps measures to applicable trainings, providing valuable WE&T metrics, and

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

- Performs comprehensive QA/QC, ties outcomes to specific technicians, and requires targeted remedial training based on those outcomes.

Compliance is demonstrated and enforced throughout the program lifecycle by:

- Establishing workforce standards requirements in customer applications and/or project agreements that are tied to incentive eligibility
- Collecting and verifying proper worker documentation ("qualified documents"), and
- Retaining "qualified documents" for reporting and periodic inspection by SCE.

Advanced Lighting Control Measures

The program includes the installation, modification, and maintenance of incentivized lighting control measures (potentially greater than $2,000) in commercial buildings by program staff, subcontractor staff, and Trade Pros, triggering the applicable workforce standards.

The program:

- Establishes workforce standards for lighting controls installations requiring California Advanced Lighting Controls Training Program certification, where applicable
- Requires and provides training that improves the overall quality of implementation workers across program staff, subcontractors, and Trade Pros
- Requires and provides training targeted at specific measures proposed and implemented
- Tracks installation technicians for measures installed and maps measures to applicable trainings, providing meaningful WE&T metrics, and
- Performs comprehensive QA/QC, ties outcomes to specific technicians, and requires targeted remedial training based on those outcomes.

Compliance is demonstrated and enforced throughout the program lifecycle by:

- Establishing workforce standards requirements in customer applications and/or project agreements that are tied to incentive eligibility
- Collecting proper worker documentation ("qualified documents"); for lighting controls projects, installer certification is obtained directly from the California Advanced Lighting Controls Training Program, and
- Retaining qualified documents for reporting and periodic inspection by SCE.

10. **Disadvantaged Worker Plan:**[3]

Willdan's program will provide Disadvantaged Workers with improved access to career opportunities in the energy efficiency industry by supporting outreach initiatives (training, mentorship, and/or apprenticeships) in collaboration with a combination of our subcontractor partners. Using an optional survey, Willdan will track and report Disadvantaged Worker participation in outreach programs, as well as program hiring, including the following metrics:

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

Outreach	Hiring
• Number of training, mentorship, and/or apprenticeship opportunities offered • Number of participants • Number of staff and/or partner hours devoted to outreach initiatives	• Number of recruiting channels promoting access to Disadvantaged Workers • Percentage of job opportunities made available to Disadvantaged Workers • Percentage of candidates screened • Percentage of candidates interviewed • Percentage of candidates offered a position • Percentage of candidates hired

Additionally, the turnover and attrition are tracked by designated classification of Disadvantaged Worker, subject to appropriate privacy considerations. For Subcontractor performance scorecards and KPIs are tracked on an individual firm basis, with Disadvantaged Worker participation as a key element.

11. Additional Information

Quality Assurance/ Quality Control

The program has an assigned QA/QC partner who leads program QA/QC procedure development and oversight. This includes screening to ensure services and/or incentives motivate customers to choose higher efficiency options. Responsibilities include:

1. QA/QC tool development (consolidating guidance from multiple sources) including checklists for Early Screening, Pre-Installation, and Post-Installation Reports
2. Training for program staff engineers and Trade Pros
3. Deep-dive reviews of select larger, complex projects
4. Ongoing updates of training and guidance documents

The program evaluation partner assesses program-level performance, including QA/QC metrics, and performs full program cycle review of selected large projects. In addition to the QA/QC partner, an internal review process will be conducted for all projects. Stages of each project will be reviewed through one or a combination of the following measures:

- **Peer Reviews:** High level reviews by Project Engineers
- **Secondary Review:** Detailed review of the project submittal documents including but not limited to, project influence, Measure Application Type/baseline, calculation, and M&V plan.
- **High Rigor Review:** Includes QA/QC partner for projects on a case-by-base basis as determined by the Senior Engineering Manager and/or the Program Manager

The four-step custom project QA/QC review steps are: Early Screening, Pre-Installation Review, Post-Installation Report Review, and Feedback/Refinement. The Program's QA/QC tools screen projects, verify accuracy and completeness of documentation, and record errors. Senior engineer review and sign-off is required in the online platform before advancing to next steps.

STEP 1. EARLY SCREENING: Checklist justifies measure eligibility, application type, applicable baselines, and program influence. The tool is an enhancement of SCE's Early Screening Document (ESD), already used in third-party SCE programs to document customer barriers, as well as how

financing, services, or cash incentives influence customers to select high efficiency options. This step screens for NMEC viability and cost effectiveness. Screening for NMEC includes verification that savings are 10% or more of baseline, that statistical fitness is achieved, and that measures are not predominantly Normal Replacement (NR). The project- and measure-level TRC are evaluated and projects may be rejected or modified to meet cost-effectiveness targets. Any calculation tools not listed in SCE's tool archive are proposed to SCE for approval before submittal of pre-installation documents. ISP guidance and the Statewide Custom Projects Guidance documents will be followed when screening projects.

STEP 2. PRE-INSTALLATION: Before uploading the Pre-Installation documents, an internal QA/QC review is performed using the Pre-Installation Review Checklist, an enhancement of the CPUC's review checklist. This step satisfies statewide guidelines by mandating checks of:

- Approved calculation methods and tools supported with baseline data,
- Documentation of calculation steps, inputs and assumptions, traceable from inputs to results,
- Correct Database for Energy Efficiency Resources (DEER), net-to-gross (NTG), end-of-useful life (EUL) values, DEER peak demand hours, etc.,
- A suitable M&V Plan; supported full, incremental or accelerated cost estimates,
- Evaluation of on-site generation grid impacts, and
- Program influence.

For NMEC, the screening checks for quality and completeness of utility data and the appropriate independent variable data, as well as for potential non-routine events (NREs). Deemed reviews include verification of compliance with the workpaper and review of product specifications for eligibility and performance. The nature and quantity of any errors are documented in the checklist and tracked in the online platform.

STEP 3. POST-INSTALLATION: This Primary Post-Installation Report (IR) review QA/QC step employs an IR Review checklist. This mandate checks of the following verify:

- The justification of changes in scope, measure application type, applicable baselines, etc.,
- Adherence to an approved M&V Plan, with justification for any changes,
- Accurate calculations that follow the same approved methodology as an *ex-ante* calculation,
- Calculations supported with post-implementation data and normalized,
- Identified NREs are justified and NRE adjustment calculations comply with statewide custom guidance,
- Invoices support implementation costs,
- Documentation of customer commitment to O&M plan for BRO measures, and
- Other IR elements.

In line with the Statewide Custom Project Guidance Document (v1.4), "if changes were made to the project, the anticipated energy savings and demand reduction should be recalculated as necessary" (p. 27).

Specific to NMEC, this review includes verification of NMEC statistical fitness with post-installation data. For Deemed, reviews ensure invoices and specifications support claimed quantities, deemed values

and eligibility requirements. For Custom and NMEC, Primary Post-Installation Inspections are performed by project engineers on 100% of projects. For Deemed, Primary Post-Installation Inspections will be inspected consistent with the applicable workpaper.

STEP 4. FEEDBACK/REFINEMENT: This QA/QC step involves ongoing refinement of QA/QC review procedures, tools, and training. QA/QC metrics are tracked in the online platform. QA/QC metrics include the type and quantity of errors documented in review checklists and comparison (variance) of estimated, approved Ex Ante, claimed, and approved Ex Post savings. Partner and program staff senior engineers proactively update QA/QC training and QA/QC tools (checklists) in response to:

- QA/QC metrics
- Market and legislative changes (e.g., industry standard practice [ISP] or code changes)
- CPUC decisions and *ex-ante* review dispositions
- Statewide Custom Calculation Guidelines Document updates
- SCE Engineering Policy, Program, and Infrastructure Changes (E-PPICs) memos,
- Customer satisfaction surveys, and
- Trade pro feedback.

Disadvantaged Communities Marketing and Spend

The program identifies customers in disadvantaged communities and leverages CBOs, trade pros, etc. to target these customers. However, there is not a specific budget dedicated to marketing to disadvantaged community customers.

Hard-to-Reach Customers Marketing and Spend

The program identifies hard-to-reach customers and leverages CBOs, trade pros, etc. to target these customers. We will identify hard-to-reach customers using our different datasets to understand the geography, language, and if the property is leased or rented.

Installation Remedy

The program addresses all customer service issues through:

a. **Concierge Approach** – providing commercial building owners and managers with a SPOC simplified energy assessment by identifying the most cost-effective investment and options for low-cost financing, rebates and incentives. In addition, the SPOC educates the customer throughout the process and provides a call center phone number to call if an issue arises. The customer hears back within 24 hours of initial contact and the issue is prioritized and resolved. The online platform provides SPOCs with real-time updates to help improve performance.

b. **Rigorous Vetting/Training** - evaluation criteria include safety, performance, customer satisfaction, workforce qualifications, certifications and experience to build a strong team of partners and subcontractors. The program continuous trains trade pros on program design, measure requirements, standardized installation process, the online platform, and lead sharing to provide a comprehensive offering. This minimizes any issues with installation and improves customer satisfaction.

c. **Trade Pro Performance Management** - the program uses scorecards to manage the installation and equipment quality, customer feedback, and performance in random spot checks and scheduled post-inspections. More than three spot-check or post-inspection failures result in suspension from the program. Scores are constantly updated and available to the trade pros through the online platform, along with improvement recommendations.

d. **Apply Workforce Standards and Quality Metrics** - program staff hold appropriate licenses, registrations, certifications and workforce standard credentials. The online platform reports on compliance to ensure all trade pros and partners meet the requirements and to prompt the removal of unqualified contractors.

e. **Centralized Material Purchasing** - the program installs quality products (Tier 1 and 2) for long-term performance. Installed products are manufactured by a financially stable company with extended warranties. All trade pros are trained on product specifications to meet measurement requirements and minimize failures post-installation.

f. **Post-Installation Walk-Through** - field managers walk through the site upon project completion to ensure customer satisfaction. Any questions or issues are addressed during that time.

g. **Customer Survey** - upon project completion, the online platform triggers customer surveys to management and tenants with qualitative and quantitative questions to improve the customer experience. The responses are reviewed weekly to improve processes and reduce customer issues.

h. **Continuous Engagement** - the program performs outreach to customers on an annual basis post-installation to ensure satisfaction.

3. Supporting Documents

Attach all the following documents as PDF-format files to this file:

1. Program Manuals and Program Rules

A summary of the program process and rules are presented below. As required, the full program manual will be uploaded in the California Energy Data and Reporting System (CEDARS). The manuals comply with the CPUC Implementation Plan Template Guidance version 2.1 May 2020.

Eligible Measures

Willdan's Commercial Energy Efficiency Program offers a full range of energy efficiency and demand flexibility measures, summarized in the "Incentive Tables, Workpapers, Software Tools" section of this Implementation Plan, below. The program will continue to work toward expanding the measure list and ensuring a comprehensive offering.

No measure, no Project nor any Customer service account that is part of a Project, may use, submit, claim, or receive any rebates, discounts, incentives, or services from any other program, energy efficiency or otherwise, for the Project or for any Measure installed at the Customer's Site for which the energy and demand savings have already been compensated, including the attribution of energy and demand savings or reductions for a single Measure/activity at multiple market intervention points (e.g., energy savings or reductions claimed upstream, midstream, and at the Customer) where a particular Measure was installed or an activity occurred. Measure eligibility includes a verification by way of customer attestation to the lack of previous program participation.

Willdan's CEEP utilizes deemed, custom, and NMEC savings platforms to influence, calculate, and incentivize customers for energy savings. Deemed measures must have an approved and non-expired workpaper or be listed in the Database for Energy Efficient Resources (DEER) as an active measure. Custom measures must be cost-effective and meet the criteria specified in the Statewide Custom Project Guidance Document. NMEC measures will follow guidance set forth in the CPUC NMEC rulebook.

Customer Eligibility Requirements

Customers meet the eligibility requirements for the program if they:

- Are a SCE Customer
- Pay the Public Purpose Program surcharge on the SCE Meter associated with the energy efficiency equipment to be installed
- Have a monthly maximum demand of greater than 20 kW, and
- Have a qualifying NAICS code under the following:

Sector	Segment	NAICS Code	Description of Segment
Commercial	Warehouses / Refrigerated Warehouses	42xxxx	Wholesale Trade
Commercial	Retail	44xxxx	Retail Trade
Commercial	Retail	45xxxx	Retail Trade

Commercial	Warehouses / Refrigerated Warehouses	48xxxx	Transportation and Warehousing
Commercial	Warehouses / Refrigerated Warehouses	49xxxx	Transportation and Warehousing
Commercial	Technology Industries	51xxxx	Information
Commercial	Office	52xxxx	Finance and Insurance
Commercial	Office	53xxxx	Real Estate Rental and Leasing
Commercial	Office / Miscellaneous	54xxxx	Professional, Scientific, and Technical Services
Commercial	Office / Miscellaneous	55xxxx	Management of Companies and Enterprises
Commercial	Miscellaneous	56xxxx	Administrative and Support and Waste Management and Remediation Services
Commercial	Office / Miscellaneous	61xxxx	Education Services
Commercial	Office / Miscellaneous	62xxxx	Health Care and Social Assistance
Commercial	Miscellaneous	71xxxx	Arts, Entertainment, and Recreation
Commercial	Lodging / Restaurants / Grocery Stores / Refrigerated Warehouses	72xxxx	Accommodation and Food Services
Commercial	Miscellaneous	81xxxx	Other Services (except Public Administration)

Contractor Eligibility Requirements

In order to participate in the Commercial Energy Efficiency program, installation contractors must meet the following CPUC requirements:

- Install all measures in accordance with all applicable federal, state, and local laws building codes, manufacturers' specifications, and permitting requirements.
- If a contractor performs the installation or improvement, the contractor must hold the appropriate license for the work.
    - For all program projects and for each measure installed, modified, or maintained in a non-residential setting where the project is seeking an EE incentive of $3,000 or more, the program shall ensure that each worker or technician installing, modifying or maintaining the applicable measure meets at least one of the following criteria:
        - Completed an accredited HVAC apprenticeship
        - Is enrolled in an accredited HVAC apprenticeship

        - Completed at least five years of work experience at the journey level according to the Dep. Of Industrial Relations definition, Title 8, Section 205 of the California Code of regulations, passed a practical and written HVAC system installation competency test, and received credentialed training specific to the installation of the technology being installed
        - Has a C-20 HVAC Contractor license issued by the California Contractor's State Licensing Board.
    - For all advanced lighting control projects and for each advanced lighting control measure installed in a non-residential setting where the project is seeking an EE incentive of $2,000 or more, the program shall ensure that all workers or technicians installing, modifying or maintaining the applicable measure are certified by the California Advanced Lighting Controls Training Program (CALCTP). This requirement shall not apply where the incentive is paid to a manufacturer, distributor, or retailer installs or contracts for installation of the equipment.

- A rebate or incentive can only be provided if the customer or contractor certifies that the improvement or installation has complied with any applicable permitting requirements, including from California Building Standards Code (Title 24 of the California Code of Regulations).
- If a customer or contractor is the recipient of a rebate or incentive offered by an energy efficiency program specifically for the purchase or installation of air-conditioning or heat pump units, and their related fans, the rebate or incentive will be paid only if the customer or contractor provides proof of permit closure.
- Follow workforce standards pursuant to D.18-10-008.

Contractors shall, except with prior written consent of SCE, at their own expense, provide and maintain in effect the insurance policies and minimum limits of coverage specified below, and such additional coverage as may be required by Applicable Laws, with insurance companies which are authorized to do business in the state in which the services are to be performed and which have an A.M. Best's Insurance Rating of not less than A-:

a. Worker's Compensation Insurance with the statutory limits required by the state having jurisdiction over Implementer's employees.

b. Employer's Liability Insurance with limits of not less than

    a. Bodily injury by accident - $1,000,000 each accident

    b. Bodily injury by disease - $1,000,000 policy limit

    c. Bodily injury by disease - $1,000,000 each employee

c. Commercial General Liability Insurance

    a. Per occurrence limit of not less than $1,000,000 and annual aggregate of not less than $2,000,000 exclusive of defense costs, for all coverages.

d. Commercial Automobile Liability Insurance

    a. Covering bodily injury and property damage with a combined single limit of not less than $1,000,000 per occurrence

e. Umbrella/Excess Liability Insurance written on an "occurrence," not a "claims-made" basis, providing coverage excess of the underlying Employer's Liability, Commercial General Liability, Pollution Liability Insurance and Commercial Automobile Liability insurance, on terms at least

as broad as the underlying coverage, with limits of not less than $10,000,000 per occurrence and in the annual aggregate.

f. Cyber insurance covering:

    a. Liability arising from theft, dissemination and/or use of Confidential Information stored or transmitted in electronic form

    b. Liability arising from the introduction of a computer virus into, or otherwise causing damage to, a customer's or third person's computer, computer system, network or similar computer related property and the data, software and programs stored thereon. Such insurance will be maintained with limits of no less than $2,000,000 per claim and in the annual aggregate, and may be maintained on a stand-alone basis, or as part of any errors and omissions coverage.

Contractors must maintain high customer satisfaction and perform quality work, as evaluated by Willdan quality control staff. Contractors will no longer be eligible for participation in Willdan's CEEP if there are complaints about Contractor performance and problems are not resolved to the satisfaction of the customer and program administration. Contractor will also be ineligible for participation if it is determined that fraudulent misrepresentation of removed or installed equipment has occurred, or that the program has been falsely described or represented in any way.

Additional Services

Willdan's Commercial Energy Efficiency Program may provide additional services including:

- Energy Concierge Approach with Technical Assistance
- Providing Diverse Financing Options to Customers
- Providing an Online Platform with Simplified Application
- Managing Turnkey Installation Services
- Managing open network of Trade Pros
- Facilitating Do-It-Yourself for Simple Measures, and
- Interfacing with Statewide and Local Programs.

Financing

For many customers, upfront costs are a primary barrier to moving forward with implementing energy efficiency measures. This program intends to encourage the use of financing for those customers who express concerns about first costs. Willdan will not be providing any of this financing directly, rather the program will make sure that customers are aware of all options.

Audit

The program performs in-person audits to determine the recommendations for each site.

Audits are comprehensive and include EE measures and potential identification of ZNE opportunities. The Willdan program team and its partners and subcontractors perform the audits. If necessary, SCE conducts program site visits to verify potential project measures. During mandatory trainings, all partners and subcontractors learn how to identify opportunities for the program during an audit and ensure there is documented influence.

Initial onsite audits include:

- Collecting building information including operating hours
- Obtaining and reviewing utility bills
- Interviewing staff to understand operations
- Reviewing existing EMT or Building Automation Systems (BAS) to understand operations
- Documenting equipment types including make, model, age and maintenance practices

The Willdan engineering team may also obtain data through BAS trending and the use of loggers. For many custom measures, this will be required. The goal of the audit is to build a precise picture of the current operation and the energy baseline such that the engineering team may make recommendations for improvement while accurately understanding the potential energy efficiency savings.

Post installation inspections serve to verify that equipment was installed correctly and is yielding the expecting energy savings. This may include additional trending (see Measurement and Verification Section of the Implementation Plan) as well as verifying name plate data and observing operation. In the event the post-installation verification identifies any discrepancies or changes in scope, the issue shall immediately be raised with SCE.

Program Quality Assurance Provisions

Program success and customer satisfaction are rooted in adherence to our quality assurance procedures. Willdan's Commercial Energy Efficiency Program's quality assurance and quality control (QA/QC) procedures verify accuracy and completeness of documentation and record errors and corrections through pre- and post-installation documentation review and field verification. The implementer's experienced partners will continue to improve program QA/QC processes and tools. Partnered firms will oversee tool development for NMEC M&V, the Custom Review Guidance Document, review checklists for early screening, and application and installation reports. These firms will assess program-level performance.

Additionally, QA/QC tools are built into an online platform and follow a four-step process: (1) Early Screening, (2) Application Review, (3) Post-Installation Review, and (4) Feedback and Refinement. Each step has a checklist that must be completed before advancing to the subsequent step.

Other Program Metrics

An online platform tracks program processes and provides clear, detailed insight into program status by capturing the following KPIs:

- Gross and Net Savings (kWh, kW)
- Gross and Net Savings (kWh, kW) in DACs
- Gross and Net Savings (kWh, kW) in HTR Markets
- Levelized Cost of Energy Efficiency per kWh and kW (using both TRC and PAC)
- Greenhouse Gasses (MT CO_2e) Net kWh Savings
- Average Savings per Participant Savings per Project (property)
- Energy Savings per (kWh, kW) per Project (property)
- Energy Savings (kWh, kW) per square foot
- Percent of participation relative to eligible population (by unit, and property)
- Percent of square feet of eligible population participating (by property)
- Percent of participation in disadvantaged communities

- Percent of participation by customers defined as "hard-to-reach"
- Percent of benchmarked multi-family properties relative to the eligible population
- Percent of benchmarking by properties defined as "hard-to-reach"

2. Program Theory [4] and Program Logic Model [5]

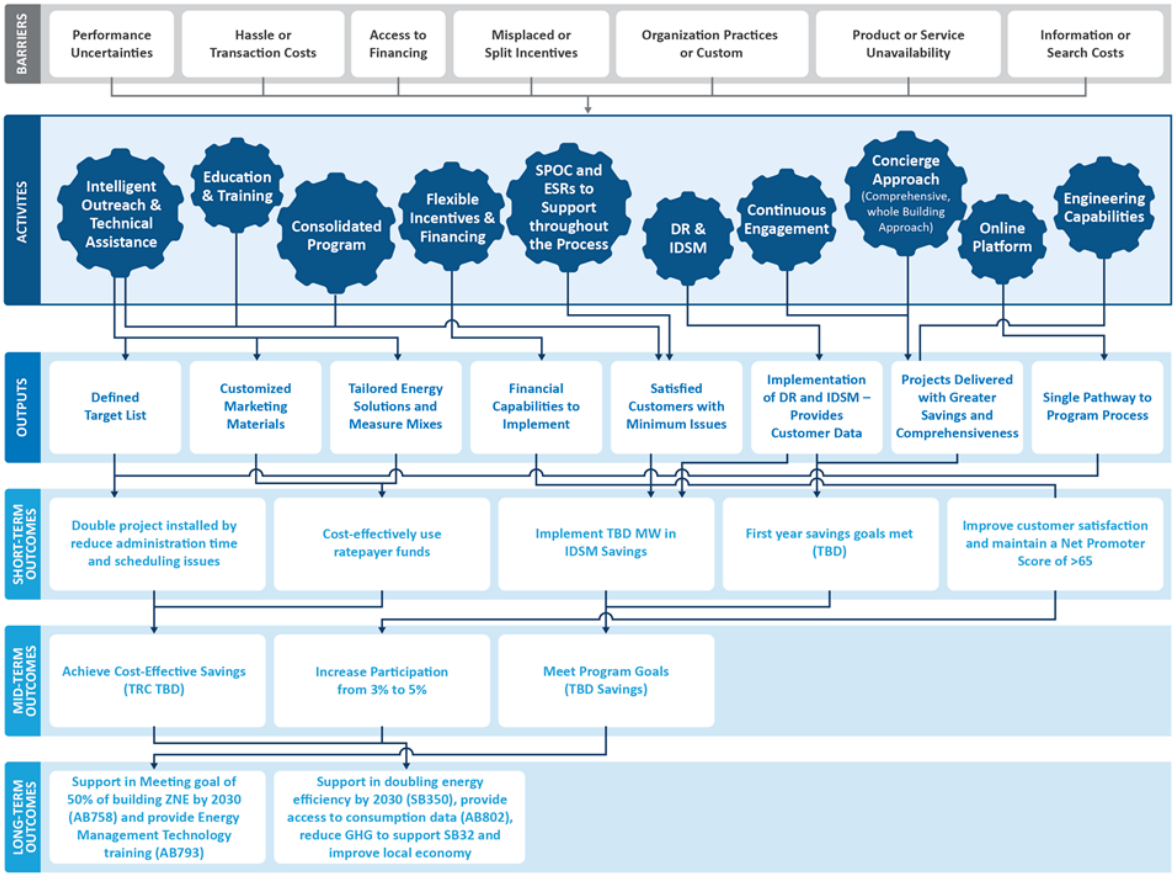
Program Theory

The program theory is to increase EE and IDSM adoption rates in all commercial customers. The activities listed in the Program Logic Model below lead to program outputs and short-term, mid-term, and long-term outcomes.

[4] 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.

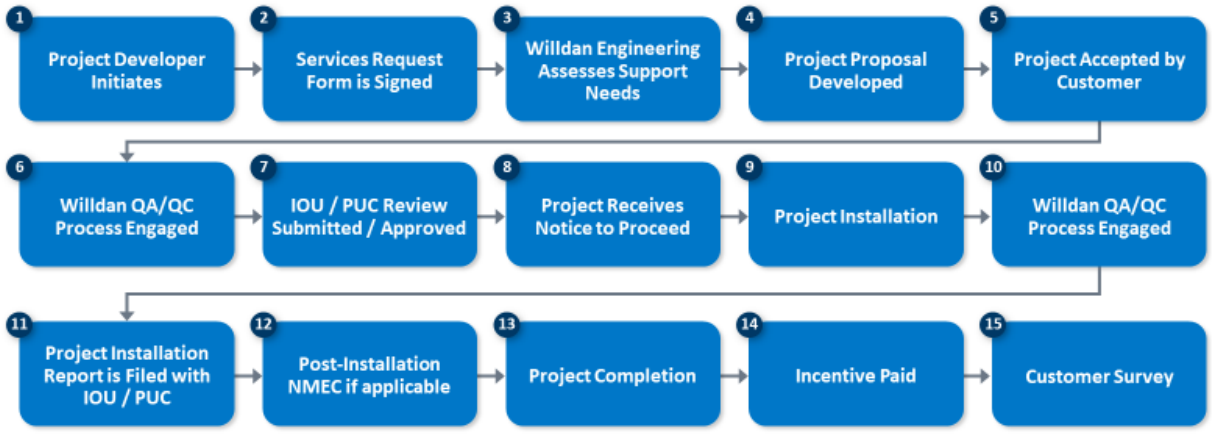
[5] The graphical representation of the program theory showing the flow between activities, their outputs, and subsequent short-term, intermediate, and long-term outcomes. *California Evaluation Framework*, June 2004.

Exhibit 3. Program Logic Model



3. Process Flow Chart

A typical project in the Willdan Commercial Energy Efficiency Program will include the following major steps:



- **Step 1:** Implementer follows strategies outlined in the program marketing campaign to use data-driven approaches to target customers with a high propensity for savings and participation in order to initiate a Project.
- **Step 2:** Customer authorizes Willdan to assess the energy efficiency opportunities on location. Willdan verifies customer's program eligibility using criteria listed above.
- **Step 3:** Willdan engineering will assess and document the available energy efficiency opportunities through a variety of means up to and including a comprehensive site audit where site data will be gathered, and customer barriers will be identified along with potential measures. For custom projects, this information is compiled and submitted to SCE in the form of an Early Screening Document (ESD). SCE has the option of reviewing ESDs and providing feedback to Willdan regarding the project.
- **Step 4:** Implementer will present a list of recommended measures, report of findings (savings, projected costs, and detailed measure descriptions), along with technical services, financing options, and/or incentives offered. Customer-specific decision-making needs are addressed.
- **Step 5:** Customer approves the Project and signs the Customer-Implementer Agreement and the Project submission process is engaged.
- **Step 6:** Willdan QA/QC process reviews pre-installation package for submission to SCE.
- **Step 7:** Pre-installation Package is submitted, reviewed, and eventually approved (with potential for CPUC review).
- **Step 8:** Notice to Proceed is given to customer after SCE and (if applicable) CPUC reviews are complete.
- **Step 9:** Customer's typical or preferred procurement and installation process may commence.
- **Step 10:** Upon installation completion, Willdan's QA/QC process is again engaged to ensure Project Installation meets application expectations.
- **Step 11:** Primary Post-Installation Inspection Report is filed with and approved by SCE and (if applicable) the CPUC.
- **Step 12:** NMEC projects require continuous monitoring to check for non-routine events and verify savings for progress payment(s). This is primarily accomplished using utility meter data but may also utilize a combination of existing building automation systems, installed energy management technologies, and project-specific monitoring equipment. Custom projects that require post-installation M&V will leverage the same monitoring approaches.
- **Step 13:** Project is formally completed.
- **Step 14:** Incentive (if applicable) may be paid to customer.
- **Step 15:** Customer survey is issued in order to maintain operational excellence and continuous improvement.

4. Incentive Tables, Workpapers, Software Tools[6]

All incentives will be determined by a flexible incentive calculation and are dependent on installed project savings. Many of the offerings will have numerous values for the incentives based on the implementation method, savings derivation and if the customer is considered as hard to reach (HTR).

Additionally, the program includes, but is not limited to, the following measures:

Measure Code	Measure ID	Measure Description	Source Description	Link
AC-21291	SWHC018A	Variable Speed Drive on HVAC Fan Control	SWHC018-02	https://www.caetrm.com/login/?next=/
RF-16925	SWCR005A	Main Cooler Door Auto Closer	SWCR005-01	https://www.caetrm.com/login/?next=/
RF-21067	SWCR015A	Add Door to Medium Temperature Open Vertical Display Case	SWCR015-01	https://www.caetrm.com/login/?next=/
RF-31355	SWCR007D	Commercial Air-Cooled Multiplex Floating Head Pressure Control	SWCR007-02	https://www.caetrm.com/login/?next=/
RF-32156	SWCR005B	Main Freezer Door Auto Closer	SWCR005-01	https://www.caetrm.com/login/?next=/
RF-41488	SWCR007B	Commercial Evap-Cooled Multiplex Floating Head Pressure Control	SWCR007-02	https://www.caetrm.com/login/?next=/
RF-48112	SWCR001B	Cooler Anti-Sweat Heater (ASH) Control	SWCR001-01	https://www.caetrm.com/login/?next=/
PM-29644	PM-29644	Optimize Fluid Flow	Record Level Data - CEDARS -SCE-2019	https://cedars.sound-data.com/
FS-38502	SWFS005A	Steamer-Electric	SWFS005-02	https://www.caetrm.com/login/?next=/
FS-30956	SWFS003C	Food Service - Combination Oven-Electric	SWFS003-01	https://www.caetrm.com/login/?next=/
FS-20166	SWFS006G	Ice Machines >1500 - CEE Tier III	SWFS006-01	https://www.caetrm.com/login/?next=/
FS-20165	SWFS006F	Ice Machines 1001-1500 - CEE Tier III	SWFS006-01	https://www.caetrm.com/login/?next=/
FS-20164	SWFS006E	Ice Machines 301-400 - CEE Tier III	SWFS006-01	https://www.caetrm.com/login/?next=/

[6] 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.

FS-57892	SWFS011A	Food Service - Commercial Electric Fryer	SWFS011-03	https://www.caetrm.com/login/?next=/
AC-19790	AC-19790	HVAC Zone Occupancy Controls - Add-On	DEER-ImpID D03-073	http://www.deeresources.net/
AC-19794	AC-19794	Occupancy/Smart Thermostat	Record Level Data - CEDARS	https://cedars.sound-data.com/
PM-21954	PM-21954	BOILERS/HW/STEAM SYSTEMS RETROFIT/NEW-DIST. SYSTEM-HEAT RECOVERY	PGECOALL100 R12 - PGE210123	https://cedars.sound-data.com/
AC-19789	AC-19789	HVAC RETROFIT/NEW-AHU/PACKAGE UNITS-AIR SIDE ECONOMIZER-OTHER	PGECOALL100 R12 - PGE210123	https://cedars.sound-data.com/
AC-19789	AC-19789	HVAC RETROFIT/NEW-AHU/PACKAGE UNITS-AIR SIDE ECONOMIZER-UPGRADE	PGECOALL100 R12 - PGE210123	https://cedars.sound-data.com/
AC-19789	AC-19789	HVAC RETROFIT/NEW-AC/SPLIT SYSTEMS/HEAT PUMPS-OTHER	PGECOALL100 R12 - PGE210123	https://cedars.sound-data.com/
AC-19789	AC-19789	HVAC RETROFIT/NEW-AC/SPLIT SYSTEMS/HEAT PUMPS-DX/AIR COOLED	PGECOALL100 R12 - PGE210123	https://cedars.sound-data.com/
AC-19789	AC-19789	HVAC RETROFIT/NEW-AC/SPLIT SYSTEMS/HEAT PUMPS-WATER/EVAP COOLED	PGECOALL100 R12 - PGE210123	https://cedars.sound-data.com/
AC-19789	AC-19789	HVAC RETROFIT/NEW-AC/SPLIT SYSTEMS/HEAT PUMPS-GROUND SOURCE	PGECOALL100 R12 - PGE210123	https://cedars.sound-data.com/
AC-28476	AC-28476	HVAC EXHAUST/VENTILATION - BLDG DISTRIB FANS VFD - To-Code/Std	PGECOALL100 R12 - PGE210123	https://cedars.sound-data.com/
PM-23862	PM-23862	PROCESS - WASTE WATER - PUMP VFD - To-Code/Std	PGECOALL100 R12 - PGE210123	https://cedars.sound-data.com/

PM-23862	PM-23862	PROCESS RETROFIT/NEW-PUMPS-VFD	PGECOALL100 R12 - PGE210123	https://cedars.sound-data.com/
AC-37854	SWHC027E	<=24 kBtu/hr High Efficiency Package Terminal Heat Pump (Non Res) DX Equipment	SWHC027-01	https://www.caetrm.com/login/?next=/
AC-21823	SWHC027A	<=24 kBtu/hr High Efficiency Package Terminal Air Conditioner (Non Res) DX Equipment	SWHC027-01	https://www.caetrm.com/login/?next=/
PM-21834	PM-21834	Nonresidential Pool Pump - VFD - Add-on Equipment	SCE-2019-Q3-0078446	https://cedars.sound-data.com/
RF-51222	SWCR008A	Commercial Multiplex Floating Suction Pressure Control	SWCR008-02	https://www.caetrm.com/login/?next=/
AC-15987	AC-15987	Chilled water reset - retrocommisioning	SCE-2018-Q2-0068580	https://cedars.sound-data.com/
PM-23862	PM-23862	Optimize chilled water pump VFD - retrocommissioning	SCE-2018-Q2-0069112	https://cedars.sound-data.com/
AC-91987	SWHC008A	Variable Speed Drive on Chilled Water Pump Control	SWHC008-01	https://www.caetrm.com/login/?next=/
AC-55411	SWHC008B	Variable Speed Drive on Condenser Water Pump Control	SWHC008-01	https://www.caetrm.com/login/?next=/
AC-74984	AC-74984	Condenser water pump motor - VFD - Add-on Equipment	SCE-2018-Q4-0077617	https://cedars.sound-data.com/
AC-64388	AC-64388	Optimum start/stop EMS control - rcx	SCE-2018-Q3-0000858	https://cedars.sound-data.com/
AC-19790	AC-19790	HVAC Zone Occupancy Controls - Add-On - NMEC	READI v2.5.1 - DEER-ImpID D03-073	http://www.deeresources.com/index.php/deer-versions/readi
AC-19794	AC-19794	Occupancy/Smart Thermostat - NMEC	Record Level Data - CEDARS	https://cedars.sound-data.com/
AC-10166	AC-10166	Retrocommissioning - HVAC - NMEC	Generic RCx Measure - Willdan Estimate	https://energyinsightpartners.pge.com/login
AC-10166	AC-10166	Retrocommissioning - HVAC	Generic RCx Measure - Willdan Estimate	https://energyinsightpartners.pge.com/login
AC-19794	AC-19794	Occupancy/Smart Thermostat	Record Level Data - CEDARS	https://cedars.sound-data.com/
AC-15987	AC-15987	Chilled water reset - retrocommisioning	Record Level Data - CEDARS -SCE-2018	https://cedars.sound-data.com/

PM-23862	PM-23862	Optimize chilled water pump VFD - retrocommissioning	Record Level Data - CEDARS -SCE-2018	https://cedars.sound-data.com/
AC-74984	AC-74984	Condenser water pump motor - VFD - Add-on Equipment	Record Level Data - CEDARS -SCE-2018	https://cedars.sound-data.com/
AC-64388	AC-64388	Optimum start/stop EMS control - rcx	Record Level Data - CEDARS -SCE-2018	https://cedars.sound-data.com/
PR-42009	PR-42009	Process Chilled Water Plant Optimization Project	Record Level Data - CEDARS -PGE_ID210123	https://cedars.sound-data.com/
AC-28476	AC-28476	Add VFDs and Controls to Exhaust Fans	Record Level Data - CEDARS -PGE_ID210123	https://cedars.sound-data.com/
PM-23862	PM-23862	VFDs on Process CHW Pumps	Record Level Data - CEDARS -PGE_ID210123	https://cedars.sound-data.com/
PR-20099	PR-20099	Process Fans VFDs	Ap No SCE-NMMP-11-000147	https://cedars.sound-data.com/
AC-74984	AC-74984	Condenser Water Pumps VFD	Ap No SCE-500793876	https://cedars.sound-data.com/
PR-51921	PR-51921	Industrial Blower Replacing Air Compressor	Ap No PG&E-FPRW14	https://cedars.sound-data.com/
PR-19786	PR-19786	Compressed Air System Leak Repair	Ap No SCE-500634844	https://cedars.sound-data.com/
PR-32856	PR-32856	Air Compressor System Control - Add-on Equipment	Record Level Data - CEDARS -SCE-2019	https://cedars.sound-data.com/
PR-81093	PR-81093	Air compressor consolidation	Record Level Data - CEDARS -SCE-2019	https://cedars.sound-data.com/
AC-78722	AC-78722	Ventilation fan - VFD - Add-on Equipment	Record Level Data - CEDARS -SCE-2019	https://cedars.sound-data.com/
RF-20965	SWCR008B	Process Multiplex Floating Suction Pressure Control	SWCR008-02	https://www.caetrm.com/login/?next=/
RF-43876	RF-43876	Defrost controls - Add-on Equipment	Record Level Data - CEDARS -SCE-2019	https://cedars.sound-data.com/
FS-68320	SWFS001A	Food Service - Convection Oven-Electric	SWFS001-02	https://www.caetrm.com/login/?next=/
FS-20134	SWFS003B	Food Service - Combination Oven-Electric	SWFS003-01	https://www.caetrm.com/login/?next=/

Key Software Tools

The online platform supporting the program will serve as a repository and single point of access for data integration and continuous stakeholder engagement. The platform is the center for all program processes and data and includes benchmarking and energy modeling applications to help visually convey the value of implementing EE and the benefit comparison of different measure bundles.

The online platform reduces administrative costs and human error that are often associated with manual QA/QC efforts. It can be easily modified for any policy changes that may impact savings or documentation.

The program will utilize the NMEC analysis tools listed in the table below, selected because they:

- Automate collection of utility advanced metering infrastructure (AMI) (or sub-meter) data, weather data import, and NMEC calculations compliant with NMEC guidance. Automation saves engineering effort.
- Are scalable and not cost prohibitive for most customers and projects.
- Provide monitoring capability (necessary for NMEC) and trigger notifications of potential sub-performance or NREs (persistence of savings).
- Calculate statistical fitness metrics to validate appropriateness of a meter-based approach.

Tool	Developer	Publicly Available for SCE Review	NMEC Calculation Compliance	Version or Date
OpenEEmeter (Recurve Platform)	Recurve	Yes	CalTRACK 2.0 – Certification steps automatically enforced	2.5.4
Energy360	Intech	Yes	SCE NMEC Procedures Manual (LBNL Time-of-Week-and-Temperature [TOWT] Model)	None: Latest version always on-line
GridPoint Energy Manager	GridPoint	Yes	IPMVP Option C	None

5. Quantitative Program Targets

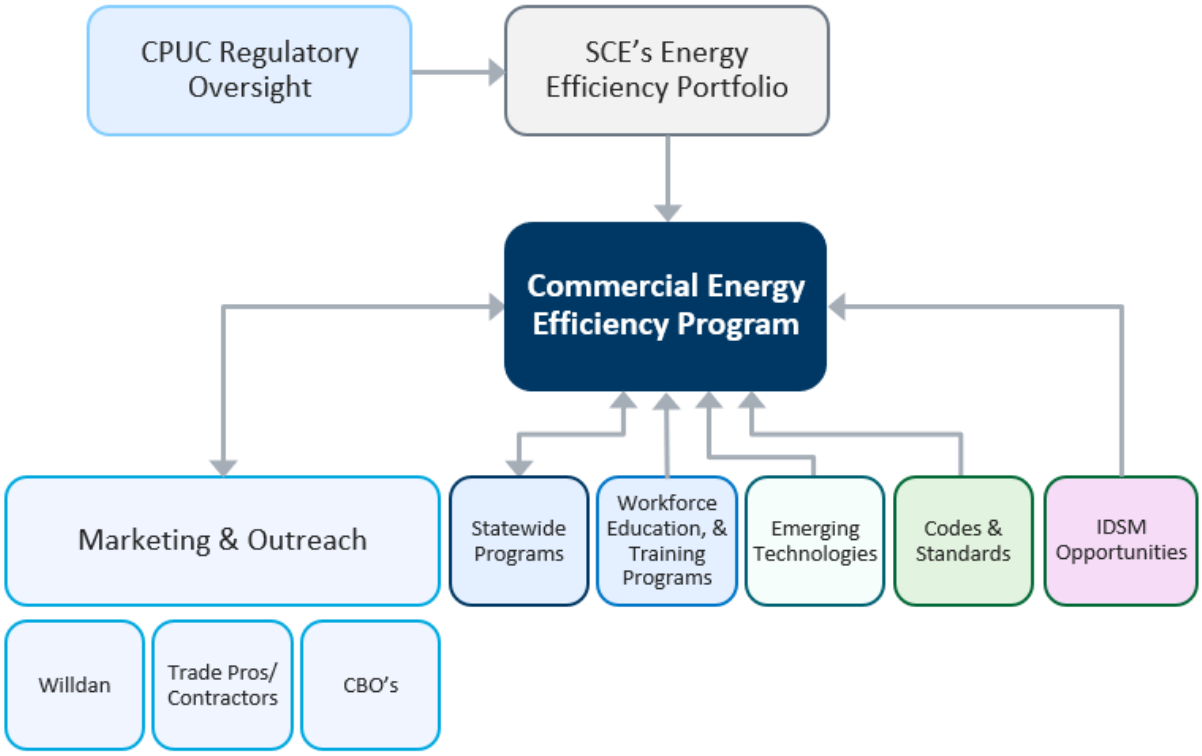
Year	2021	2022	2023	2024	2025	Total
Total Customers Served	2,400	7,300	7,700	7,700	7,700	32,800
Hard-to-Reach (HTR) Customers Served	40	1,390	1,390	1,390	1,390	5,600
Disadvantaged Community (DAC) Projects[1]	200	300	300	300	300	12,200
Incentives Delivered[2]	$1,187,794	$26,230,769	$39,271,542	$39,271,542	$39,271,542	$145,233,191

[1] *HTR and DAC customer counts should not be added together.*

[2]*Incentives delivered include materials, installation labor, turnkey services, project management, etc.*

6. Diagram of Program

Exhibit 7. Program Diagram



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

The purpose of EM&V at the program level is to provide ongoing performance feedback during implementation, produce impact evaluations once the program term is over, and to inform planning for future program cycles. To provide robust program EM&V, the implementation team ensures program data integrity through rigorous Quality Assurance/Quality Control (QA/QC) procedures and extensive records retention. These data collection and review strategies are embedded in the design of the program from end-to-end. This promotes accurate reporting and allows near-term optimization of Program performance.

The implementation team is committed to providing quality program delivery and meeting customer needs, compliant with CPUC requirements and statewide guidance. Willdan's Commercial Energy Efficiency Program integrates project and program management tools, providing a platform for sharing information with all stakeholders. The QA/QC procedures were developed and will be overseen by a team of industry experts, with emphasis on continuous improvement in response to QA/QC metrics, cost-effectiveness tracking, and any changes in legislation, regulation, and technologies.

Quality Assurance Plan (QAP) Features

The QAP has the following features:

- **Oversight by Industry Expert Partners:** Third-party program partners, including EM&V experts, oversee QA/QC training, review tool development and execution of QA/QC procedures, and provide full process review and analysis of program level metrics for Key Performance Indicators (KPIs). Our quality assurance effort integrates with M&V and drives continuous process evaluation and improvement.
- **QA/QC Process Review Tools:** Third-party program partners will oversee development and continuous improvement of QA/QC review documents consolidating guidance from various sources, and QA/QC checklists, refined from the existing CPUC checklist.
- **Early Screening:** Willdan justifies measure eligibility, influence, measure application type, and other measure attributes, then screens for project cost effectiveness before submitting applications. Willdan may opt to send completed Early Screening documents to SCE for approval before completing Pre-Installation package.
- **Enforcement, Documentation and Transparency:** Program staff enforce QA/QC procedures, requiring signoff of review checklists by senior level engineers before project advancement. The CEEP program implementer provides visibility to submittals and QA/QC documentation and tracks QA/QC metrics.
- **M&V Plans:** Custom and NMEC projects require development and execution of M&V plans, compliant with the most current versions of the Statewide Custom Project Guidance Document, CPUC NMEC Rulebook, LBNL site Level Technical Guidance and International Performance Measurement and Verification Protocol (IPMVP).
- **Customer Satisfaction:** The QAP reduces review times and errors, preventing erosion of savings and incentives with the aim of satisfying SCE customers.
- **Continuous Improvement:** Feedback of our QA/QC metrics will be used to revise our review tools and guidance documents as well as targeting training of Willdan engineers and Trade Pros.

Data Collection and Management to Support EM&V

Comprehensive and thoughtful data collection practices are vital for streamlining EM&V efforts. The implementation team will obtain and securely manage all data including internal and external program activities. Examples of these activities include customer interaction, targeting, outreach, project scope definition, project installation, QA/QC, invoicing, and performance tracking. EM&V industry expert partners provide feedback on our data collection process to ensure support for process and impact evaluations

8. Normalized Metered Energy Consumption (NMEC):

Program Measurement & Verification Overview

Measurement & Verification (M&V) is the process of using measurements to reliably quantify savings from a resource savings project within a facility, a process, a building, or a building subsystem. In investor owned utility (IOU) energy efficiency programs, the resource saved is typically energy (electric kWh or natural gas therms), demand (electric kW), or water (gallons). For simplicity, this plan focuses on energy savings, but the approach can be applied to any resource.

M&V is used to verify that an energy efficiency project is achieving its intended savings. Energy savings represents the absence of energy use and cannot be directly measured. Therefore, the M&V approach describes how savings are determined from measurements of energy use before and after implementation of a project, with appropriate adjustments made for changes in conditions. Such adjustments may be routine and expected, while others are nonroutine and unexpected, due to factors unrelated to the project.

The CEEP M&V Plan conforms to CPUC guidance as codified in its Rulebook for Programs and Projects Based on Normalized Metered Energy Consumption (NMEC Rulebook 2.0), issued on January 7, 2020. To meet CPUC guidance, the CEEP is a "Site-level NMEC Program."

Projects will be sorted for NMEC platforms based on the following criteria:

- Project site (or qualifying submeter) energy use models that meet goodness-of-fit criteria will be treated as NMEC.
- When NMEC is not applicable, the measure will be treated as Deemed or Custom.

Site-level NMEC Program M&V Plan

Site-level NMEC Overview

The NMEC Rulebook 2.0 provides the following definition for site-level NMEC approaches:

- Savings are determined on a site-by-site basis and claimed at the level of the individual site or project.
- The method used to estimate savings is developed based on building and/or site-specific characteristics and reflect the unique drivers of savings at the site or project.
- The method may include adjustments for site-specific non-routine events (NREs) that occurred at the site during the baseline, reporting, or installation period.

The CEEP will conduct site-level NMEC M&V following the framework in the International Performance Measurement and Verification Protocol (IPMVP), using the Option C-Whole Facility method. However, CPUC direction would take precedence over any variance to IPMVP methodology. All projects will be subject to CPUC review and dispositions.

This document covers the Program-level M&V. For each site-level NMEC project, a supplemental site-level M&V plan will be provided. These site-level M&V plans will include the site-specific details indicated above.

Methodology, Analytical Methods, and Software

The initial step in the NMEC approach is to create a mathematical model of the energy consumption at the project site (or submeter). This is a regression model, that relates energy consumption (the dependent variable), to one or more independent variables. The specifics of the regression model are determined by observing actual data. In the case of the baseline model, this data comes from the historical performance of the site.

In most cases, weather (outdoor dry-bulb temperature) is the primary independent variable for site-level NMEC models. Secondary variables (such as day-of-week, occupancy rate, or other variables describing operational variation) are added if they demonstrate significant explanatory power on energy use. After collecting 12-months of baseline data, one of three regression models is selected, based on data availability.

- **Model #1:** Daily Energy and Daily Weather Data (with Optional Daily Secondary Variable): Single variable (or optional two variable) least squares linear regression will be performed using 365 data points.
- **Model #2:** Hourly Energy and Hourly Weather Data: Time of Week and Temperature (TOWT): Temperature regression with time-of-week as a proxy for occupancy. Separate models fit within temperature buckets in each month. This allows analysis of sites with custom operation schedules.
- **Model #3:** Monthly Energy, Weather, and Secondary Variable Data: For sites that demonstrate strong correlations with a secondary variable, but have only monthly secondary data available, daily usage and weather data are totaled into monthly data. Two-variable least-squares linear regressions are performed using monthly data (minimum 12 data points).

NMEC modelling calculations will follow recognized CalTRACK 2.0 and LBNL NMEC procedures. These modelling calculations will have the following characteristics:

- Automated collection of utility AMI (or sub-meter) data, weather data import, and NMEC calculations compliant with NMEC guidance. Automation saves engineering effort.
- Scalable and not cost prohibitive for most customers and projects.
- Provision of monitoring capability (necessary for NMEC) and trigger notifications of potential sub-performance or NREs (persistence of savings).
- Calculation of statistical fitness metrics to validate appropriateness of a meter-based approach.

IPMVP Option and Measurement Boundary

IPMVP Option C, Whole Facility will be used for savings determination. Option C was selected because CEEP promotes upgrade projects that encompass multiple energy efficiency measures (EEMs) and may have interactive effects.

SCE's revenue meters will be used to provide reference consumption data for electricity savings calculations. These meters account for all energy use of the facilities. If a facility is served by more than one meter, then all EEMs must be properly attributed to the meter that tracks the associated load. Alternatively, meter-level consumption can be summed to the whole-building or site level so long as all meters are included that serve loads affected by the adopted EEMs. In rare cases, if a system submeter of appropriate accuracy is present, the submeter may be used for analysis.

Example: NMEC Regression and Normalization

Electricity is correlated with weather (and secondary variable if it demonstrates influence), using a least-squares linear regression model. Weather data takes the form of Heating Degree Days (HDD), and Cooling Degree Days (CDD). OpenEEMeter tools automatically defines HDD and CDD balance point temperatures that will provide the best correlation to the energy profile.

The typical mathematical form of the regression for Model #1 (defined above) follows:

$$\boldsymbol{kWh(daily) = A_e \times CDD\ (daily) + B_e \times Secondary\ Variable\ (daily) + C_e}$$

$$\boldsymbol{Therms\ (daily) = A_g \times HDD\ (daily) + B_g \times Secondary\ Variable\ (daily) + C_g}$$

Where A_e, B_e and C_e and A_g, B_g and C_g are the constants resulting from the electric and natural gas regressions, respectively. If there is no secondary variable, constants B_e and B_g are zero. If there is electric heat (e.g., heat pumps), an HDD term is automatically added to the electric regression formula. Constants

C_e and C_g are the base (non-temperature dependent) portion of consumption. The mathematical form for Model #3 is the same as that for #1 but uses monthly data. Model #2 (TOWT) uses hourly data.

Under this site-based NMEC approach, new regression models will be created for each project, using metered data from that particular site. Models will not be carried over from site to site, avoiding the concern of varying projects with complex sizes.

The resulting regression formula is then applied to the most recent typical year weather data for the appropriate climate zone to calculate baseline energy use over a normal weather year. This is the normalized baseline.

Adjustments for COVID-19

To account for the impacts of COVID-19 on energy consumption, a routine adjustment to gross savings will be used to ensure savings claims are not over or underestimated. Methods to perform this adjustment will be submitted to SCE before implementation. Any adjustment to project on account of Covid-19 shall be subject to and in compliance with CPUC approval.

The most straightforward method of adjustment for site-level NMEC will be to adjust the COVID19-impacted baseline period data associated with a project to reflect expected future site behavior more accurately. This adjustment could take the form of moving the baseline data collection window to look at a period unaffected by COVID-19 (e.g., 12 months prior to February 2020). More elaborate adjustments to the baseline models could also be made based on the site behavior as observed during the implementation period or reporting period.

The CalTRACK 2.0 methodology will be applied in an identical fashion to both the treatment and the comparison group. The 12-month baseline period and 12-month performance period will be set to occur over the same time period for both participants (treatment group customers) and the comparison group customers. Then, the change in energy consumption for each comparison group customer will be calculated as avoided energy use in accordance with the information in this document and external CalTRACK 2.0 documentation. Performance payments will be calculated as the difference-in-differences between the treatment group customers' avoided energy use and the comparison group customers' avoided energy use.

The process used to select comparison groups is informed by the Department of Energy-funded Comparison Groups Working Group led by Recurve Analytics, Inc. The working group facilitated open discussion via bi-weekly meetings and a public github forum. The findings of this effort can be found in the final report, Comparison Groups for the COVID Era and Beyond. The CEEP will follow the recommended methods included in that final report.

Data Collection Plan

The site-level NMEC approach allows for customization of M&V approaches based on site-specific characteristics and unique drivers of savings. The CEEP will create project-level M&V plans that describe project-specific data collection for each site-level NMEC project. What follows is a discussion of general program level guidance for site-level NMEC data collection.

For the purposes of NMEC savings evaluation, models of energy use at site level meters will be created for the baseline period (pre-implementation) and reporting period (post implementation) using 12 months of input data as required by NMEC guidelines. Data requirements and sources for creation of site-level NMEC energy use models are listed in **Exhibit 8** following.

Exhibit 8. Site-level NMEC Data Sources

Description of Data	Data Sources
SCE Utility Data: Electricity (15-minute or hourly); Natural Gas (daily)	• SCE: automated Green Button"Share My Data" and Building Benchmarking Portal • External: utility application programming interface (API) import (i.e., UtilityAPI) • Contingency: SCE Business Customer Account Representative assists with obtaining customer data; customer completes Customer Information Standardized Request (CISR) form
Other Independent Variable (e.g., occupancy rates)	• Data supplied by customer
Building Occupancy Schedule; Equipment Specifications, Schedules, and Sequences	• Observations from energy consultation • Building management system inspections • Building drawings, specifications, and staff interviews
Equipment Operating Parameters (e.g., chilled water and supply-air temperatures)	• Observations from energy consultation • Building management system inspections and trending • Data collection in keeping with the NMEC rulebook •
Weather Data (hourly or daily dry-bulb ambient temperatures)	• Automatic download from National Oceanic and Atmospheric Administration (NOAA) or Dark Sky websites into NMEC tools

Ex-ante savings estimates will be generated during the initial project investigation. Shorter term data will be gathered for these ex-ante savings estimates. These calculations will use industry standard tools (e.g., spreadsheet calculations, eQUEST models) and methods that are compatible with CPUC energy efficiency policy. **Exhibit 9**, following, shows examples of data collection that will be required for typical ex-ante savings estimates. This example data would be needed in addition to what is shown for the NMEC models in **Exhibit 8** above.

Exhibit 9. Example Data Requirements for Ex-Ante Savings Estimates

Data Point and Units	Typical Measure Relevancy	Data Source – Measurement Device	Data Duration/Interval
CHW Pump #1 & #2 Operating Speed (Hz)	HVAC	Building Management System (BMS) Trending	May 1 to June 15 / 15-minutes
Secondary CHW Loop Cooling Load (tons)	HVAC	BMS Trending	May 1 to June 15 / 15-minutes
AHU-1 Supply Fan Operating Speed (Hz)	HVAC	BMS Trending	May 1 to June 15 / 15-minutes
AHU-1 Supply, Return Mixed Air Temperatures (°F)	HVAC	BMS Trending	May 1 to June 15 / 15-minutes

Monitoring and Documentation During the Reporting Period

Implementation team engineers (or contractors) will remotely observe energy consumption data for each site-level NMEC project on a routine schedule over the reporting period. The reporting period observation frequency will be set for each project based on size and risk when completing the Pre-Implementation project-level M&V Plan. Observations will be frequent at first (typically monthly), but intervals will increase over time if performance is found to be stable. The purpose of these observations is to identify out-of-range performance or potential non-routine events (NREs) triggering investigation and corrective action. Performance indicating 10% or more savings variance will be considered a justifiable significant NRE triggering further evaluation (ASHRAE 14 Guideline).

Projects incorporating Energy Management Technologies (EMTs) will incorporate continuous monitoring and automated flagging of out-of-range performance and potential NREs for further investigation.

Project-level M&V reports will be submitted to SCE as required during the standard NMEC-Custom project workflow. SCE reviewers will also be allowed remote access to all NMEC program participant EMT portals, to verify performance and accuracy of M&V reports. Supporting data will be available to SCE reviewers through the program's online platform or can be sent directly by request. The M&V reports, with the data, will provide sufficient detail for SCE reviewers to replicate the NMEC results.

Identifying and Adjusting for Non-Routine Events

NREs are unexpected changes in building operation that significantly impact energy use, skewing meter-based results. NREs may occur during baseline, implementation or post M&V periods, and may be one-time occurrences which must be isolated from the regression model, or recurring events requiring adjustments incorporated into the model.

Site-level NREs will be identified by observing baseline and reporting period energy use and identifying where savings deviate from ex-ante estimates by greater than 10% (ASHRAE 14 Guideline). These deviations will be further evaluated, and corrective action will be taken in the form of adjustments to the savings models and/or modifications to the installed measures.

Significant NREs will be quantified regardless of whether they have a positive or negative impact on savings. Typical potential NREs for CEEP customers are:

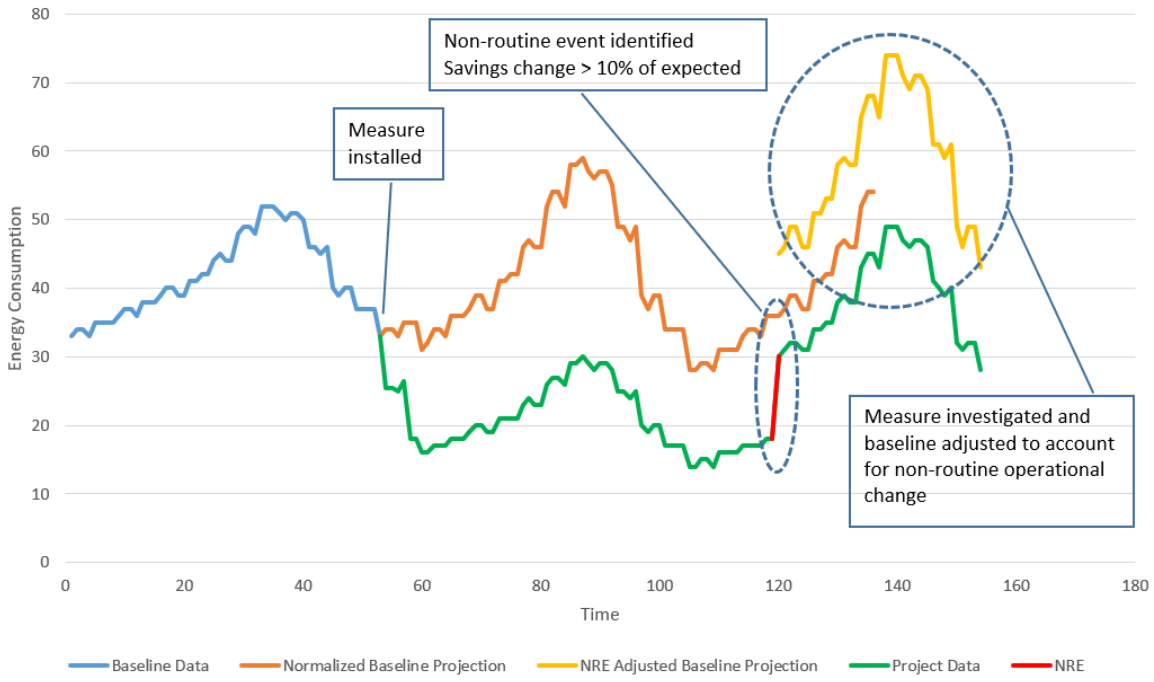
- Equipment outages or maintenance shutdowns
- Equipment replacements, additions, or removals unrelated to program measures
- Building use or tenancy changes, and
- Construction or facility closures.

Typical methods employed to prevent NREs from skewing NMEC results are:

1. Remove the data points from the regression data set during the NRE:
    a. Data points associated with NREs during the baseline period will be removed if they constitute a small portion of the overall data, and remaining data points contribute to models exhibiting acceptable goodness of fit. Where this is not the case, the associated projects will be moved to custom or deemed savings platforms or rejected from the program as appropriate.
    b. Data points associated with NREs during the performance period will only be investigated if they cause project savings to move above or below a preset threshold. Before data-point removal, these projects will undergo manual review and investigation by program engineering staff to determine the true nature of the NRE and will be submitted to SCE for approval.
2. Quantify the impact of the NRE by performing measurements and calculations in compliance with custom calculation guidelines for each NRE. Calculated NRE adjustments will be normalized.
3. For deviation caused by project related systems, reconfigure to operate as intended.

Exhibit 10, following, depicts how an NRE is identified and adjusted for. In this example, the customer site implemented increased operating hours during the reporting period.

Exhibit 10. Identifying and adjusting for a typical NRE



Determining Program Influence

Influence for NMEC projects will follow the same procedures as for custom projects, following SCE's free-ridership screening processes. The program's Early Screening QA/QC procedure step requires

determination and documentation of program influence. This screening identifies customers' plans for upgrades and/or replacements, barriers to implementing higher efficiency options, and the incentives or services needed to overcome these barriers. This step requires description of the options presented to customers, normal replacement practices for the customer, and how the monetary incentives, technical services or financing assistance influenced the customer to invest in higher efficiency. The following documents will be submitted to demonstrate influence:

- Timeline of customer-implementer meetings, deliverables, and decision-making milestones
- Documentation of customers replacement and/or upgrade practices, plans, and budgets.
- Reports and business cases of options presented to customer (requires measure level preliminary or *ex-ante* savings estimates).
- Customer-implementer correspondence (e-mails, letters, meeting notes, letters, etc.)

All influence documentation associated with each project will be uploaded and stored in the program's online platform.

Depth of Savings Thresholds and Model Accuracy

CEEP will not use Site-level NMEC methodology on projects that save less than 10% of the site's annual energy consumption as measured at the meter or submeter level. Site-level NMEC models' goodness-of-fit between energy use and the independent variables will meet thresholds suggested in the LBNL NMEC Guidance and ASHRAE Guideline 14.

Incentive Structure

Site-level NMEC savings will be claimed by SCE in accordance with the provisions under the Agreement and the CPUC guidelines. These savings will be calculated based on *ex-ante* savings estimates and adjusted as needed by changes in project details (e.g., scope, operating parameters) found during post-implementation inspections and review. Software and calculation methods are discussed in the M&V Plan Subsections "Methodology, Analytical Methods, and Software" and *Expected Costs, Energy Savings, Peak Impacts and EULs* "

Once the performance period data collection period is over and true NMEC savings are calculated, the program savings will be trued-up against the prior savings claimed at the end of project installation. This savings true-up will be implemented in the form of reductions in current project savings at the time the true-up process is implemented.

Program payments to customers will be split in portions between payments tied to installation, and a follow-up payment provided after the performance period has been evaluated. See the M&V Plan Subsection "Customer Incentives" for more detail. In the event that savings degrade during the performance period to the point that the upfront payment was found to be in excess (i.e., greater than the NMEC verified savings multiplied by the appropriate incentive rates), the Implementer will evaluate whether excess incentive paid is above a threshold value and responsibility for savings degradation and decide whether to recover incentive funds from the customer.

Customer Incentives

Maximum customer incentives will be calculated based on net, lifecycle savings. Lifecycle savings will be based on project-level EULs (see the M&V Plan Subsection "Project Level EULs").

EULs for electric energy and gas energy (kWh and therms) will be discounted for the purposes of incentive calculations.

Net, discounted lifecycle savings will be multiplied by site-level NMEC incentive rates to calculate the maximum incentive. These calculations will be based on *ex-ante* savings estimates, which will then be trued-up to NMEC measured savings once obtained.

Maximum incentive calculations may receive a DAC, HTR, or Grid Constrained Load Shape Benefit multiplier where justified.

Depending on customer barriers and needs, the calculated maximum incentive may be provided as equivalent technical or financing services, or as direct cash incentives.

Expected Costs, Energy Savings, Peak Impacts and EULs

Program estimates of costs, energy savings, peak impacts and effective useful life of project measures are based on Database for Energy Efficient Resources (DEER) values and latest workpapers. Costs from previously implemented projects or other reputable sources (e.g., RS Means) may be used when DEER or approved workpaper values are unavailable.

Project Level EULs

Project level EULs will be calculated as weighted averages of individual measure level EULs that make up a given project. Weighting of the measures in these calculations will be based on the individual measure level savings converted to BTUs. Savings for the purposes of this calculation are estimated first-year savings.

Individual measure level EULs will be based on the most updated DEER values and CPUC guidance. If a DEER EUL does not exist for a measure, the implementation team will propose an estimated EUL for SCE approval.

To facilitate EUL estimating, the implementation team will collect site-level data for the implemented measures and document any equipment being replaced.

Program Target Population and Eligibility

The CEEP serves commercial customers of all types (including HTR, DAC), sizes (small, medium, large), and geographic regions (all of SCE's distribution planning regions [DPRs]).

All customers without excessive variability in operations and occupancy (except industrial processes) that meet savings levels and statistical fitness thresholds are eligible for NMEC. NMEC will be used for project bundles with interactive, predominantly existing baseline (AR, AOE and BRO), measures. The program's Early Screening step includes screening for NMEC. This includes verification of an appropriate utility meter location (or sub-meter location meeting accuracy requirements as found in LBNL NMEC Guidance), and permissible project types. Site-level NMEC will not be used for projects with *ex-ante* savings estimates below 10% of baseline energy consumption. Eligible site-level NMEC projects must be able to have their energy use simulated with models meeting statistical goodness-of-fit thresholds suggested in the LBNL NMEC Guidance and ASHRAE Guideline 14.

To-Code Savings Insight

Insight into questions surrounding to-code savings will be generated during the program's Early Screening QA/QC procedure. This step includes an identification of customers' business-as-usual plans for upgrades and/or replacements, the customers' barriers to implementing higher efficiency options, and the incentives or services needed to overcome these barriers. The following documents will contribute to insight into why these customers currently operate below code requirements:

- Documentation of customers replacement and/or upgrade practices, plans, and budgets.
- Reports and business cases of options presented to customers (requires measure level preliminary or *ex-ante* savings estimates).
- Customer-implementer correspondence (e-mails, letters, meeting notes, letters, etc.)

See the "For Programs Claiming To-Code Savings" section of the Implementation Plan, above, for more information.

Bid M&V Plan

An M&V Plan was included in the Implementer's original bid.

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