# CONFIRMATION UNDER THE NCPA SUPPORT SERVICES PROGRAM AGREEMENT

- 1. This is a Confirmation pursuant to the Support Services Program Agreement and subject to the terms and conditions of that agreement, except as expressly provided in this Confirmation. All capitalized terms have the meaning given to them in the Support Services Program Agreement.
- 2. The Participating Member for this Confirmation is the CITY OF SANTA CLARA in the amount of not-to-exceed \$811,158.97 for the Efficiency Services Group, LLC services described in paragraph 3.
- 3. CITY OF SANTA CLARA requests the following described Support Services in the dollar amount specified above, as follows:

Efficiency Services Group, LLC (ESG) shall provide its "Keep Your Cool" Commercial Refrigeration Direct Install Program as designed to meet the goals and objectives of the City of Santa Clara/Silicon Valley Power to help commercial business owners save a significant amount of energy. The Program includes Customer Recruitment, Site Audit Report, Project Logistics, Retrofit Installations, Quality Assurance/Quality Control, Program Metrics and Measures, Budget Tracking and Invoicing, Contractor Management, and related Tasks, as specifically outlined in its proposal dated September 6, 2019, copy attached and incorporated herein. The services shall commence in FY 2020 and continue through FY 2021.

Pursuant to the Shared Services Agreement between NCPA and the Southern California Public Power Authority (SCPPA), NCPA agrees to provide the support services in accordance with the Goods and Services Agreement between Southern California Public Power Authority and Efficiency Services Group, LLC dated July 19, 2018, and the Task Order executed among SCPPA, NCPA, and ESG for these services.

- 4. The Participating Member executing this Confirmation agrees to pay for the Support Services in the not to exceed amount specified in paragraph 2, above; plus the Administrative Cost of not-to-exceed \$3,655 (\$685 to develop the Confirmation and first month of administration plus \$165 per month for each additional month administrative costs are actually incurred), in accordance with the provisions of the Support Services Program Agreement. The total amount expended under this Confirmation will not exceed \$814,813.97.
  - 5. A Security Account deposit is not required for this Confirmation.

Participating Member:	
CITY OF SANTA CLARA By its Designated Representatives:	NORTHERN CALIFORNIA POWER AGENCY
Deanna J. Santana, City Manager	Randy S. Howard, General Manager
And	

Brian Doyle, City Attorney	Cary A. Padgett, Assistant Secretary to Commission
	Approved as to form:
	Jane E. Luckhardt, NCPA General Counsel



# COMMERCIAL REFRIGERATION DIRECT INSTALL PROGRAM

Submitted by Efficiency Services Group, LLC

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Submitted in Accordance with City of Santa Clara, DBA Silicon Valley Power

REQUEST FOR PROPOSAL
FOR
Third Party Energy Efficiency Programs

September 6, 2019

#### **Program Description**

The goal of the Commercial Refrigeration Direct Install Program is to help commercial customers of Silicon Valley Power (SVP) save energy by providing low-risk, high-return refrigeration upgrade measures. The program is marketed under the name Keep Your Cool (KYC). ESG and our program partner have effectively delivered this program in over ten utility service territories throughout California and have successfully completed thousands of refrigeration upgrade projects over the last six years.

#### Overview

The KYC program has proven to be a very popular program with the utility customers that have been served in the past and is currently operating with high customer satisfaction.

ESG believes that offering this program will provide the opportunity for SVP to:

- Strengthen their customer relationships by providing a great customer experience in the program
- Afford significant energy and cost savings to targeted customers
- Contribute savings toward AB2021 targets

The success of the program requires the effective implementation of four strategies:

- 1) Selection of a comprehensive mix of measures to address the upgrade opportunities identified at customer sites.
- 2) Identifying eligible customers with the need for refrigeration upgrades, and effectively presenting the program to them and securing their participation.
- 3) Installations by professional and experienced field technicians.
- 4) Complete and accurate invoicing and reporting of all program activity to SVP.

The KYC program is designed to perform well in all phases of the program.

#### Mix of Measures

The KYC program began several years ago by offering gaskets, strip curtains and door closers. Over the years, additional measures have been added to program. ESG proposes that SVPs program include the following measures:

- Strip Curtains
- Door Closers
- Anti-Sweat Heater (ASH) controls
- Electronically Commutated Motors (ECM)
- Q-Sync Motors
- Motor Controllers
- LED Case Lighting
- LED Canopy Lighting
- LED T8 Lamps in horizontal cases
- Retrofit Doors for Open Cases

#### **Measure Descriptions**

#### **Strip Curtains**

Walk-in cooler and freezer doors often stand open for extended periods of time while product is being moved in and out. Strip curtains are installed in walk-in cooler and freezer doors and substantially reduce the amount of warm air entering the coolers during stocking.

# **Door Closers**

The door latches on walk-in cooler and freezer doors often do not fully hold the door closed. Door closers hold the doors snugly closed, reducing the amount of warm air entering the cooled areas.

#### Anti-Sweat Heater (ASH) Controls

Reach-in cooler doors have heaters in the frames that turn on each time they are opened to clear the frost that appears from humidity condensing on the glass. This is to prevent frost/condensation from hindering the view of the product. ASH controllers sense the humidity in the air and override the door-frame heaters from coming on when humidity levels are low.

#### Electronically Commutated Motors (ECM)

ECMs are electronic, lower wattage, variable speed capable motors that replace standard, shaded pole motors on evaporator fan motors.

#### Q-Sync Motors

The Q-sync motor is a permanent magnet, synchronous AC motor (PMSM). The design is inherently more energy efficient than all current motor technologies, including electronically commutated, due to a number of design improvements. It operates at a higher power factor than ECM, utilizes AC power, eliminating an inefficiency as well as electronics which in turn improves the reliability. Because of the simplified design the cost is similar to existing EC motors on the market. As a result, it is not only possible to realize greater gains when replace shaded-pole and PSC motors, but it is cost-effective to upgrade aging EC motors with PMSM technology. The Emerging Technologies Coordinating Council has recommended in project report ET15SDG1061 that these motors be integrated into incentive programs. The Dept. of Energy has also funded studies showing reliable energy savings moving from EC to PMSM technology.

# **Motor Controllers**

Motor controllers sense the outdoor temperature and reduce the RPMs of the ECMs on cooler days when cooling loads are lighter. By operating at lower RPMs, motor controllers provide additional savings over and above the wattage reduction achieved by the ECMs.

#### **LED Case Lighting**

LED case lights replace fluorescent T12s and T8s in reach-in coolers. Many customers feel that LED case lights improve the look of product being displayed. This is the most visible measure to the customers and is therefore one of the most popular measures.

#### **LED Canopy Lighting**

LED canopy lights replace HID lights in the canopies over gas station pumps. This measure is usually installed in conjunction with other KYC measures installed in gas station food marts.

#### LED T8 Lamps in horizontal cases

LED T8 lamps can easily replace horizontal fluorescent T8 lamps in meat, produce and dairy cases in grocery stores. T8 LEDs can be installed on the first visit to customer site or installed at the same time as other KYC measures are being installed at a customer site.

## **Retrofit Doors for Open Cases**

Adding doors to open medium temperature refrigerated cases significantly reduces energy use. Retrofit doors installed in this program will not have anti-sweat heaters.

# **Subscribing the Program**

In 2017 and 2018, ESG provided the KYC program for SVPs small to mid-sized commercial customers. While in the service territory, we discovered that many customers have already upgraded their equipment. However, some larger customers still had opportunity. In addition to first-hand experience with SVPs commercial customers, ESG will employ the successful targeting/subscribing strategies used in other utility service territories. These may include sending postcards announcing the program and visiting customer sites to present the program to prospective customers. The following customer types will be targeted in the KYC program:

- Restaurants
- Food Marts
- Liquor Stores
- Grocery Stores
- Schools and other institutions with commercial kitchens
- Florists

#### **Professional Installations**

All installations in the KYC Program will be performed by experienced technicians with an emphasis on a great customer experience in the program.

#### **Customer Satisfaction**

ESG assures that any customer questions or concerns are addressed and resolved before closing the project and invoicing SVP. ESG and our program partner understand the importance of emphasizing with the customer that the program is coming from SVP and using the program experience to help SVP build/strengthen their relationships with their customers.

#### **Reporting and Invoicing**

ESG thoroughly understands the CEC reporting requirements for utility energy efficiency programs. Because of this, ESG can generate complete and accurate activity report and invoice formats that make it easy for SVP

to track budgets, program expenses, and report program results to the State. ESG will prepare monthly activity reports and invoices as required by SVP.

#### **Turnkey Administration**

ESG will provide complete turnkey program administration, including:

- Program development (product selection, marketing materials, customer outreach)
- Customer service/support
- Measure installation
- Warranty fulfillment
- Reporting/invoicing
- CEC compliance support

# **Program Targets**

This program is designed to target any customers with commercial refrigeration. SVP's service territory contains approximately the following number of potential commercial accounts which could take advantage of the measures included in this program:

Туре	Estimated kWh by Business Type
Restaurants	20,181
Bars	257,382
Liquor Retail	149,341
Florists	13,842
Hotels	32,034
Education	11,923
Small/Medium Grocery	1,281,348
Supermarket	1,010,261
Totals	2,776,312

#### **Incentive Structure**

In order to achieve SVP's cost effectiveness goals, the program measures be will be offered at a 30% co-pay to customers. SVP will pay 70% of the measure cost and the administrative fee. The incentive structure is based on per unit pricing for installed measures. SVP is only charged for measures installed, which guarantees that reportable energy savings are associated with all program costs. The following table reflects the 70% measure cost plus administrative fees and does not include the customer co-pay.

Measure	Cost Unit	Per Unit Cost to SVP
ASH Controller: Coolers	door	\$147.92
ASH Controller: Freezers	door	\$230.52
Auto Door Closer: Reach-In, Cooler	closer	\$114.48
Auto Door Closer: Reach-In, Freezer	closer	\$114.48
Auto Door Closer: Walk-In, Cooler	closer	\$150.62
Auto Door Closer: Walk-In, Freezer	closer	\$150.62
ECM Motor Controller	controller	\$897.55
Horizontal Case Lights	linear feet	\$7.27
LED Canopy Light	fixture	\$560.88
LED Case Light	fixture	\$259.19
Programmable EC Motor (3/4 HP, 5.6A)	motor	\$485.61
Programmable EC Motor (1/2 HP, 4.0A)	motor	\$464.97
Programmable EC Motor (1/3 HP, 2.6A)	motor	\$399.91
Programmable EC Motor (1/15 HP, 1.8A)	motor	\$221.64
Programmable EC Motor (1/47 HP, 1.1A), 16W	motor	\$180.35
Programmable EC Motor (1/5 HP, 3.2A)	motor	\$392.68
Q Sync Motor (1/15 HP), replacing Standard Motor	motor	\$221.64
Q Sync Motor (1/15 HP), replacing EC Motor	motor	\$221.64
Q Sync Motor (1/47 HP), replacing Standard Motor	motor	\$180.35
Q Sync Motor (1/47 HP), replacing EC Motor	motor	\$180.35
Retrofit Doors for Open Cases	linear feet	\$377.00
Strip Curtain: Walk-in	square feet	\$9.47

#### **Program Budget**

The KYC program fees are on a price per measure basis. All program costs, including program development, program administration, marketing, measure installation, and customer follow-up are covered in the fees for measures installed. This model allows SVP to only pay for measures that are installed and allows SVP to scale the program budget up or down as needed.

A Program not to exceed budget of \$815,000 is expected to serve approximately 15 to 30 businesses. The actual number of customers served will be determined by the size of the customers that ultimately participate. The projected quantities and budget by measure are as follows:

Measure	Cost Unit	Per Unit Cost to SVP	Estimated Units	Estimated Cost to SVP
ASH Controller: Coolers	door	\$147.92	582	\$86,092.07
ASH Controller: Freezers	door	\$230.52	25	\$5,763.07
Auto Door Closer: Reach-In, Cooler	closer	\$114.48	15	\$1,717.22
Auto Door Closer: Reach-In, Freezer	closer	\$114.48	10	\$1,144.82
Auto Door Closer: Walk-In, Cooler	closer	\$150.62	12	\$1,807.45
Auto Door Closer: Walk-In, Freezer	closer	\$150.62	10	\$1,506.21
ECM Motor Controller	controller	\$897.55	22	\$19,746.08
Horizontal Case Lights	linear feet	\$7.27	956	\$6,946.94
LED Canopy Light	fixture	\$560.88	10	\$5,608.75
LED Case Light	fixture	\$259.19	311	\$80,477.72
Programmable EC Motor (3/4 HP, 5.6A)	motor	\$485.61	25	\$12,140.37
Programmable EC Motor (1/2 HP, 4.0A)	motor	\$464.97	25	\$11,624.18
Programmable EC Motor (1/3 HP, 2.6A)	motor	\$399.91	25	\$9,997.86
Programmable EC Motor (1/15 HP, 1.8A)	motor	\$221.64	543	\$120,350.54
Programmable EC Motor (1/47 HP, 1.1A), 16W	motor	\$180.35	543	\$97,927.47
Programmable EC Motor (1/5 HP, 3.2A)	motor	\$392.68	25	\$9,816.99
Q Sync Motor (1/15 HP), replacing Standard Motor	motor	\$221.64	35	\$7,757.40
Q Sync Motor (1/15 HP), replacing EC Motor	motor	\$221.64	35	\$7 <i>,</i> 757.40
Q Sync Motor (1/47 HP), replacing Standard Motor	motor	\$180.35	35	\$6,312.08
Q Sync Motor (1/47 HP), replacing EC Motor	motor	\$180.35	35	\$6,312.08
Retrofit Doors for Open Cases	linear feet	\$377.00	800	\$301,600.00
Strip Curtain: Walk-in	square feet	\$9.47	924	\$8,752.24
Total				\$811,158.97

#### **Term**

This program will begin upon contract approval until program and end on June 30, 2021.

# **Program Strategy/Avoiding Lost Opportunities**

This program is a completely turnkey offer. The KYC Program has a proven success in gaining access to customer businesses by going door-to-door and by making several callbacks if needed to assure the customer has multiple interactions with the program and lost opportunities are minimized. ESG's knowledge of SVP's

service territory and commercial customers will allow us to effectively target and approach customers, present the program, and persuade them to participate.

#### **Program Objectives**

Program objectives include:

Objective #1: Employ effective marketing/sales strategies to persuade customers to participate in the program

Objective #2: Fully utilize the budget allocated to the program

Objective #3: Maintain a 100% customer satisfaction rate

#### **Program Metrics**

The proposed metrics for this program include but are not limited to, the following:

- # of business subscribed
- # of measures installed
- Amount of program budget utilized
- Mix of measures installed
- Customer satisfaction

All program metrics will be tracked on a monthly and program-to-date basis. Metrics will be generated by site audit data detailing measure upgrade opportunities, verified measures installed, and customer satisfaction. Activity reports will include a budget tracker to show how much of the program budget has been utilized and the amount of remaining program budget.

# **Program Implementation**

ESG anticipates that program development tasks will be completed within 30 days of notice to proceed from SVP. These tasks include, but are not limited to:

- Working with SVP to finalize the program mix of measures
- Preparation of reporting and invoicing templates
- Prepare target list of customers to be approached
- Preparation of introduction letter from SVP and other program promotional materials

The term for the program is two years. If SVP allocates more or less funding to the program, the program delivery timeline will be adjusted accordingly.

# **Program Development**

## Task: Finalize Customer Eligibility

All SVP customers with commercial refrigeration equipment are eligible to participate. ESG and SVP will work together to verify that customer's electricity is provided by SVP.

#### Task: ESG and Staff Training

ESG will train the marketing, administrative and installation staff on the specifics of the SVP program and protocols.

#### **Task: Marketing Materials**

ESG will update marketing materials (program flyers, utility letters, door hangers, post cards etc.) from the previous program. ESG will obtain SVP's approval of all collateral prior to distribution. SVP will provide ESG with any leave-behind materials which are intended to promote other SVP programs/services.

#### Task: Customer Outreach

ESG has found that employing a door-to-door outreach approach is very successful for this type of program. ESG will prepare a list of customers to be approached in the program that will allow us to market the program in an efficient and effective way. ESG understands the sensitivity of customer information and will assure it is only used in the context of delivering the services approved for this program.

ESG may request that SVP mail a utility-endorsed letter to customers in the targeted geographic area(s) or on the targeted customer list in order to announce the program and "warm up the doors" for the KYC marketing staff.

#### **Program Delivery**

#### Task: Customer Service/Support

The KYC Program will have a local phone number for customers to call with general inquiries and to schedule appointments for site visits. This number will connect customers directly to program staff that can answer questions about the program and put them in a queue for an on-site visit by program subscription staff. ESG also staffs a toll-free program hotline for multiple utility programs which can be used for customer service/support at the request of SVP. This assures that SVP customers will always be able to get in touch with KYC program staff.

# Task: Refrigeration Audits

The KYC subscription staff will visit customer sites to present the program and sign them up to participate. The following are the objectives for the site visit.

- Identify the decision maker and present the program to them.
- Gain permission to perform a refrigeration audit.
- Evaluate refrigeration equipment and identify energy upgrade opportunities.
- Prepare a customer project proposal including a work order itemizing measures, customer signature documents.
- Forward work order and signature documents to program administrative staff.
- Persuade customer to participate and have them sign signature documents.

#### Task: Measure Installation

The KYC installation staff will perform the following when installing KYC measures.

- Order product necessary to complete the project.
- Contact customer to schedule the installation appointment.
- Install all measures and assure they are functioning correctly before completing the project.
- Get customer signature on completion documents.
- Notify ESG that project is complete.

#### Task: Warranty Fulfillment

Technicians engage in a walk-through process with customers prior to job close, ensuring customer is fully satisfied and all issues are resolved at project completion. Customers also have unlimited access to ongoing technical support after project completion in order to address issues with equipment performance that arises after post inspection. KYC answers calls from Participants during normal business hours. During non-business hours, Participants are encouraged to leave a message for an on-call technician who can expedite a return call. Steps taken for issue resolution are first a phone troubleshoot, warranty on-site troubleshoot if needed, and finally warranty product replacement if needed. Measures installed under the KYC program have a minimum 1year warranty from date of installation (parts and labor). Warranty periods for KYC Measures are:

MEASURE	PARTS WARRANTY	INSTALLATION WARRANTY	
Q SYNC MOTORS	2 Year	1 Year	
STRIP CURTAINS	1 Year	1 Year	
HARDWARE	1 Year	1 Year	
ECMs	2 Years	1 Year	
MOTOR CONTROLS	5 Years	1 Year	
LED CASE LIGHTS	1 Year	1 Year	
ASH CONTROLS	1 Year	1 Year	
LED LIGHTS	50,000 Hours	1 Year	

#### Task: Reporting/Invoicing

Detailed customer, site and measure installation data will be reported to SVP in Excel spreadsheet format. All reports will be submitted to SVP on a monthly basis, along with the monthly invoice for work completed. Reports will include all customers served, and detailed information regarding measures installed at each customer site.

#### Task: CEC Compliance Support

ESG will maintain the documentation necessary to support SVP's reporting requirements (SB 1037, EM&V) for no less than five years.

#### **Payment Schedule**

All program costs will be paid on a per-unit-installed basis. Per-unit prices include all costs associated with program development, program implementation, administration and marketing/outreach of the program. ESG shall bear the time and material costs associated with program development tasks and recover those costs upon successful installation of measures (via the per-unit prices); there is no risk of SVP incurring costs with no associated energy savings.

ESG will submit invoices to SVP monthly, accompanied by detailed reports on work performed by customer/business.

In the event that an invoice error is identified by SVP, a corrected invoice will be submitted by ESG within five business days of receiving notification from SVP.

#### **Customer Interface**

ESG will employ the same successful recruitment strategy utilized in delivering this program for numerous utilities. Effective recruitment of program participants begins with the coordination of effort between ESG and SVP. Target customer lists will be generated based on the results of ESGs snapshot audit program and the marketing efforts of previous refrigeration programs in SVPs service territory. ESG is recommending that eligibility for the program be any SVP commercial customer that uses refrigeration in their business that can be addressed with the KYC measures.

The KYC program has been successfully subscribed utilizing a cold-call approach. However, the KYC subscription staff has the most success when the doors have been "warmed up" for them. For example, a post card describing the program, or a utility-endorsed letter can be sent to customers that are located in the targeted geographic area(s). Following this initial contact, the KYC subscription staff will be deployed to follow-up with customers in the target area(s). If the subscription staff is unable to gain access to a customer site, leave-behind materials will be provided and will include information for the customer to schedule a future visit.

#### **Subcontractor**

ESG will serve as the program administrator for the Keep Your Cool Program. In addition, ESG has one partner we plan to have help in the implementation of the program. ESG has had a relationship with this partner for several years and have successfully delivered utility programs with both. Our program partner is:

Redwood Energy Services, PO Box 7072, Menlo Park CA 94026

**Efficiency Services Group** key program personnel include:

Mark Gosvener, COO – Contract related issues and general oversight of the program.

**Miranda Boutelle, Program Manager** – Program administration, coordination with General Pacific, reporting, invoicing, main point of contact for SVP.

ESG program administration responsibilities include:

- Communication with SVP. ESG will serve as SVP's point of contact for anything related to the Residential Program.
- Coordinating all program development tasks for program partners
- Activity reporting and invoicing
- Budget tracking
- Customer follow-up visits and measure verification

# **Redwood Energy Services** key personnel:

**John Pink** is the program representative from Redwood Energy Services. John will coordinate with ESG regarding program subscription activities and will oversee all aspects of measure installation. Tasks will:

- Initial customer outreach and program subscription activities
- Ordering product to be installed at customer sites
- Measure installation
- Submitting project paperwork to ESG

#### **Quality Assurance and Measure Verification Activities**

Projects will not be closed until customers have indicated satisfaction with all services provided and they have signed the Project Completion Form.

#### **Customer Complaint Resolution**

Customer complaints are dealt with on a case-by-case basis depending on the specific needs of the customer. Customers may call ESG directly on our toll-free line or contact Redwood Energy Services directly. Phone numbers will be listed in program marketing materials, and on a door tag attached to each door that is serviced in the program. Customer complaints are considered urgent and receive an immediate call-back from a KYC representative. Every effort is made to resolve the customer complaint completely and promptly.

When ESG performs the follow-up site visit, the customer is asked if they have any questions or concerns. Any concerns or complaints are forwarded via email to the KYC representative responsible for its resolution, and the responsible person is required to send an email reply that the complaint has been resolved and the customer is completely satisfied.

# **Marketing Activities**

Experience has shown that customer response to the program is significantly improved by endorsement from their utility. This can be accomplished by SVP mailing a letter to a targeted list of customers prior to the deployment of the KYC subscription staff. Field staff will have a copy of the utility endorsement or reference it when they approach businesses.

ESG will coordinate with SVP to determine which promotional materials will be used in the program and produce custom marketing materials for SVP's program. These materials may include, but are not limited to:

- Utility letter
- Postcards
- Door Hangers
- Product Information Sheets
- Warranty Flyers

ESG has experienced tremendous success accessing customer facilities and securing their participation. Customers typically display a positive response to an unscheduled visit because the subscription staff represent a known entity (SVP).

# **Savings Estimate per Item**

Measure	Estimated Units	Estimated kWh	Estimated kW	Source
ASH Controller: Coolers	582	217,668	25.608	TRM (version 6.9.16)
ASH Controller: Freezers	25	13,900	0.025	TRM (version 6.9.16)
Auto Door Closer: Reach-In, Cooler	15	5,970	1.125	PGECOREF113 R1 Auto Closers for Reach in Cooler or Freezer Doors.doc
Auto Door Closer: Reach-In, Freezer	10	12,050	2.27	PGECOREF113 R1 Auto Closers for Reach in Cooler or Freezer Doors.doc
Auto Door Closer: Walk-In, Cooler	12	11,772	1.716	TRM (version 6.9.16)
Auto Door Closer: Walk-In, Freezer	10	23,650	3.63	TRM (version 6.9.16)
ECM Motor Controller	22	69,344	7.92	TRM (version 6.9.16) average of measures/custom calculation
Horizontal Case Lights	956	55,448	9.56	TRM (version 6.9.16)/custom calculation
LED Canopy Light	10	11,620	0	TRM (version 6.9.16)/custom calculation
LED Case Light	311	230,702	31.671	TRM (version 6.9.16) average of measures/custom calculation
Programmable EC Motor (3/4 HP, 5.6A)	25	69,550	7.95	TRM (version 6.9.16)/custom calculation
Programmable EC Motor (1/2 HP, 4.0A)	25	63,950	7.3	TRM (version 6.9.16)/custom calculation
Programmable EC Motor (1/3 HP, 2.6A)	25	49,850	5.7	TRM (version 6.9.16)/custom calculation
Programmable EC Motor (1/15 HP, 1.8A)	543	577,752	65.703	TRM (version 6.9.16)/custom calculation
Programmable EC Motor (1/47 HP, 1.1A), 16W	543	221,544	25.521	TRM (version 6.9.16)/custom calculation
Programmable EC Motor (1/5 HP, 3.2A)	25	35,225	4.025	TRM (version 6.9.16)/custom calculation
Q Sync Motor (1/15 HP), replacing Standard Motor	35	52,220	5.964	TRM, PGE3PREF123, published values
Q Sync Motor (1/15 HP), replacing EC Motor	35	15,260	1.7395	TRM, PGE3PREF123, published values
Q Sync Motor (1/47 HP), replacing Standard Motor	35	23,275	2.6565	TRM, PGE3PREF123, published values
Q Sync Motor (1/47 HP), replacing EC Motor	35	4,970	0.567	ETCC Project ID ET15SDG1061, TRM and PGE3PREF123

Totals		2,308,464	264.835	20/01166261
Strip Curtain: Walk-in	924	134,904	5.544	TRM (version 6.9.16) 80% Cooler, 20% Freezer
Retrofit Doors with Open Cases	800	407,840	.0608	SCE13RN027.0 Add Door to Low and Medium Temp Display Cases

# **Measurement and Verification of Savings Discussion**

Technical Reference Manual (TRM) values were used to estimate all measures that were listed in the TRM. Sources for measures not listed in the TRM are identified in the table above. Custom savings calculators will determine the savings for all motors, motor controllers, and lighting measures.