



# *Keep Your Cool Evaluation, Measurement and Verification Report*



THE CITY OF  
**COLTON** *California*

**Prepared by:**

Alternative Energy Systems Consulting, Inc.

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*Prepared for:*

Jessica Sutorus  
City of Colton Electric Utility  
650 N. La Cadena Drive  
Colton, CA 92324

*Prepared by:*

Fernando Miramontes III, Staff Engineer  
Kevin Cruz, Associate Engineer  
Briana Rogers, Director of Operations

Alternative Energy Systems Consulting, Inc.  
5927 Balfour Court, Suite 213  
Carlsbad, CA 92008

99 South Lake Avenue, Suite 200  
Pasadena, CA 91101

Phone: 760-931-2641

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## Section 1 EXECUTIVE SUMMARY

City of Colton Electric Utility, in conjunction with Efficiency Services Group, LLC (ESG), provides eligible commercial food-industry customers with energy assessments and energy efficient refrigeration retrofits at little to no cost. Participating customers obtain energy savings through the no-cost installation of more efficient refrigeration equipment, up to \$3,000.

This report has four key objectives: 1) to determine measure persistency, the extent to which targeted measures installed through the City of Colton Electric Utility's Keep Your Cool (KYC) Program during the 2018 fiscal year remain in place and operational; 2) to evaluate the claimable energy savings and financial impacts attributable to the measures installed as a result of the program offerings; 3) to determine and improve the efficacy of the program; and 4) to gauge customer satisfaction with program administration, retrofit offerings, and measure implementation.

The ex-post analysis provided in this report was conducted in March of 2020 and focuses on measures implemented from July 1, 2017 through June 30, 2018. The fiscal year 2018 reporting of energy and demand savings as determined by ESG is referred to as the ex-ante analysis for purposes of this report.

Table 1 summarizes the findings detailed within the report. The data used during the analysis is based upon information provided by City of Colton Electric Utility, ESG, and participating customers as well as Alternative Energy Systems Consulting, Inc. (AESC) site verification observations. As shown below, 85% percent of the program's implemented measures were in operation at the time of this evaluation effort. Measure persistency rate was determined through onsite visual observations and customer interviews regarding replacements or changes (e.g. equipment failures, site renovations, etc.) that may have impacted equipment installed through this program. A notable finding of this evaluation is that energy and demand savings associated with the program measure offerings differ significantly as a result of corrected calculation methodologies and savings sources, as detailed in Section 2.2.

**Table 1 Program Energy Savings Summary**

| No.<br>of<br>Sites | Ex-Ante<br>kWh | Ex-Ante<br>kW | Ex-Post<br>kWh | Ex-Post<br>kW | Measure<br>Persistence<br>Rate | kWh<br>Persistence<br>Rate | kW<br>Persistence<br>Rate |
|--------------------|----------------|---------------|----------------|---------------|--------------------------------|----------------------------|---------------------------|
| 19                 | 379,081.1      | 46.14         | 213,579.5      | 27.84         | 85%                            | 56%                        | 60%                       |

## 1.1. INTRODUCTION

City of Colton Electric Utility engaged AESC to provide an Evaluation, Measurement and Verification (EM&V) of the Keep Your Cool – Commercial Refrigeration Energy Efficiency Program for fiscal year 2018 (July 1, 2017 to June 30, 2018). The purpose for conducting EM&V of publicly owned utility (POU) programs is to assess credible grid impacts from program implementation, as well as to determine and improve the cost-effectiveness of POU energy efficiency programs by providing the utility with diagnostic information and comparing planned versus actual program performance. Additionally, the utility may use this report to assess if the net benefits warrant continued investment in the direct install program.

In September of 2006 Assembly Bill 2021 (AB2021) was signed into law, which expanded the annual reporting requirements for POUs to include:

- An independent evaluation, measurement and verification of energy and demand savings produced by the POU energy efficiency programs.
- A tri-annual report highlighting annual target and potential savings of energy efficiency and demand reduction for a ten-year period.

The results provided in this EM&V effort fulfill the first requirement by providing an unbiased, independent evaluation of the Keep Your Cool – Commercial Refrigeration Energy Efficiency Program.

## 1.2. DESCRIPTION OF PROGRAM

City of Colton Electric Utility's Keep Your Cool - Commercial Refrigeration Energy Efficiency Program (aka KYC Program) is a utility driven energy efficiency program that provides support to commercial businesses in upgrading to high efficiency refrigeration technologies and LED lighting. The program's goals are to introduce participants to energy efficient technologies through a comprehensive refrigeration audit and to assist in the optimization of refrigeration equipment performance. The program is available to City of Colton Electric Utility commercial businesses who use refrigeration, such as convenience stores, mini-marts, and restaurants, and have had an active account for a minimum period of 12 months at their respective addresses. In addition to the audit, participants are eligible to receive the installation of specified energy efficiency measures, based on a no cost pre-installation energy survey, with an implementation cost not to exceed \$3,000.

This initiative sought to obtain immediate peak load reduction and energy savings in the commercial sector through the installation of energy efficient measures. The incentive for this initiative covered the entire installation cost associated with energy efficient measures. As shown in Table 2 a total of eighteen (18) measures were offered through the program.

**Table 2 List of eligible measures offered through the KYC program.**

| Measure                              |
|--------------------------------------|
| Door Gasket                          |
| Strip Curtain, Walk-in Cooler        |
| Strip Curtain, Walk-in Freezer       |
| Auto Door Closer, Walk-in            |
| Auto Door Closer, Reach-in*          |
| EC Motor                             |
| ECM Motor Controller*                |
| ASH Controller, Cooler               |
| ASH Controller, Freezer*             |
| LED Canopy Light*                    |
| LED Case Light                       |
| LED Horizontal Case Light            |
| Q Sync Motor                         |
| Custom Lighting 250w MH Flood to LED |
| Custom Lighting F96T12 to TLED       |
| Custom Lighting F32T8 to TLED        |
| Custom Lighting Vacancy Sensor       |
| Custom Lighting LED A-lamp           |

Of these measure offerings, four (4) were not implemented at any of the participating sites (designated with an asterisk in the preceding table):

1. Auto Door Closer, reach-in
2. ECM Motor Controller
3. ASH Controller, freezer
4. LED Canopy Light

## Section 2 EM&V FINDINGS

### 2.1 PREPARATION AND DATA COLLECTION

This EM&V effort was based on several data sources including provided program documentation, on-site data collection, and customer interviews during ex-post inspections. The data collection methodology is detailed in this section of the report.

#### A. PROVIDED PROGRAM DOCUMENTATION AND DATA SOURCES

To understand the initial estimates of the fiscal year 2018 ex-ante kWh energy savings and kW demand reduction, AESC reviewed the program documentation provided by ESG and the City of Colton Electric Utility. Documentation included the initial installation details, energy and demand savings claims and sources, calculation tools (when applicable), as well as implementation cost inclusive of material, labor, and administrative costs. AESC utilized all pertinent data at hand to aid in the development of accurate estimations of ex-post findings. All information regarding the in-situ systems were assumed to be in accordance with workpaper minimum efficiency metrics or actual existing systems, and runtimes as reported by ESG. All existing equipment was assumed to be installed and operational prior to measure implementation.

#### B. DATA COLLECTION AND SITE SAMPLING OVERVIEW

As part of the evaluation, AESC performed site inspections and collected data for key demand (kW) and energy usage (kWh) parameters. Site inspections were used to verify that program installed measures remained in place and were properly installed as specified by program requirements. Information on building type, measure parameters, and hours of operation were also recorded during the site visit for comparison against any assumptions used to estimate the program ex-ante savings.

Inspections were performed on a sample of projects with the intent to achieve a confidence level of 90%. AESC initially expected a sample size based on California Evaluation Framework guidelines and the following expressions:

$$n_0 = \left( \frac{1.645cv}{D} \right)^2$$
$$n = \frac{n_0}{1 + \frac{n_0}{N}}$$

Where:

|       |                                                   |
|-------|---------------------------------------------------|
| $n_o$ | = unadjusted sample size                          |
| $n$   | = adjusted sample size based on finite population |
| $cv$  | = coefficient of variation                        |
| $D$   | = Desired precision                               |
| $N$   | = Population Size                                 |

For ease of use, regardless of the error bound level (10%, 15%, 25%, or other), the framework recommends that all uncertainty calculations be expressed at 90% confidence, to facilitate the calculation of portfolio-level savings and uncertainties. Establishing evaluation priorities and methods is an exercise in balancing the available evaluation budgets with meeting the evaluation goals for each program without placing too much burden on programs with limited resources. Applying evaluation techniques and choosing sample sizes that are appropriate given the program size, budget, and risk to the portfolio can maintain this balance. The evaluation framework suggests that a coefficient of variation ( $cv$ ) assumption of 0.5 should be used in conjunction with the 90/10 (90% confidence, 10% precision) assumption. Based on the stated program participation levels and an expected sample accuracy of 85%, AESC initially anticipated conducting nine site inspections. The sample accuracy reflects the initial statistical persistence of the installed measures installed through the program (i.e. quantity of installed measures verified versus quantity of installed measures claimed).

### C. INSPECTION FINDINGS

Site inspections were performed in January of 2020 for nine pre-determined locations as detailed in Section 2.1B above. The accuracy was evaluated for each sample site based on the confirmed measure quantity and measure type as compared to the program documentation. The site inspections yielded a level of accuracy of 70%, which was less than the anticipated 85%; however, this accuracy was still sufficient to achieve the 90% confidence level. Additionally, the sites that were inspected accounted for 85% of the total program claimed savings, thus further substantiating the sample size.

Figure 1 below depicts the persistence of implemented measures, with additional measure specific details available in Section 5.1.

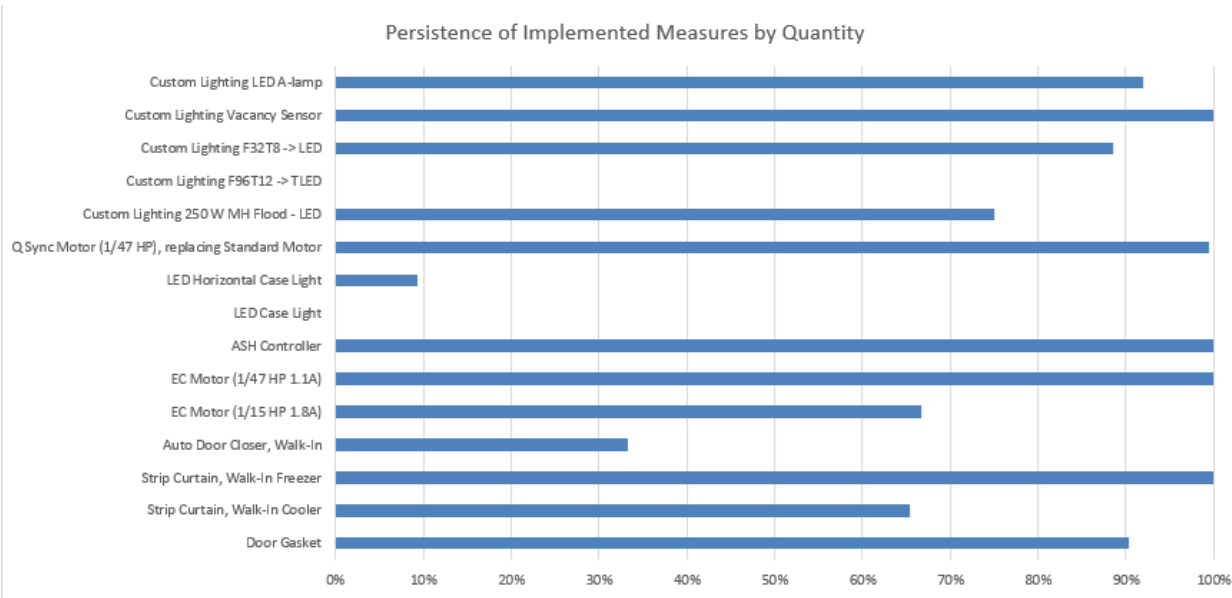


Figure 1 Accuracy of implemented measures as observed during sample site inspections

D. VERIFIED MEASURE EQUIPMENT

During the site visits, AESC verified the quantity, runtime, and type of energy-efficiency measure(s) that was found installed and operational. As stated previously, data was collected for a total of nine participating sites and encompassed all of the implemented measures. Table 3 illustrates the quantity of each measure verified for the sample site population. Based on customer interviews, the reasons offered for missing equipment included equipment failures, building renovations, and measure equipment removal or replacement based on aesthetic qualities.

**Table 3 Comparison of inspection findings to claimed program installations**

| Measure                              | Unit        | Ex-Ante<br>Total<br>Installed | Ex-Ante<br>Sample<br>Total | Ex-Post<br>Sample<br>Actual |
|--------------------------------------|-------------|-------------------------------|----------------------------|-----------------------------|
| Door Gasket                          | Linear Feet | 660.23                        | 328.85                     | 265.52                      |
| Strip Curtain, Walk-in Cooler        | Square Feet | 64.22                         | 64.22                      | 42.00                       |
| Strip Curtain, Walk-in Freezer       | Square Feet | 174.08                        | 115.33                     | 115.33                      |
| Auto Door Closer, Walk-in            | Closer      | 3                             | 3                          | 1                           |
| EC Motor                             | Motor       | 29                            | 27                         | 18                          |
| ASH Controller, Cooler               | Door        | 35                            | 35                         | 35                          |
| LED Case Light                       | Fixture     | 9                             | 9                          | 0                           |
| LED Horizontal Case Light            | Linear Feet | 85.00                         | 85.00                      | 8.00                        |
| Q Sync Motor                         | Motor       | 190                           | 190                        | 189                         |
| Custom Lighting 250w MH Flood to LED | Fixture     | 4                             | 4                          | 3                           |
| Custom Lighting F96T12 to TLED       | Lamp        | 18                            | 18                         | 0                           |
| Custom Lighting F32T8 to TLED        | Lamp        | 323                           | 243                        | 206                         |
| Custom Lighting Vacancy Sensor       | Sensor      | 4                             | 2                          | 2                           |
| Custom Lighting LED A-lamp           | Lamp        | 74                            | 74                         | 68                          |

## E. OPERATING CHARACTERISTICS

While on site, AESC conducted interviews with the participating customers to gauge general operation of the installed equipment. Each measure was inspected to verify submitted measure product, hours of operation, quantity, and condition. During the development of the ex-post analysis, the following assumptions were made with regards to the operating characteristics:

- Lighting hours of operation were assumed to coincide with “open to the public” hours, although the actual usage varied by space type at many of the observed locations.
- Motor hours of operation were assumed to coincide with the observed operational characteristics and refined based on customer input.
- Voltage and power factor used to estimate the power of the motor units was assumed to be accurate per the available manufacturer specification sheets.

The ex-ante assumptions regarding the condition and specifications of the pre-existing equipment was assumed to be accurate and thus, maintained in this program evaluation.

## 2.2 GROSS SAVINGS ESTIMATION

The ex-ante savings, as determined by ESG, were determined using a combination of utility workpapers, the 2016 Savings Estimation Technical Reference Manual for the California Municipal Utilities (TRM), as well as custom calculations. For non-workpaper or TRM deemed values, custom

calculations using generally accepted engineering methodologies were utilized. The custom operating hours used to develop the associated energy savings were based on customer interviews and were provided by ESG during AESC's ex-post analysis. Table 4 below provides an overview of the per unit savings values and sources used to estimate the ex-ante savings, while Table 5 below provides an overview of the ex-post verified per unit savings values and sources. The highlighted portions of Table 5 identify the discrepancies determined through the verification process. Power measurements were not taken as part of this evaluation study.

**Table 4 Ex-ante per unit savings values and sources**

| Measure                                          | kWh/Unit | kW/Unit | References         |
|--------------------------------------------------|----------|---------|--------------------|
| Door Gasket                                      | 53.0     | 0.0122  | TRM Section 7.6.2  |
| Strip Curtain, Walk-In Cooler                    | 180.0    | 0.0103  | TRM Section 7.6.2  |
| Strip Curtain, Walk-In Freezer                   | 374.0    | 0.0298  | TRM Section 7.6.2  |
| Auto Door Closer, Walk-In                        | 1,306.0  | 0.2172  | TRM Section 7.8.1  |
| EC Motor (1/15 HP 1.8A)                          | Custom   | 0.0121  | TRM Section 7.5.1  |
| EC Motor (1/47 HP 1.1A)                          | Custom   | 0.0470  | TRM Section 7.5.1  |
| ASH Controller                                   | 940.0    | 0.1200  | TRM Section 7.9.1  |
| LED Case Light                                   | 780.0    | 0.1000  | TRM Section 6.5.2  |
| LED Horizontal Case Light                        | Custom   | 0.0110  | TRM Section 6.5.2  |
| Q Sync Motor (1/47 HP), replacing Standard Motor | 705.0    | 0.0730  | TRM Section 6.5.2  |
| Custom Lighting 250 W MH Flood - LED             | 1,315.8  | 0.3060  | Custom Calculation |
| Custom Lighting F96T12 - > TLED                  | 511.2    | 0.1065  | TRM Section 17.5   |
| Custom Lighting F32T8 -> LED                     | Custom   | 0.0114  | TRM Section 17.5   |
| Custom Vacancy Sensor                            | 251.5    | 0.0000  | TRM Section 17.7   |
| Custom Lighting LED A-lamp                       | Custom   | 0.0600  | Custom Calculation |

**Table 5 Ex-post verified per unit savings values and sources**

| Measure                                          | kWh/Unit | kW/Unit | References         |
|--------------------------------------------------|----------|---------|--------------------|
| Door Gasket                                      | 52.8     | 0.0122  | TRM Section 7.6.2  |
| Strip Curtain, Walk-In Cooler                    | 102.0    | 0.0054  | TRM Section 7.6.2  |
| Strip Curtain, Walk-In Freezer                   | 344.0    | 0.0208  | TRM Section 7.6.2  |
| Auto Door Closer, Walk-In                        | 1,306.0  | 0.2172  | TRM Section 7.8.1  |
| EC Motor (1/15 HP 1.8A)                          | Custom   | 0.0157  | TRM Section 7.5.1  |
| EC Motor (1/47 HP 1.1A)                          | Custom   | 0.0710  | TRM Section 7.5.1  |
| ASH Controller                                   | 940.0    | 0.1200  | TRM Section 7.9.1  |
| LED Case Light                                   | 780.0    | 0.1000  | TRM Section 6.5.2  |
| LED Horizontal Case Light                        | Custom   | 0.0110  | TRM Section 6.5.2  |
| Q Sync Motor (1/47 HP), replacing Standard Motor | 228.9    | 0.0260  | TRM Section 6.5.2  |
| Custom Lighting 250 W MH Flood to LED            | 1,315.8  | 0.3060  | Custom Calculation |
| Custom Lighting F96T12 to TLED                   | 511.2    | 0.1065  | TRM Section 17.5   |
| Custom Lighting F32T8 to LED                     | Custom   | 0.0114  | TRM Section 17.5   |
| Custom Vacancy Sensor                            | 251.5    | 0.0000  | TRM Section 17.7   |
| Custom Lighting LED A-lamp                       | Custom   | 0.0600  | Custom Calculation |

AESC used custom Excel spreadsheet calculations to model the savings for each participant by measure. For measures using a custom calculation approach, the following equations were used:

Lighting Measures:

$$kW = Quantity * \left( \frac{Watts_{Existing}}{1000} - \frac{Watts_{Installed}}{1000} \right)$$

$$kWh = kW * Verified Operating Hours$$

Single Phase EC Motors:

$$kW = \frac{Voltage * Current * Power Factor}{1000}$$

$$kWh = kW * Verified Operating Hours$$

Three Phase EC Motors:

$$kW = \frac{\sqrt{3} * Voltage * Current * Power Factor}{1000}$$

$$kWh = kW * Verified Operating Hours$$

Ex-ante calculations were determined by ESG and provided by the City of Colton Electric Utility for use in the EM&V effort. Table 6 represents the gross ex-post calculated savings for the sites in which data was collected.

**Table 6 Comparison of ex-ante and ex-post savings values for sampled sites**

| Number of Sites | Ex-Ante kWh | Ex-Ante kW | Ex-Post kWh | Ex-Post kW |
|-----------------|-------------|------------|-------------|------------|
| 9               | 328,581.4   | 38.69      | 171,854.1   | 22.30      |

Table 7 shows the projected impact on the FY2018 program by applying the persistency rates from Table 6 to the overall calculations.

**Table 7 Comparison of ex-ante and ex-post savings values for program**

| Number of Sites | Ex-Ante kWh | Ex-Ante kW | Ex-Post kWh | Ex-Post kW |
|-----------------|-------------|------------|-------------|------------|
| 19              | 379,081.1   | 46.14      | 213,579.5   | 27.84      |

## 2.3 PROGRAM COST EFFECTIVENESS

The two cost effectiveness tests used for California POU energy efficiency programs are the Total Resource Cost (TRC)<sup>1</sup> and the Program Administrator Cost (PAC)<sup>2</sup>. The specific calculations and definitions of benefits and costs for each test are detailed in the Standard Practice Manual.

The total program cost associated with the KYC program is \$99,412, which is not inclusive of any Utility program management costs. The weighted average estimated useful life (EUL) for the program is 9.3 years, with an expected electric real lifecycle avoided cost of \$0.15/kWh. The net to gross ratio (NTG) is one minus the fraction of free riders in the program. NTG attempts to establish the energy and demand savings induced by the utility program. The ex-post gross load impact savings need to be “net” of what would have occurred in the absence of the program. There are three methods that can be used to establish the NTG for a program: i. use of established NTG accepted by California utilities (especially suitable for deemed programs), ii. survey based methods and iii. econometric methods of estimating free ridership. NTG was not evaluated as part of this study. A weighted NTG value of 0.809 was calculated based on the measure type and was determined to be appropriate, given that the program is a deemed rebate type of program with a homogeneous population. The TRC and PAC values are calculated using the expressions below:

$$PAC = \frac{\text{Lifecycle Avoided Cost}}{\frac{\text{Utility Cost}}{\text{Annual kWh Savings} * NTG}}$$

$$TRC = \frac{\text{Avoided Cost}}{(\text{Implementation Cost} * NTG) + (\text{Utility Cost} * (1 - NTG))}$$

Therefore, the calculated PAC and TRC are 2.42 and 2.97, respectively. As the program management costs are not included in these calculations, the actual values may vary.

## Section 3 CUSTOMER SATISFACTION

A customer satisfaction survey was provided to the participants during the site inspections. As participants provided responses, it became evident that there were instances where participants either managed or owned multiple inspection sites. In cases like these, the survey responses were recorded only once to gauge the overall customer satisfaction of the program.

The survey focused on how likely a participant was to recommend the program, the satisfaction to which a participant received services, quality of products and service, and how well they understood the energy efficiency measures.

<sup>1</sup> The TRC Test includes the benefits (such as avoided costs) resulting from the program divided by the net costs (participant and program) where a TRC test result greater than 1.0 indicates that the program is cost effective. Avoided costs are the savings associated with not having to produce and deliver the saved energy.

<sup>2</sup> The PAC Test is similar to the TRC Test, but only the program costs are included in the denominator.

Participants were first asked how likely they would be to recommend this program to other customers on a scale from 1 to 10, with 1 being not at all likely and 10 being very likely. As shown in Table 8 below the survey responses were favorable with a majority indicating a very likely response.

**Table 8 Program recommendation survey responses**

| Survey Question                                                  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|
| How likely are you to recommend this program to other customers? | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3  |

Next, a set of 7 questions were presented to the customer to gauge the experience with the program, with options of “Excellent”, “Satisfactory”, “Needs Improving”, “Unacceptable”, and “Not Applicable (N/A)”. Table 9 below is an overview of the distribution in customer responses to the individual questions.

**Table 9 Survey question responses regarding customer program experience**

| Survey Question                                                                                          | Needs     |              |           |              |     |
|----------------------------------------------------------------------------------------------------------|-----------|--------------|-----------|--------------|-----|
|                                                                                                          | Excellent | Satisfactory | Improving | Unacceptable | N/A |
| How would you rate your satisfaction with the services received?                                         | 2         | 1            | 2         | 0            | 0   |
| If you weren't satisfied with the services, how was your complaint handled?                              | 0         | 1            | 2         | 0            | 2   |
| How well did program staff explain the available services to you?                                        | 2         | 1            | 2         | 0            | 0   |
| How prompt was the delivery of service?                                                                  | 2         | 2            | 1         | 0            | 0   |
| How would you rate the quality of product(s) installed?                                                  | 1         | 1            | 2         | 1            | 0   |
| How would you rate the program's responsiveness to your questions or concerns?                           | 1         | 2            | 2         | 0            | 0   |
| How well did the program help you become more aware of energy efficiency opportunities at your facility? | 1         | 2            | 1         | 1            | 0   |

Finally, the customer was asked to ensure that program staff were courteous and respectful to individuals and the property, for which all respondents confirmed to be true. For further detail on the survey responses please reference Section 5.2 below.

## Section 4 CONCLUSIONS

Based on AESC's evaluation of the 2018 KYC Program, the overall persistency rate for annual energy savings (kWh) is 56.3% and the peak demand reduction (kW) persistency rate is 60.3%. There are four main factors that account for the reduced overall program persistence rates including: (1) lower equipment counts, (2) use of site-specific operating hours, (3) equipment failure, and (4) redundant upgrades.

Lower equipment counts are attributed to several factors. Of the verified sites, one of the nine sites had been stripped out for remodeling and therefore reduced the total measures which could be attributed to the 2020 ex-post savings. At another location, EC Motors were installed in an older refrigeration unit that was replaced entirely with a newer model. During the ex-ante estimations, assumed operating hours for the savings were overestimated; actual lighting use differs based on project site and the space in which it is installed. The methodology for determining general ex-ante assumptions was deemed inaccurate and inappropriate for custom energy savings, thus resulted in a significant reduction in ex-post determinations. Additionally, equipment failure appeared frequently throughout the project sites. Several participants confirmed that lamps had burned out prematurely, requiring lamp replacement for which customers often used different models. Motors also appeared to have failed or be incompatible with the equipment in which they were installed. Participants reported that they either removed the failed equipment or reverted to the pre-existing technology. Finally, at other project sites, the participants were in the process of remodeling the building or system, deeming the program services and retrofits unnecessary.

Moving forward, City of Colton Electric Utility should continue to obtain data in a similar fashion and apply the following changes:

- If custom calculations are to be developed to establish measure energy savings and demand reduction, operating hours for each customer site should be used and accurate data should be gathered and stored for future EM&V efforts.
- Discuss with the customer any in progress efforts of replacement or renovation that would deem the replacement of equipment unnecessary.
- Solicit input from customers on equipment failures to ensure the quality of installation as well as deviations from manufacturer's failure rates.

## Section 5 APPENDIX

### 5.1 OVERALL PROGRAM ANALYSIS

| Program Measures |           |       |  |
|------------------|-----------|-------|--|
| Total            |           |       |  |
|                  | kWh       | kW    |  |
| Ex-Ante          | 379,081.1 | 46.14 |  |
| Ex-Post          | 213,579.5 | 27.84 |  |
| Persistence %    | 56%       | 60%   |  |

| Strip Curtain, Walk-In Cooler |             |          |      |
|-------------------------------|-------------|----------|------|
|                               | Square Feet | kWh      | kW   |
| Ex-Ante                       | 64.22       | 11,559.6 | 0.66 |
| Ex-Post                       | 42.00       | 4,284.0  | 0.23 |
| Persistence %                 | 65%         | 37%      | 34%  |

| Q Sync Motor (1/47 HP) |          |           |       |
|------------------------|----------|-----------|-------|
|                        | Quantity | kWh       | kW    |
| Ex-Ante                | 190      | 133,950.0 | 13.87 |
| Ex-Post                | 189      | 43,262.1  | 4.91  |
| Persistence %          | 99%      | 32%       | 35%   |

| Custom Lighting 250 W MH Flood - LED |          |         |      |
|--------------------------------------|----------|---------|------|
|                                      | Quantity | kWh     | kW   |
| Ex-Ante                              | 4        | 5,263.2 | 1.22 |
| Ex-Post                              | 3        | 3,947.4 | 0.92 |
| Persistence %                        | 75%      | 75%     | 75%  |

| Strip Curtain, Walk-In Freezer |             |          |      |
|--------------------------------|-------------|----------|------|
|                                | Square Feet | kWh      | kW   |
| Ex-Ante                        | 174.08      | 65,105.9 | 5.18 |
| Ex-Post                        | 174.08      | 58,262.4 | 3.26 |
| Persistence %                  | 100%        | 89%      | 63%  |

| Auto Door Closer, Walk-In |          |         |      |
|---------------------------|----------|---------|------|
|                           | Quantity | kWh     | kW   |
| Ex-Ante                   | 3        | 3,918.0 | 0.65 |
| Ex-Post                   | 1        | 1,306.0 | 0.22 |
| Persistence %             | 33%      | 33%     | 33%  |

| Custom Lighting F96T12 -> TLED |          |         |      |
|--------------------------------|----------|---------|------|
|                                | Quantity | kWh     | kW   |
| Ex-Ante                        | 18.00    | 9,201.6 | 1.92 |
| Ex-Post                        | 0.00     | 0.0     | 0.00 |
| Persistence %                  | 0%       | 0%      | 0%   |

| EC Motor (1/15 HP 1.8A) |          |          |      |
|-------------------------|----------|----------|------|
|                         | Quantity | kWh      | kW   |
| Ex-Ante                 | 27       | 36,360.1 | 0.33 |
| Ex-Post                 | 18       | 2,218.4  | 0.28 |
| Persistence %           | 67%      | 6%       | 85%  |

| EC Motor (1/47 HP 1.1A) |             |         |      |
|-------------------------|-------------|---------|------|
|                         | Square Feet | kWh     | kW   |
| Ex-Ante                 | 2.00        | 1,316.5 | 0.09 |
| Ex-Post                 | 2.00        | 1,243.9 | 0.14 |
| Persistence %           | 100%        | 94%     | 151% |

| Custom Lighting F32T8 -> LED |          |          |      |
|------------------------------|----------|----------|------|
|                              | Quantity | kWh      | kW   |
| Ex-Ante                      | 323.00   | 22,732.6 | 3.68 |
| Ex-Post                      | 286.00   | 13,960.6 | 3.12 |
| Persistence %                | 89%      | 61%      | 85%  |

| ASH Controller |          |          |      |
|----------------|----------|----------|------|
|                | Quantity | kWh      | kW   |
| Ex-Ante        | 35       | 32,900.0 | 4.20 |
| Ex-Post        | 35       | 32,900.0 | 4.20 |
| Persistence %  | 100%     | 100%     | 100% |

| Custom Lighting LED A-lamp |          |          |      |
|----------------------------|----------|----------|------|
|                            | Quantity | kWh      | kW   |
| Ex-Ante                    | 74       | 6,168.1  | 4.44 |
| Ex-Post                    | 68       | 22,338.1 | 4.01 |
| Persistence %              | 92%      | 362%     | 90%  |

| Custom Lighting Vacancy Sensor |          |         |      |
|--------------------------------|----------|---------|------|
|                                | Quantity | kWh     | kW   |
| Ex-Ante                        | 4        | 1,006.0 | 0.00 |
| Ex-Post                        | 4        | 1,006.0 | 0.00 |
| Persistence %                  | 100%     | 100%    | -    |

## 5.2 SURVEY RESPONSES

### Keep Your Cool - Commercial Refrigeration Energy Efficiency Program Customer Satisfaction Survey

#### How Are We Doing?

We are committed to providing our customers with beneficial and cost-effective energy efficiency programs. Please take a moment to complete the survey below to let us know how well our program met your expectations. We appreciate your involvement with the Keep Your Cool (KYC) Program and thank you for your responses.

1. How likely are you to recommend this program to other customers?

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5   ☐ 6   ☐ 7   ☐ 8   ☐ 9   ☒ 10  
Not at all likely   Very Likely

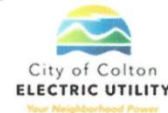
Please rate the quality of the service you received from the program.

|                                                                                                             | Excellent                | Satisfactory                        | Needs<br>Improving                  | Unacceptable                        | Not<br>Applicable        |
|-------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| 2. How would you rate your satisfaction with the services received?                                         | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| 3. If you weren't satisfied with the services, how was your complaint handled?                              | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 4. How well did program staff explain the available services to you?                                        | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| 5. How prompt was the delivery of service?                                                                  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| 6. How would you rate the quality of product(s) installed?                                                  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 7. How would you rate the program's responsiveness to your questions or concerns?                           | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 8. How well did the program help you become more aware of energy efficiency opportunities at your facility? | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

9. Program staff was courteous and respectful to me and my property ☒ Yes | ☐ No | ☐ I don't know

10. Please write any general comments here and/or provide details of your responses to the questions above.

Overall, Great Program, products and decisions made were questionable  
Response to fix products that were installed was very poor  
Also, redundant on third party inspections already had  
ONE AND NOW GOING THROUGH IT AGAIN.



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☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5   ☐ 6   ☒ 7   ☐ 8   ☐ 9   ☐ 10  
 Not at all likely Very Likely

Please rate the quality of the service you received from the program.

|                                                                                                             | Excellent                | Satisfactory             | Needs<br>Improving                  | Unacceptable                        | Not<br>Applicable        |
|-------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|
| 2. How would you rate your satisfaction with the services received?                                         | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 3. If you weren't satisfied with the services, how was your complaint handled?                              | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 4. How well did program staff explain the available services to you?                                        | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 5. How prompt was the delivery of service?                                                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 6. How would you rate the quality of product(s) installed?                                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. How would you rate the program's responsiveness to your questions or concerns?                           | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 8. How well did the program help you become more aware of energy efficiency opportunities at your facility? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |

9. Program staff was courteous and respectful to me and my property ☒ Yes | ☐ No | ☐ I don't know

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 Not at all likely Very Likely

Please rate the quality of the service you received from the program.

|                                                                                                             | Excellent                | Satisfactory                        | Needs<br>Improving                  | Unacceptable             | Not<br>Applicable        |
|-------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|
| 2. How would you rate your satisfaction with the services received?                                         | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. If you weren't satisfied with the services, how was your complaint handled?                              | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. How well did program staff explain the available services to you?                                        | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. How prompt was the delivery of service?                                                                  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. How would you rate the quality of product(s) installed?                                                  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. How would you rate the program's responsiveness to your questions or concerns?                           | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. How well did the program help you become more aware of energy efficiency opportunities at your facility? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |

9. Program staff was courteous and respectful to me and my property ☒ Yes | ☐ No | ☐ I don't know

10. Please write any general comments here and/or provide details of your responses to the questions above.



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☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5   ☐ 6   ☐ 7   ☐ 8   ☐ 9   ☒ 10  
Not at all likely   Very Likely

Please rate the quality of the service you received from the program.

|                                                                                                             | Excellent                           | Satisfactory             | Needs<br>Improving       | Unacceptable             | Not<br>Applicable                   |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 2. How would you rate your satisfaction with the services received?                                         | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 3. If you weren't satisfied with the services, how was your complaint handled?                              | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. How well did program staff explain the available services to you?                                        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 5. How prompt was the delivery of service?                                                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 6. How would you rate the quality of product(s) installed?                                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 7. How would you rate the program's responsiveness to your questions or concerns?                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 8. How well did the program help you become more aware of energy efficiency opportunities at your facility? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |

9. Program staff was courteous and respectful to me and my property ☒ Yes | ☐ No | ☐ I don't know

10. Please write any general comments here and/or provide details of your responses to the questions above.

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☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5   ☐ 6   ☐ 7   ☐ 8   ☐ 9   ☒ 10  
 Not at all likely Very Likely

Please rate the quality of the service you received from the program.

|                                                                                                             | Excellent                           | Satisfactory                        | Needs Improving          | Unacceptable             | Not Applicable                      |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|
| 2. How would you rate your satisfaction with the services received?                                         | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. If you weren't satisfied with the services, how was your complaint handled?                              | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. How well did program staff explain the available services to you?                                        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 5. How prompt was the delivery of service?                                                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 6. How would you rate the quality of product(s) installed?                                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
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9. Program staff was courteous and respectful to me and my property ☒ Yes | ☐ No | ☐ I don't know

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