



**Peak Demand Rebate Program
Procedures Manual**
Version 1.5

July 15, 2008

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Program Guidelines

1. Introduction

1.1. Program Goals

The Peak Demand Rebate Program (the Program) is a Demand-Side Management (DSM) opportunity sponsored by Springs Utilities with the goal of obtaining verifiable and persistent on-peak electric demand reduction. Program participants provide verified electric demand savings through the installation of (DSM) measures in return for a fixed price per kW rebate.,

Participants in the Program must meet minimum eligibility criteria, comply with all program rules and procedures, submit documentation describing their projects, and enter into a Standard Program Agreement with Springs Utilities. Participants will be paid after the DSM project is completed.

2. Program Schedule Budget

This section summarizes program scheduling and funding levels that are predicated on the assumption that the Program will be renewed. However, Springs Utilities reserves the right to terminate future program years, or alter the Program requirements and rebates, based on actual results achieved.

Each year, Springs Utilities may initiate a new program cycle and associated available rebate pool. Each Program year's kickoff date will occur on the first Monday in January and will continue on a first come, first served basis until funding runs out. Project construction may begin as soon the participant receives a Notice to Proceed from Springs Utilities, which occurs after a Pre-Installation Report (defined in Section 4) is submitted and approved, and the Standard Program Agreement is signed. Table 1 summarizes the anticipated program timeline.

Table 1. Key program dates and deadlines.

Program Year ¹	Kickoff Date	Verification Report Deadline	Budget
2005	Nov. 1, 2005	Dec. 8, 2005	\$26,000
2006	Jan. 2, 2006	Oct. 31, 2006	\$52,000
2007	Jan. 1, 2007	Oct. 31, 2007	\$198,900
2008	Jan. 1, 2008	Oct. 31, 2008	\$184,900
2009	Jan. 1, 2009	Oct. 31, 2009	\$180,250
2010	Jan. 1, 2010	Oct. 31, 2009	\$180,250
2011	Jan. 1, 2011	Oct. 31, 2009	\$180,250
2012	Jan. 1, 2012	Oct. 31, 2009	\$180,250

¹ Kickoff dates and deadlines for program years are subject to change and will be confirmed prior to the beginning of each Program Year.

2.1. Rebate Rate

\$400 per kW of demand reduction for all eligible measures.

3. Participant Eligibility

Eligible Participants may include:

- Must receive written pre-approval for proposed projects prior to purchasing and installing equipment.
- May be a Springs Utilities customer or a third-party contractor designated to represent the customer.
- Must maintain accounts in good standing. (90 days current)
- Must comply with all program rules and procedures.
- Must submit documentation describing their projects, with necessary calculations to justify demand savings.
- Must enter into a PDR Program Agreement with Springs Utilities
- Participant responsible for:
 - 1) Measurement and verification (M&V) of peak demand savings.
 - 2) Prescriptive measures (lighting, HVAC and motor replacements)
 - 3) Equipment specifications (wattage tables) satisfy the M and V requirement.
 - 4) M& V results must satisfy and be approved by CSU before a demand reduction can be established.
 - 5) Providing reasonable access to project facilities for independent verification of reported measure installation and/or realized savings.
 - 6) Signing a Host Customer Agreement.
- Individual Customers that install measures in their own facilities.
- National or local energy service companies (ESCOs).

- Design/build or architectural/engineering firms.
- Eligible measures must be installed in commercial, institutional, or industrial facilities located in the Springs Utilities' service territory.
- Non-Residential, within Springs Utilities service territory.
- Must be on commercial rate schedule: that includes demand metering and billing.

4. Project Eligibility

A project is defined by one or a combination of measures that meet the following requirements:

- Aggregate cooling or heating systems may be evaluated in lieu of per-component comparison, to allow rebates for alternative systems.
- The peak demand reduction is calculated in reference to existing vs. new equipment efficiency.
- Fuel switching.
- Must yield sustained demand reduction for at least ten years.
- Eligible measure must be installed in a non-residential facilities located in the Springs Utilities service territory.
- Savings must occur from 3-6 P.M., M-F, June 15 thru September 15.
- Achieve a minimum of 10 kW of demand savings.
- Springs Utilities reserves the right to inspect the facility, with advanced notice, at any time to confirm project still exist and functions as intended.
- Produces a measurable and verifiable persistent demand reduction during the Program's summer peak period.
- New equipment only.
- Screw-in, push-in etc. lighting technology including; Compact Fluorescent Lamps, High Intensity Discharge and LED (at a reduced rate)
- Produces savings through an increase in energy efficiency.
- Meets or exceeds minimum energy efficiency code requirements.
- Equipment removal is limited to not more than the cost of removal. Retrofit, addition, or renovation projects only.
- This rebate program does not apply to new construction.

5. Ineligible Measures

- Provide demand savings, but not during the program summer peak period.
- Rely solely on changes in Customer behavior or equipment scheduling (e.g. automatic controls, dimming, operable window blinds, etc.).
- Require no capital investment.
- Merely terminate existing processes, facilities, or operations.
- Involve plug loads (e.g., computer inactivity controls).
- Receive a rebate through any other energy efficiency or DSM program offered by Springs Utilities.
- Generate electricity, including cogeneration or renewable energy generation for the same work.
- Achieve savings through equipment maintenance, commissioning, or operational changes.
- Are easily reverted or removed.
- New construction.

6. Examples of Eligible Measures

Table 2. Examples of eligible measures which include, but are not limited to, the following examples:

<p>Energy-Efficiency Measures</p> <ul style="list-style-type: none"> • Chiller replacement with a more efficient chiller • Packaged cooling unit replacement with a more efficient unit • Refrigeration compressor and condenser replacement with more efficient units • High-efficiency lighting that replaces less efficient lighting • Motor replacement with a premium efficiency motor • Installation of permanent shading devices that reduce cooling loads (e.g. awning, window film, etc.) • Installation of direct or indirect evaporative cooling systems in place of vapor compression cooling • Evaporative pre-cooling systems for large air-cooled HVAC cooling equipment. • More efficient process equipment <p>Load-Shifting Measures</p> <ul style="list-style-type: none"> • Installation of thermal storage devices such as ice storage
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7. Award Payments

For an individual project, the total project award payment may not exceed the cost of the project. To be eligible for the performance payment, projects must be installed and Verification Reports submitted by the applicable program year deadline (see Table 1). An IRS form W-9, Request for Taxpayer Identification Number and Certification, must accompany the Verification Report. The customer will receive a check for the award payment. Crediting rebates to accounts is currently not available.

Program Participation Process

This section provides information on participating in the Program including the program process, required submittals and milestones. Preliminary Installation Reports will be accepted on or after the kick off date of each program year (see Table 1). Available program year rebates will be reserved on a first-come, first-served basis for approved Preliminary Installation Reports and will continue to be reserved until all funds have been committed. If the program year's funding has already been committed, subsequent Preliminary Installation Reports will be placed on a waiting list in the order that they were received for consideration if rebate monies become available during the program year.

8. Six Step Process

Participation in the Program involve six steps:

- 1) Participant prepares and submits a Preliminary Installation Report (PIR), including a M and V Plan, Program Agreement and IRS Form W-9 with each item signed by the customer.
- 2) Springs Utilities reviews and approves the PIR, then sends a Notice to Proceed to the participant. Springs Utilities' review includes savings estimates, and an M and V plan. Springs Utilities may require additional submission material if not complete or satisfactory. Customer receives written approval and a Notice to Proceed
- 3) Participant installs the project.
- 4) Customer submits and Installation Report (IR) and conducts necessary M and V activities and submits a Verification Report (VR) for the rebate payment
- 5) CSU performs the field inspection and adjusts the rebate payment from findings at CSU's discretion.
- 6) CSU makes Rebate Payment.

See Figure 1

8.1. Preliminary Installation Report (PIR)

Participants must complete a **Preliminary Installation Report (PIR)** to participate in the program that will include:

PIR with Customer Agreement signed by the Participant. This application describes the proposed measure(s), project site(s), estimated demand savings, measurement and verification activities, and estimated rebate payments based on a detailed study and site audit.

- Description of proposed measures.
- Measurement & verification activities.
- General and contact information about the Participant.
- Identification of the Customer site(s) and documentation that the Customer agrees to participate in the Program.
- The existing and proposed equipment inventories, including equipment counts, equipment efficiencies, and equipment nameplate data.
- Explanation of activities the Participant will undertake for measurement and verification.
- Building occupancy and equipment operating schedules.
- Calculations that estimate demand savings based on the efficiency of the proposed equipment compared to that of the applicable program minimum efficiency baselines.
- Detailed work plan for project design, implementation, operation, and management, including the anticipated project timeline.
- For New Equipment Provided, Detailed Information will be required on specific forms. Instructions for using these forms are described in other sections.

8.2. Program Agreement (PA)

Upon submitting a PIR, program Participants will be required to sign a **PDR Program Agreement** ("Agreement") with Springs Utilities before receiving a Notice To Proceed. The terms of the Agreement will be standard for all Participants. The Agreement will specify the program rules and procedures. Only one Agreement will be required for each Participant. Additional PIRs submitted by the Participant and approved by Springs Utilities may be included as attachments to the original Agreement.

8.3. Notice to Proceed (NP)

Upon receipt of a signed Agreement and PIR acceptance, Springs Utilities will mail to the Participant a **Notice to Proceed**, which serves as official notification that all Program requirements to date have been met and that project installation may proceed. Springs Utilities may at their sole discretion identify a deadline for the completion of the Installation Report (see next section) to facilitate the verification of project savings during the Program's summer peak period.

8.4. Installation Report (IR)

Upon project installation, Participants must submit an **Installation Report (IR)**. The IR updates any information proposed in the PIR that has been finalized after completion of the project. The IR typically includes the following information:

- Updated information about the Customer site(s), and updated Participant or Customer contact information.
- The demolished and actual installed retrofit equipment inventories, including equipment counts, equipment efficiencies, and equipment nameplate data.
- Updates to building occupancy and equipment operating schedules.
- Updated calculations estimating energy and demand savings based on the efficiency of the actual installed equipment compared to that of new, standard efficiency equipment.

A typical review cycle for IRs, including the inspection, is 30 days. If the IR is approved, the Participant will receive the installation payment, as described in Section 3.5.

8.5. Verification Report (M&V)

The objective of measurement and verification (M&V) activities for the program is to verify the average demand savings during the peak period of Monday through Friday, 3:00 p.m. to 6:00 p.m., from June 15 to September 15 (excluding federal holidays) for each project. The general approach is to estimate savings using pre-installation and post-installation power (kW) usage. Rebate payments to Participants will be based on these verified savings.

8.5.1 General Approach

M&V procedures will vary in detail and rigor depending on the measures installed. However, M&V shall be documented in some fashion for all measures. Customers must propose adequate M&V procedures to quantify the project demand savings. All M&V proposals must be approved by Springs Utilities. Springs Utilities reserves the right to inspect any installation to verify savings prior to award payment and adjust award payment accordingly.

9. Miscellaneous Information

9.1. Program Website

Springs Utilities' web site at www.csu.org will serve as the primary source for all updated program information and materials. The web site includes:

Information that describes the program design and requirements.

Contact information to receive more information about the program.

Downloadable applications, program manual, M&V guidelines, and submittal forms.

9.2. Correspondence and Submittals

Project submittals must be submitted in hard copy and electronic format, with the exception of the PDR Program Agreement that must be signed and submitted in hardcopy. All correspondence and submittals should be directed to the Springs Utilities PDR Program Manager:

Spring's Utilities PDR Program Manager, Stephen Leinweber

P. O. Box 1103, Mail Code 1300

Colorado Springs, CO 80947-1300

phone: (719) 668-8231

fax: (719) 668-4599

e-mail: sleinweber@csu.org

9.3. Confidentiality

Springs Utilities will take reasonable precautions to protect information submitted that is clearly identified as confidential, proprietary, or sensitive. Springs Utilities reserves the right to release any information to its agents or contractors, as required, for the purposes of evaluating project applications or reviewing M&V activities. Any agents or contractors will be bound by the same standard of care as Springs Utilities. Springs Utilities will have no liability to any Participant, Customer, or other party as a result of public disclosure of any submittals. Participant acknowledges that Springs Utilities is subject to the Colorado Open Records Act.

9.4. Participation Costs

Springs Utilities will not reimburse any Participant or Customer for any costs incurred by participating in the Program, including costs of reviewing the PDR Program Agreement or preparing necessary program forms and reporting materials. Participants are required to submit, along with the Installation Report, itemized receipts (or purchase orders) for all eligible measures installed under the Program. Participants must also submit a completed W-9 form, for tax purposes.

9.5. Submission of False Information

Springs Utilities reserves the right to discontinue its evaluation of all submittals from any Participant who submits false, misleading, or incorrect information.

9.6. Payment on Verified Savings

Rebate payments under the program will be based on verified savings as outlined in Section 3.5.

9.7 Inspections

Depending on the value and risk of the project, the Program Manager may choose to conduct one or more inspections of the project site. The inspections may consist of a pre-installation inspection to verify the baseline and/or a post-installation inspection to verify that the retrofit was installed as proposed and documented. After being notified that the Program Manager would like to perform an inspection, the Participant shall arrange with the Customer to gain access to all areas of the site affected by the proposed project at a time acceptable to the Participant, the Program Manager, and the Customer. A Participant representative shall be present during any inspections.

9.8 Final Determination

The final determination of eligibility, savings, M&V, baseline values, and payment shall be at the discretion of Springs Utilities.

10. Application and Reporting Forms

The Participant is required to submit a Preliminary Installation Report (PIR) to participate in the Program. In the PIR, the Participant provides a detailed description of the proposed project, including more precise descriptions of the project's demand reduction measures, Customer sites, and expected demand savings. The following sections provide guidance on the completion of the PIR.

10.1. Project Application Checklist

This form allows Participants to check the completeness of a PIR before its submission.

10.2. Project Summary

This form requires information concerning the Participant, the installation schedule, and a written description of the project's scope and work plan. The estimated installation dates for the proposed measures should also be provided.

10.3. Site Profiles

This section requests information about the Customers or sites at which the Participant proposes to perform work to receive rebates from Springs Utilities. The site profile should be completed for each site with demand savings claimed in the project. Site schematics and additional site information should be provided as appropriate. The type of information requested includes the following:

- Company name
- Site address
- Site contact name, phone number and fax number
- Building type, age, operating schedule and floor area
- Cooling system description
- Site electric utility account number(s)

10.4. Project Savings Estimates

The Participant enters the proposed demand reduction measures and their associated savings in the form. The savings estimates must be substantiated with a list of the methods, assumptions and formulas used to derive the demand savings for each measure. Provide copies of savings calculations, or any computer simulations or analysis used to estimate savings. The type of information requested includes the following:

- Basic description of the project.
- List of proposed demand reduction measures.
- Expected demand and energy savings and requested rebates.
- Preliminary savings calculations, including assumptions and formulas, to support the amount of rebate payment requested from Springs Utilities.
- Additional supporting documentation as necessary.

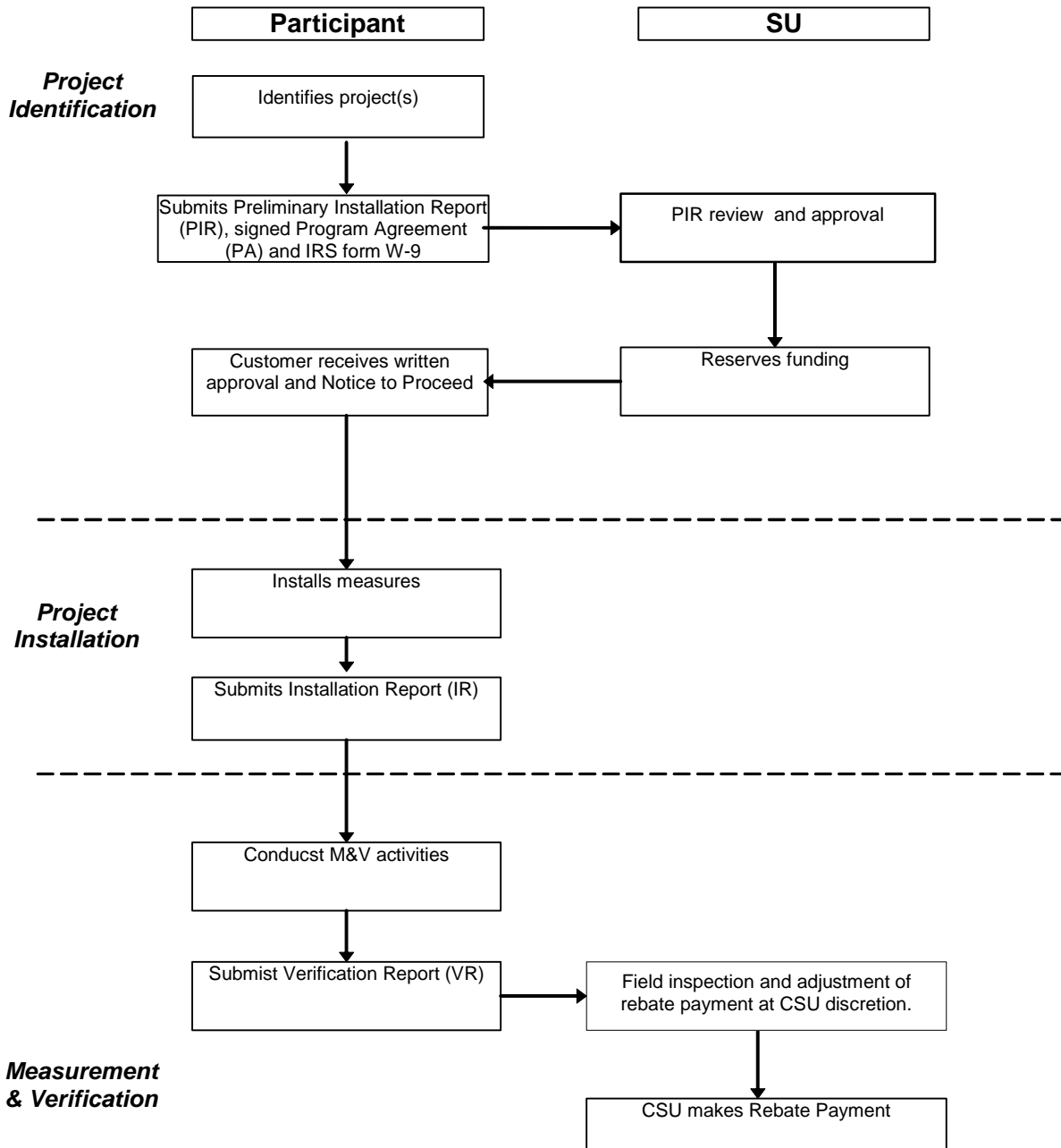
11. Equipment Survey Forms

The program equipment survey forms have been provided as standard templates for Participants completing equipment audits for the PIR. These forms should be used for all equipment information (nameplate data, operating schedule, etc.). The following forms are available for use with this program:

- Lighting Equipment Form (LE Form) for projects that involve lighting efficiency measures.
- Motor Schedule for projects that involve motor efficiency improvements.
- Cooling Equipment Schedule for projects that involve retrofits of cooling equipment.

In general, each form consists of multiple columns with spaces for the Participant to input equipment counts, locations, operating schedules and sequences, equipment manufacturer, model number, rated capacity, etc. Information must be supplied for pre-installation and post-installation equipment.

Figure 1. Peak Demand Rebate Program Process.



Any equipment not specified in the survey forms must still be listed in the PIR with enough information for Springs Utilities' approval. Therefore, it is recommended that Participants work closely with Springs Utilities when surveying equipment not specified in the forms.

11.1. Lighting Equipment Form (LE Form)

The Lighting Equipment Survey (LE Form) is provided to facilitate the completion of projects that involve lighting measures. This form can assist in estimating the demand reduction associated with most lighting retrofits and will fulfill many of the required M&V activities for lighting projects.

A separate line must be completed for each unique pre and post-installation fixture combination on the LE Form. The Participant shall also note if the room is mechanically cooled during the program's peak period.

Any unoccupied areas affected by a proposed project shall be clearly identified on the LE Form. Proposed projects, or portions of proposed projects, in unoccupied spaces will be rejected unless the space will be occupied prior to approval of the IR.

Fixtures that have been disabled, de-lamped, or that are broken and not intended for repair will not be included in the calculation of baseline demand. They should, however, be noted in the LE Form to avoid confusion.

To estimate the HVAC equipment savings associated with reduced cooling loads due to high-efficiency lighting retrofits, the Participant must identify the type and average size of cooling equipment present at the project site (i.e. water-cooled centrifugal chiller, packaged DX unit, etc.). This information will be used to stipulate a project's indirect, or interactive, savings.

The Participant must complete all yellow-shaded cells.

- Space ID is a unique identifier for the space(s), ideally something that will enable the reader to locate the space(s) within the facility. Examples include room/floor numbers or grid numbers from a facility layout drawing.
- Space Description should give information about the space use, and possibly additional information about its location.
- The Existing Lighting Equipment and Retrofitted Lighting Equipment sections (i.e., Fixture Code, Number of Fixtures, and Number of Non-operating Fixtures) are for specific information about the lighting fixtures. kW per Fixture and kW per Space, are calculated cells and do not require input from the Participant.
- Annual kW Savings and Annual kWh Savings are equations, and do not require input from the Participant.

11.2. Motor Equipment Survey

This is provided to facilitate the completion of PIRs that involve motor retrofits. This form is intended to assist the Participant in determining the type of information needed to evaluate a motor retrofit.

Each line has three sections, with one or more columns of required input in each. All of the cells in these sections require input from the Participant.

- The General Data section has columns for the motor ID (a unique identifier for each motor), the motor application description, and the motor loading.
- The Pre-Retrofit Equipment and Post-Retrofit Equipment sections are for more specific information about the motors and the application.

11.3. Cooling Equipment Survey

The cooling equipment survey is provided to facilitate the completion of PIRs that involve cooling equipment. This form is intended to assist the Participant in determining the type of information needed to evaluate a cooling system retrofit.

In the first part of the form, Participants should describe the operating schedule and sequence of operations for all of the equipment affected by the project. If the pre-retrofit and post-retrofit schedules or sequences will differ from one another, both should be described in detail.

The second part of the form contains several lines to input information regarding each piece of cooling equipment affected by the project. Each line represents a single piece of cooling equipment identified by its unique ID. Each line has three sections, with one or more columns of required input in each. All of the cells in these sections require input from the Participant.

- The Identification and Location section has columns for a unique ID and a description of the equipment's location.
- The Pre-Retrofit Equipment and Post-Retrofit Equipment sections are for information about the cooling equipment.

To facilitate inspections of mechanical retrofits, Participants will submit copies of drawings of existing and post-retrofit conditions, clearly outlining the scope of work. Sketches are acceptable if neatly presented.

12. Determination of Payable kW

12.1 Lighting - Direct

- pre-measure: kW before retrofit or replacement
- post measure: kW after retrofit or replacement
- Payable kW = [(pre-measure) – (post measure)]

* number of fixtures

*Peak Diversity Factor see (Table 3)

12.2 Lighting – Indirect

A fraction of affected lights will be deemed operational during the program’s peak period based on standardized diversity factors shown in Table 3. These factors are based upon similar DSM programs and independent studies conducted at representative project sites within the Colorado Front Range area. If warranted for a specific project, the Program Manager may adjust the stipulated factors based upon results found during inspections and/or interviews with facility maintenance staff.

Table 3. Standardized lighting peak demand diversity factors and operating hours by facility type

Facility Type	Peak Diversity Factor	Equivalent Annual Full Load Operating Hours
Office	0.75	3,850
Warehouse	0.79	5,632
Retail	0.94	5,167
Public Assembly	0.68	4,190
Health Care	0.55	2,900
Hotel	0.50	3,735
24 Hour	0.94	8,234
College	0.46	2,992
K-12 Schools	0.22	2,246

The indirect demand savings will be calculated using Equation 7. The equation derives the indirect demand savings of the cooling equipment as a function of the direct coincident lighting load reduction and the cooling equipment efficiency.

Equation 1.

$$\text{Indirect Savings} = \text{Direct Savings} * 0.284 * 0.78 * \eta_{\text{equip}}$$

- where: Direct Savings = the direct demand savings calculated from Equation 6 for areas that are mechanically cooled (kW) 0.284 = conversion constant (tons/kW) 0.78 = a linear regression coefficient established using results of a building simulation parametric analysis performed across a wide spectrum of building types, sizes and systems that accounts for lighting thermal energy that does not contribute to a building’s cooling load (no units)
- η_{equip} = minimum equipment efficiency for affected HVAC equipment (kW/ton)
- Equipment efficiencies (η_{equip}) will be taken from the program’s minimum efficiency requirements for HVAC equipment. The indirect demand savings are subject to the requirement that the affected space(s) must be conditioned to a reasonable temperature (≤ 75 °F). The Program Manager may adjust the interactive savings amount if conditions at the affected site vary significantly from the assumptions used to estimate the interactive effect.

12.3 Motors

- pre-measure: kW of existing motor
- post-measure: kW of replacement motor
- payable kW = [(pre-measure) – (post-measure)] x number of motors

Note: Motor loads for the purposes of this rebate program will be taken as nameplate capacity (HP) x 0.7 or 70%.

12.4 HVAC Cooling System or Components

- pre-measure: kW per ton of existing system
- post-measure: kW per ton of replacement system
- payable kW = [(pre-measure) – (post-measure)] x tons of cooling load

Note: Cooling load for the purposes of this rebate program will be taken as nameplate cooling capacity (Tons) x 0.7 or 70%.

12.5 Other

- pre-measure: kW before
- post-measure: kW after
- payable kW (pre-measure) – (post-measure)

13. Installation Report Checklist

13.1. Post-Installation Inspection

Springs Utilities will contact the Participant and conduct a post-installation inspection of the project site within 30 days of the receipt of a complete IR. The post-installation inspection requires the presence of at least one Participant representative who is familiar with the project and the facility. The inspection shall verify that the equipment specified in the IR has been installed and is operating as described. For most measures the accuracy of the equipment quantity and nameplate information is verified. For lighting measures, the requirement for acceptance is that the total error of the installed demand of the sample must be within five percent of the total demand submitted on the survey form. If electrical measurements are necessary, the Participant's representative is required to coordinate with the Customer any necessary disruptions in equipment operation, the opening of any electrical connection boxes, or the connection of current and power transducers. Springs Utilities will work with Participants to identify a mutually convenient time to conduct any inspection activities. If the inspection cannot be completed in a timely manner because the representative is unfamiliar with the facility or project, the project site will fail the inspection. If a project site fails two inspections, Springs Utilities reserves the right to invoice the Participant for costs associated with any subsequent inspections.

13.2. Project Summary

This form requires the input of information concerning the Participant and an updated summary of the installed demand reduction project. If the scope of the project has not changed since the approval of the Pre-Installation Report, the Participant may refer to the PIR when completing the project description. On this form the Participant must also inform Springs Utilities of how they would like to receive their award payment. The payment may be made either through a check to the participant or through credit to their utility bill.

13.3. Updated Customer Site Profiles

The site profile should be completed for each site with demand savings claimed in the project. Site schematics and additional site information should be provided as appropriate. If this information has not changed since the approval of the PIR, the Participant may refer to the PIR when completing this section.

13.4. Updated Project Savings Estimates

This section requests revised savings estimates from the PIR. The summary of the proposed measures should be completed along with all equations and calculations used to determine the demand and energy savings estimates. If this information has not changed since the approval of the PIR, the Participant may refer to the PIR when completing this section.

If the methods or assumptions for determining the savings estimates have changed or have been updated since the PIR, a revised list of methods, assumptions or formulas should be submitted. Provide electronic and hard copy output of savings calculations, or any computer simulations or analysis used to estimate savings.

13.5. Participant Certification Page

This form certifies that the energy efficient or load shifting equipment associated with the project has been installed and is working according to its specifications.

13.6. Updated Equipment Survey Forms

Updated equipment survey forms must be completed if the actual equipment installed differs from the equipment listed in the approved PIR. These forms should be used for all equipment information (nameplate data, operating schedule, etc.). If this information has not changed since the approval of the PIR, the Participant may refer to the forms submitted with the PIR.

14.0 Measurement & Verification

14.1. Project / Participating Company Information

This section identifies the Project and Participant submitting the VR. The completion date of the VR, documenting the measurement and verification, is also required.

14.2. Verified Project Savings

The participant must document the measurement and verification results in this portion of the report. Site numbers and the specific measures installed at each site are required to complete the table. Also the average demand savings results for each of the installed measures have to be provided by the Participant. After the required information is entered the spreadsheet calculations will provide the total estimated rebate amount.

14.3. Supporting Data / Calculation Requirements

This section allows the participant to specify what data and calculations they have provided for the VR. Check all reference sources that apply, and specify any other sources that are not listed on the VR. In addition to this section the participant must include all manufacturers catalog data or specifications sheets to demonstrate pre and post project power requirements. These must be included with the PIR upon submission.

14.4. Participant Signature

The Participant Representative must provide their signature to certify that all the information provided in the VR is correct and

accurate to the best of their knowledge.

15. Measurement and Verification Guidelines

15.1. Inspections

Measurement and verification of measure is necessary to assure savings in kW have been achieved and payment award is justified. It is the customer's responsibility to provide an acceptable M & V plan and to conduct M & V activities to the acceptance of Colorado Springs Utilities. Simple M & V measures are encouraged. All costs of M&V, engineering required to support the project and the burden of proof to demonstrate true savings belong with the customer.

For equipment replacement projects, submitting manufacturer's catalog information that shows electrical power demand (kW) is required and will form the basis of the M&V procedure: Once the manufacturer's data has been accepted, the M&V activity would be to verify the installed equipment matches the catalog information, quantities match the PIR, old equipment is removed, and new the equipment is installed and operating normally.

For system replacement projects, additional information will be required. Specific requirements will vary by project, but in all cases will be that information necessary to verify the project activities will result in the intended changes, thereby validating the award payment. Two possible paths for complex project are engineered calculations and live measurement. For engineered calculations, provide include plans, calculations, catalog data and other data necessary and requested by Utilities to demonstrate the savings. For the live measurement method, establishing a measured baseline before and after is required. For this to work, the plan must be pre-approved and the "before" portion of the M&V must be performed and documented in advance of the retrofit or replacement work. This method is the most time intensive of all and for the sake of economy should only be used when no other method is available. Depending on the value and risk of the project, the Program Manager may choose to conduct one or more inspections of the project site. The inspections may consist of a pre-installation inspection to verify the baseline and/or a post-installation inspection to verify that the retrofit was installed as proposed and documented. After being notified that the Program Manager would like to perform an inspection, the Participant shall arrange with the Customer to gain access to all areas of the site affected by the proposed project at a time acceptable to the Participant, the Program Manager, and the Customer. A Participant representative shall be present during any inspections.

If a project fails inspection, the Program Manager will either correct the error(s) or inform the participant that the submitted LE Form must be corrected and resubmitted, depending on the nature and/or magnitude of the error.

15.2. M&V of Demand Reduction

The Project Target Demand Reduction (kW) for lighting retrofit measures will include both direct demand savings from the reduction of installed lighting kW and indirect demand savings resulting from the reduction of load transferred to the project site's space cooling equipment:

Equation 2.

- Project Target Demand Reduction = Direct Savings + Indirect Savings

The direct demand savings will be calculated as follows:

Equation 3.

Direct Savings = (Pre kW – Post kW) * DF where:

- Pre kW = the pre-installation demand value from the approved LE Form (kW)
- Post kW = the post-installation demand value from the approved LE Form (kW)
- DF = the appropriate peak diversity factor from Table 3 (no units)

16. Cooling Equipment Retrofits

This section outlines the Measurement and Verification (M&V) activities that shall be completed by the Participant specific for high-efficiency cooling equipment retrofit projects submitted under the program. It also describes the Participant's reporting and documentation responsibilities.

The objective of these M&V activities is to verify the peak demand savings during the Program's peak period of Monday through Friday, 3:00 p.m. to 6:00 p.m., from June 15 to September 15 for each project. Rebate payments to Participants will be based on these verified demand savings. The high-efficiency chiller retrofits covered by this M&V procedure include the replacement existing cooling equipment (air or water-cooled) with high-efficiency models. Installation of eligible high-efficiency cooling equipment in new construction projects is also covered by this procedure.

Note:

Mechanical system program rules:

- Applies to mechanical system retrofits, additions and renovations.
- Mechanical load diversification: The PDR participant must provide engineering calculations for the mechanical load diversification accompanied with a P.E. stamp. If this information is not provided a standard deduction of 30% (factor = 0.7) will be applied to the mechanical system load diversification rebate.

- Award will be based on the difference between existing and new systems.
- Cooling systems are allowed to be evaluated on an overall basis. For example, an air-cooled chiller could be compared to a ground source heat pump system of equal cooling capacity under this program.

17. Lighting

If a project uses a fixture type not listed in the Table of Standard Fixture Wattages, the Participant should request that Springs Utilities add a new fixture code. The request should include all information required to uniquely identify the fixture type and to fix its demand. If possible, the request should be supported by manufacturer's ANSI test data.

The *Lighting Equipment Form* (LE Form) contains a copy of the Standard Wattage Table and looks up wattage values for fixture codes automatically. For this reason, Participants should use only the identification codes included in the table.

- The Table of Standard Fixture Wattages is subdivided into fixture types
- The fixture codes and the demand values listed in the watt/fixture column in the Table of Standard Fixture Wattages must be used in calculating energy and demand savings for any lighting efficiency project in the Program.
- The US Energy Policy Act of 1992 (EPACT) sets energy efficiency standards that preclude certain lamps and ballasts from being manufactured or imported into the U.S. Under the Program, all lighting equipment, including existing or baseline equipment, must be EPACT compliant. As a result, certain lamp/ballast combinations, which are non-EPACT compliant, are assigned EPACT demand values. Thus, a 4-foot fixture with 40-watt T-12 lamps and a standard magnetic ballast has the same demand value as a like fixture equipped with 34-watt T-12 lamps and an energy efficient magnetic ballast.

18. Other Equipment

The baseline equipment efficiencies for all types of equipment not mentioned above shall be based on manufacturer's rated data or the measured efficiencies that exist just prior to the Customer's participation in the program. It is within Springs Utilities' sole discretion to determine whether the manufacturer's data, field data-generated efficiency values, or some other efficiency data are most appropriate for establishing the baseline.