



Efficiency Works

Platte River
Power Authority

Estes Park
Light and Power

Fort Collins
Utilities

Longmont
Power &
Communications

Loveland
Water and Power

Business Program Guide 2018

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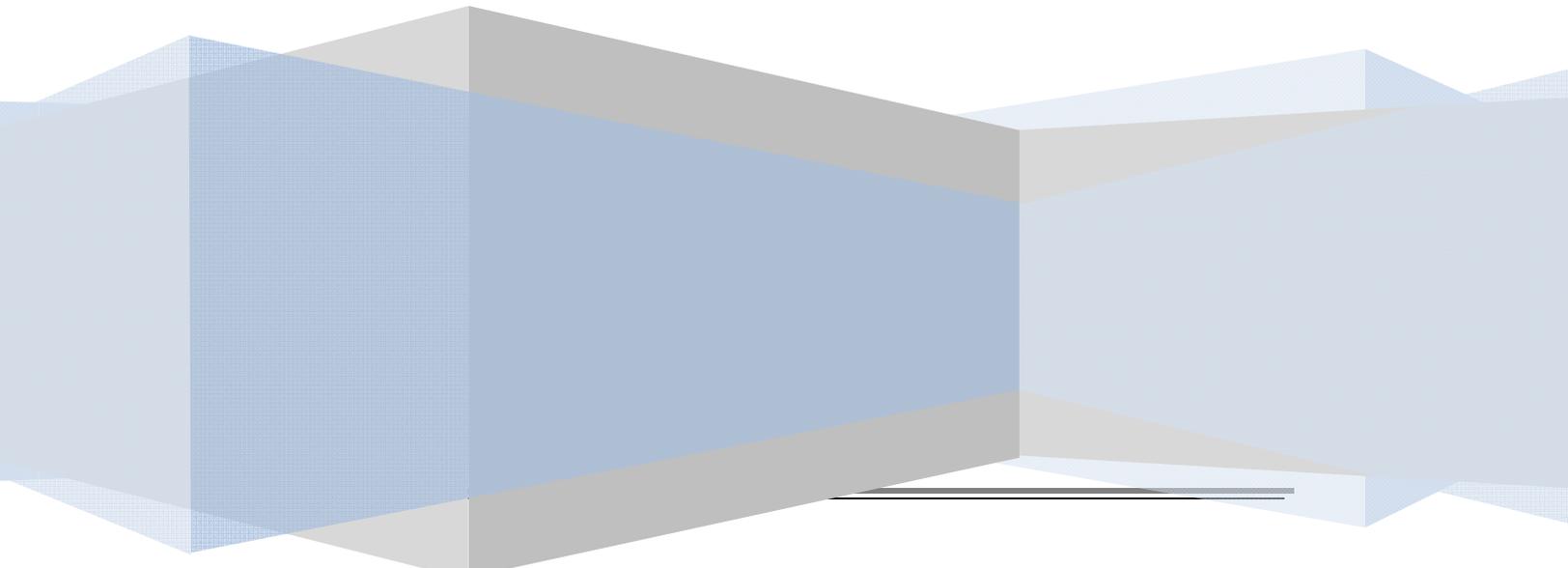


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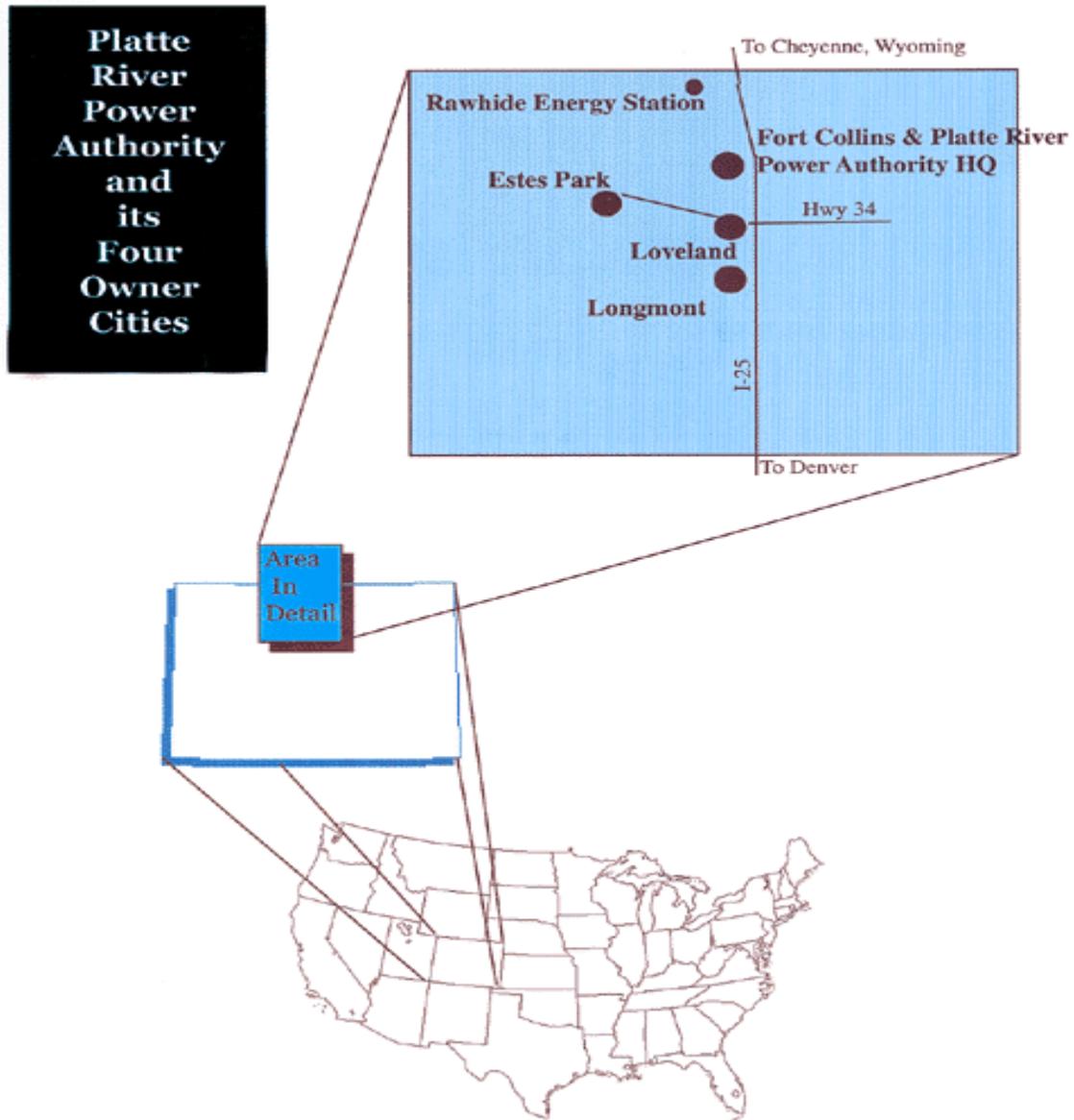
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UTILITY SERVICE TERRITORY

Efficiency Works Business is the efficiency program for commercial customers of Estes Park Light & Power Division, Fort Collins Utilities, Longmont Power & Communications, and Loveland Water and Power (i.e. the owner communities served by Platte River Power Authority), as illustrated below.



EFFICIENCY WORKS IN 2017

Platte River and its member utilities—Estes Park Light and Power, Fort Collins Utilities, Longmont Power and Communications, and Loveland Water and Power—have made the following changes to Efficiency Works business programs for 2017:

- Only LED's will be eligible for lighting rebates. Lighting controls are eligible for rebates.
- The rebates for new LED fixtures are now dependent on the existing fixture type that is being replaced. For example, fluorescent fixtures being upgraded to a new LED fixture have a different incentive than HID fixtures being upgraded to a new LED fixture.
- Cooling rebates are only available for cooling add-on features such as controls or economizers, cooling rebates are also available for evaporative cooling. Rebates for high efficiency DX Air Conditioning units are no longer available due to the collaboration efforts of the local utilities with regional AC distributors to help provide high efficiency air-conditioning units at the lowest cost possible to all commercial customers.
- Building envelope rebates have been expanded to include categories for both existing building retrofits and new construction or major renovations.
- Annual rebate maximums per customer are now the following:
 - \$50,000 per customer per site per year
 - \$100,000 per customer per year for customers with multiple sites. Multiple sites must be physically located in different locations and not be adjacent to one another. Contact Efficiency Works for additional details.
 - Exceeding the rebate cap for any given project, customer, or site will be evaluated on case by case basis depending on available budget, energy savings and timing of projects. If a rebate cap waiver is granted the custom rebate calculation rules will apply to the funds in excess of the cap. Contact Efficiency Works for additional details.
- Any customer receiving more than \$10,000 in incentives in a calendar year will be required to have a facility assessment. This is provided to the customer for **free**, but must be completed prior to pre-approval. Any customer that has received an approved facility assessment in the past three years is exempt from this requirement, but **will** be required to have energy advising. Again, this is provided to the customer for free, but must be completed prior to pre-approval of project for rebate funds.

Project pre-approval and final submittals:

- Required to submit copy of the project proposal, estimate, or bid provided to customer, including project scope details when requesting pre-approval.
- Required to input estimated project completion date when requesting pre-approval.
- Required to submit the final Signed Request for Payment - Page 12, W9, and final invoice(s) when submitting for final rebate processing.

NOTE: The most current rebate application found on the Efficiency Works website will supersede any discrepancies that may be found between this program guide and the Efficiency Works Business rebate application.

GENERAL PARTICIPATION REQUIREMENTS

By submitting the Efficiency Works Business rebate application, the participant acknowledges that they have read, understand and agree to be bound by all requirements, terms, and conditions of the Efficiency Works Program including, but not limited to, the Terms and Conditions set forth on the Sign Request for Payment pages of the Rebate Application.

ELIGIBILITY

Project is eligible to participate in Efficiency Works Business program if all of the following are true:

- ✓ Project site is served by one of the four following electric utilities: Town of Estes Park Light & Power (970-577-3583), Fort Collins Utilities (970-221-6700), Longmont Power & Communications (303-651-8386), Loveland Water & Power (970-962-3000). If applying for water efficiency rebates, project site water service must be served by Fort Collins Utilities.
- ✓ Replacing working existing equipment with new energy or water-efficient equipment or installing new energy or water efficient equipment in a new or existing commercial building or site.
- ✓ All equipment meets the specifications required to receive a rebate.
- ✓ Pre-approval is required for projects with rebates exceeding \$1,000 or required for VFD, Custom Efficiency, and New Construction projects. Re-approval is required if the final rebate amount is more than 10% higher than the original pre-approved rebate amount.
- ✓ Rebate must be expected to be higher than \$50 for all projects.
- ✓ Rebates cannot exceed 100% of the project cost.

HOW TO GET STARTED

Find out how to participate, schedule a free facility assessment, reach an Efficiency Works representative, find a service provider, or become a service provider:

- Email us at info@EfficiencyWorks.CO
- Visit us at www.EfficiencyWorks.CO
- Call us at 1-877-981-1888

BUSINESS PROGRAM REQUIREMENTS

Rebate Availability

Rebate requests will be reviewed on a first-come, first-served basis until all rebate funding has been committed. Upon receipt of an Efficiency Works Rebate Application, program staff will review the project for eligibility and, if eligible, the Participant will be notified by email of project preapproval and receive an approval code. Program rebate funds will be reserved for up to 45 days beyond the project completion date listed in the approved Efficiency Works Rebate Application. Extension of the project completion date may be granted, pending available budgets and Efficiency Works staff approval. Extension requests shall be submitted in writing and approvals, if offer, will be provided in writing. Upon receipt of finalized Efficiency Works Rebate Application, program staff will review any project changes and the need for post-installation on-site verification will be decided. Participant rebates will be paid within six (6) weeks of receipt of a finalized Efficiency Works Rebate Application and required documentation. Rebate dollars and the energy and water savings will be allocated to the annual program budget based on the date the Efficiency Works Rebate Application is approved.

On-Site Verification

Basic verification guidelines include:

- All project pre-approvals are subject to an on-site verification of installation by Efficiency Works prior to pre-approval of the project. Efficiency Works reserves the right to verify project installations on-site prior, during, or after the installation of the project. Efficiency Works will inspect at their discretion based on the project scope and estimate rebate and savings to be achieved. Efficiency Works will coordinate with customer and/or contractor for site access as needed.
- Efficiency Works will be responsible for verifying project implementation, start-up or commissioning details, and other verification activities, including site inspections. Participants and their program partners may be required to provide supporting documentation, information or materials and access to plant and equipment operations to complete the verification process.

On-site verification is defined as an on-site inspection to verify that a project was completed as intended including: all steps were taken to complete installation, equipment was installed as invoiced, assumptions were put in practice, calibrations were completed, etc. Verifications are completed prior to the issuance of a rebate check to the Participant; therefore, savings analysis can be adjusted prior to the issuance of the check if changes in scope are observed.

Major Renovation Definition

For the purposes of the Efficiency Works program, a major renovation includes at least three of the five criteria below:

1. The business is undertaking the project primarily due to a change in the use of the space, which requires changes to the lighting or HVAC systems. For example, warehouse space is being converted to office space.
2. The space being renovated will be unoccupied for 30 days or more.
3. Existing light fixtures are being removed and a totally new light scheme with rewiring as the result.
4. The project requires a construction permit.
5. First time install of electric operated equipment in which higher efficient models are available.

EFFICIENCY WORKS BUSINESS APPLICATION INSTRUCTIONS

How to Participate:

1. Determine project eligibility. The project site must be an electric customer of Town of Estes Park Light & Power Department, Fort Collins Utilities, Longmont Power & Communications, or Loveland Water and Power. For water rebates, the customer must be a water customer of Fort Collins Utilities (i.e. water rebates are not available in the other cities)
2. Incentive funds are subject to change without notice. Check the announcements on www.EfficiencyWorks.CO for recent program changes, or contact Efficiency Works for more information.
3. Download the most recent version of this application from www.EfficiencyWorks.CO
4. Contact a vendor, contractor, consultant, engineer, Utility Representative, or Efficiency Works for help with this application if needed.
5. Apply for preapproval (see requirements below).
6. Complete the project. Install products per program requirements and all applicable building and land use codes. Submit the materials listed on page 12. Rebate check may take up to 6 weeks to process once all required documentation is submitted.

Project Pre-Approval:

1. Apply for pre-approval after a bid is selected; before products are installed.
 - a. Pre-approvals are required for all projects with a rebate greater than \$1,000.
 - b. Pre-approvals are required for all custom projects and all VFD projects
 - c. Total potential incentive listed on Page 11 must be a minimum of \$50 to qualify
 - d. Submit the following materials via email to info@EfficiencyWorks.CO
 - i. This Microsoft Excel spreadsheet application file
 - ii. The project bid/quote/estimate, showing manufacturer names, part numbers, and quantities
 - e. Efficiency Works will review the application, and, if approved, issue an approval code.
2. Any customer receiving more than \$10,000 in incentives in a calendar year will be required to have a facility assessment. This is provided to the customer for **free**, but must be completed prior to pre-approval. Any customer that has received a facility assessment in the past three years is exempt from this requirement, but **will** be required to have energy advising. Again, this is provided to the customer for free, but must be completed prior to pre-approval.
3. Some projects will be randomly selected for pre-inspections prior to installation of new equipment.
4. Funds are only reserved 45 days past estimated project completion date.

How to use the Application:

1. This application workbook has a page (worksheet) listed in tabs at the bottom for each type of rebate (e.g. lighting, grocery, envelope, etc.).
2. Enter the customer information and general project information on **Page 1**.
3. Fill out the rebate page for each type of project you are doing. Click on the worksheet tabs below (for example, lighting retrofits are on **Page 2**).
4. Determine the total project incentive, and enter the project cost information on **Page 11**.
5. Note that grey cells are calculations and cannot be overridden. Cells below a blue header need to be filled in. Anything red must be filled in before the worksheet can calculate correctly.

LIGHTING EFFICIENCY

Existing Buildings

Only Light Emitting Diode (LED) lighting upgrades are eligible for rebates. Rebate categories are divided to reflect the difference in upgrading fluorescent fixtures to LED versus upgrading HID fixtures to LED. Lighting upgrades that incorporate new automatic control systems are eligible for additional incentives. Automatic lighting controls eligible for rebates must improve upon the existing lighting control systems. Rebates for lighting systems for new building and major renovations are calculated in the “Custom” rebates section. The table below lists the lighting rebate levels.

Incentives for Lighting Retrofits (does not include New Construction)		
Fixture type	Rebate (\$/Watt reduced, relative to existing fixture)	Notes
LED fixture (fluorescent replacement)	\$1.50	<p>New Hardwired LED fixture must:</p> <ul style="list-style-type: none"> • Be listed on the DLC Qualified Products List (QPL) or Energy Star Certified • Replace an existing fluorescent fixture (T5, T8, T12, CFL, etc) • Have integral LEDs (i.e. not lamps or tubes) • Additional rebate of \$0.25 per watt is available if new fixture has DLC integrated advanced controls as defined below. <p>Examples: Troffers, wraps, fluorescent high bays</p>
LED fixture (HID or incandescent replacement)	\$0.75	<p>New Hardwired LED fixture must:</p> <ul style="list-style-type: none"> • Be listed on the DLC Qualified Products List (QPL) or Energy Star Certified • Replace any non-fluorescent fixture (such as HID or incandescent) • Have integral LEDs (i.e. not lamps or tubes) • Additional rebate of \$0.25 per watt is available if new fixture has DLC integrated advanced controls as defined below. <p>Examples: Area lights, flood lights, wall packs, HID high bays</p>
LED Retrofit	\$0.25	<p>Hardwired Retrofit or Retrofit Kit must:</p> <ul style="list-style-type: none"> • Be listed on the DLC Qualified Products List (QPL) or Energy Star Certified • Be hardwired (i.e. not use the existing socket for power) <p>Examples: Type C LED tubes with external driver, area light retrofits, recessed downlight trim kits that use the existing 'can' for mounting, LED exit signs, monument and backlit signs</p>
LED Lamp/Other	\$0.10	<p>Lamp must be on either the DLC QPL or EnergyStar Certified. This category includes any LED lamp with an internal driver. Other 'specialty' products may be considered for this rebate on a case-by-case basis.</p> <p>Examples: A19 or BR/R Flood bulbs, Type A or Type B LED tube lights with integral driver, recessed downlight trim kits that have an E26 base, "corn cobs", and permanent removal of existing fixtures.</p>

Bonus Rebates for Automatic Controls*		
Controls (Tier 1)	\$0.10	Controls must <ul style="list-style-type: none"> • Be automatic (i.e. not manual, user controlled) • Be in addition to (or an improvement to) existing controls Examples: occupancy sensors, motion sensors, photocells, automatic timers
Controls (Tier 2)	\$0.25	Controls must <ul style="list-style-type: none"> • Be automatic (i.e. not manual) and networked (or network ready) • Allow luminaire level control, zoning, and scheduling • Measure and adjust to natural light levels and occupancy • Allow for continual dimming, high end trimming and task tuning • Be installed on or with a new LED fixture (not a retrofit or lamp) • If the controls are integral to the fixture, the full fixture model number indicating the controls must be shown on the invoice to be eligible Examples: DLC Networked Lighting Control System (NLCS) compliant systems

**Bonus rebate is in addition to the applicable fixture/lamp rebate. For example, an LED retrofit with 'Tier 1 Controls' would receive a rebate of \$0.35 per watt reduced (\$0.25 plus \$0.10).*

Additional Lighting Rebate Considerations:

- Verification is required if you are claiming fixture wattages that are different than the wattage values automatically populated by the Efficiency Works application; including, but not limited to, incandescent, exit signs, 40W T12 lamp and magnetic ballast input watts, T8 lamps and electronic ballast combined input watt, etc. Verification of equipment and input wattages may be performed by submitting pictures of existing or new equipment showing amperage, volts and/or watts, lamp types, cut sheets, etc.
- All LED products used must be either listed as ENERGY STAR and/or Design Lights Consortium (DLC) qualified. Refer to www.energystar.gov or www.designlights.org for the most updated list.
- These items do NOT qualify for lighting rebates:
 - The installation of high efficiency fluorescent or CFL lighting.
 - The replacement of neon outdoor signs to LED signs. Fluorescent signs (e.g. monument or backlit signs) are still eligible for a rebate.
- All exterior lighting must be full cut-off.
- It is recommended to consider the illuminance levels (foot candle) of all new lighting installed. A reference to the recommended illuminance levels as determined by the Illuminating Engineering Society of North America (IESNA) Lighting Handbook is shown below.

New Buildings

Rebates for new lighting systems in new buildings or renovations are based on the proposed or design lighting power density (LPD, watts/sq ft), and can be applied for through the custom section of the rebate application. The design LPD must be at least 10% lower than the ASHRAE Lighting LPD (90.1 - 2013 Building Area Method) design and be more efficient than standard market conditions. The rebate is based on the total wattage reduction of the building or space by using the ASHRAE 90.1 – 2013 LPD as the baseline and the lower design LPD as the new wattage, or market available products. The difference is multiplied by \$0.10 per kWh saved annually. The ASHRAE 90.1 – 2013 LPD table is shown below. Lighting retrofits in existing buildings where no significant building renovation is being performed should refer to the above lighting rebates for “existing buildings”.

Table 1: ASHRAE 90.1 - 2013 Lighting Power Densities Using the Building Area Method (Taken from Table 9.5.1 of the ASHRAE standard.)

Building Area Type	(W/ft ²)	Building Area Type	(W/ft ²)	Building Area Type	(W/ft ²)
Automotive Facility	0.80	Hotel	0.87	Police Station	0.87
Convention Center	1.01	Library	1.19	Post Office	0.87
Court House	1.01	Manufacturing Facility	1.17	Religious Building	1.00
Dining: Bar Lounge/Leisure	1.01	Motel	0.87	Retail	1.26
Dining: Cafeteria/Fast Food	0.90	Motion Picture Theater	0.76	School or University	0.87
Dining: Family	0.95	Multifamily	0.51	Stairways	1.00
Dormitory	0.57	Museum	1.02	Sports Arena	0.91
Exercise Center	0.84	Office	0.82	Town Hall	0.89
Fire Station	0.671			Transportation	0.70
Gymnasium	0.94				
Health Care-Clinic	0.90	Penitentiary	0.81	Warehouse	0.66
Hospital	1.05	Performing Arts Theatre	1.39	Workshop	1.19

New Construction Lighting Rebate Example:

A new building has a lighting power allowance of 20,000 Watts (per the design/permitting ComCheck). However, the actual lighting design only uses 15,000W. The building operates 3,000 hours/year. The annual energy savings are calculated as follows:

$$\text{Annual Energy Savings} = (20,000 \text{ W} - 15,000 \text{ W}) \times 3,000 \text{ hours} = 15,000 \text{ kWh.}$$

$$\text{Potential Rebate} = (15,000 \text{ kWh}) \times (\$0.10) = \$1,500.$$

Illuminance Guide:

Illuminance should be taken into consideration when installing new lighting. The table below provides recommended levels of Illuminance (foot candle) for different space types; however Efficiency Works does not guarantee the information is up to date or correct. This is merely a guide for quick reference of some general applications. Foot candle (fc) values listed below in are derived from the IESNA Lighting Ready Reference Guide (RR-03), A Compendium of Materials from the IESNA Lighting Handbook, 9th Edition. Reference your detailed applications in the current version of the Illuminating Engineering Society of North America (IESNA) Lighting Handbook.

Space Type	Recommended IESNA Illuminance Level (FC)	Space Type	Recommended IESNA Illuminance Level (FC)
Auditoriums	5 to 20	Lobby	5 to 10
Auto Repair	50 to 75	Retail – Sales Counters	30
Auto Body Shop	75 to 100	Retail – Circulation	5 to 10
Auto Showroom	50 to 75	Retail – General Display	30 to 50
Banks – General	10 to 20	Manufacturing	
Banks – Teller Stations	50	Assembly and inspection Easy	30
Barbershop/Salon	50	Medium	50
Church	20 to 25	Fine	75 to 100+
Office – Open and Private Intense to some computer use	30 to 50	Material Handling	30 to 50
Conference Rooms	30	Packaging, wrapping, labeling, shipping/receive	30
Classrooms and Reading	30 to 50	Reading on computers	10 to 30
Dining Areas	10 to 20	Restrooms	5 to 20
Engineering and Drafting	50 to 75	Stairwells and Hallways	5 to 10
Gymnasiums Recreational	30	Warehouse Inactive storage	5 to 10
Elementary/club	50	Big items/Loading docks	10
High school to competitive	80 to 100	Small items	10 to 30

COOLING EFFICIENCY

The following is a summary of heating, ventilation, and air conditioning (HVAC) equipment and controls that are eligible for rebates and the rebate amounts; see below for more descriptions on these measures. Rebates for high efficiency DX Air Conditioning units are no longer available due to the collaboration efforts of the local utilities with regional AC distributors to help provide high efficiency air-conditioning units at the lowest cost possible to all commercial customers. Contact Efficiency Works for minimum efficiency requirements.

New Rebate Description	Rebate
Advanced RTU controllers	\$2,000 / Unit
Evaporative Condensing	\$100 / Ton
Advanced Evaporative Cooling	\$150 / Ton (or \$0.20/CFM)
Outside Air Economizer	\$250 / Unit
Ductless Mini-Split	\$300 / Ton

Advanced Roof Top Unit Controller (for existing RTUs)

After market controllers that utilize variable frequency drive supply fan control combined with an integrated economizer and demand ventilation controls. Ask us for an approved list of controllers. We have implemented a pilot program with Fort Collins Utilities to install three (after market) RTU controllers on three separate units and businesses. The pilot goal was to not only to validate the estimate energy savings, but to also try the actual installation and marketability of the product. The results of this pilot have shown that this technology is ready for a prescriptive rebate. The rebate is based on per controller unit installed. Majority of the savings are achieved through reduced supply fan speed (~80% of total savings); followed by savings achieved from integrated economizer and demand control ventilation.

Evaporative Condensing

Evaporative condensing is a technology that pre cools the air entering the condenser of a rooftop unit or air-cooled chiller with mist or an evaporative media. This lowers the entering air temperature which lowers the refrigerant head pressure, thus reducing the work the compressor has to do and saving energy. This is a great summer peak reduction measure and achieves energy savings at the same time. We have worked with manufactures of this technology and Xcel energy's savings estimates to develop our own savings estimates and rebate.

Advanced Evaporative Cooling

This rebate applies to direct, direct/indirect, or indirect evaporative coolers. Equipment must guarantee air quality against bacteria, mold, and etc. Continuous 'bleed' systems for sediment or scale prevention do not qualify. Contractor is required to either include a maintenance plan or teach the operator the proper winterization, startup, and maintenance. Similar to evaporative condensing, the (direct) evaporative cooling methodology pre cools outside air using only the evaporative effect to cool. Indirect evaporative cooling also qualifies for this rebate and is a method of using water and exchanging the cooling energy to

the entering outside air without direct contact to water or mist. Evaporative cooling is generally ideal for smaller buildings since it typically requires larger duct work, and the duct work is probably better matched than larger buildings that were initially designed with mechanical cooling and appropriate ducting

Airside Economizer for Packaged Cooling Equipment

An incentive is now available for airside economizers installed on packaged cooling equipment. An incentive of \$250 per unit is available when:

- Adding an economizer to existing packaged cooling where no previous economizer existed, or
- Adding an economizer to a new packaged cooling system where the previous system did not have an economizer.

The incentive is not available for economizers in packaged cooling systems 54,000 Btu/hr and up that are being installed in new construction, or where cooling capability is being installed for the first time or required by local Code.

Ductless Mini-Split

An incentive is available for high efficiency ductless mini-split air conditioning systems with energy efficiency ratings (per AHRI test procedures, www.ahridirectory.org) of 12.5 EER AND 17 SEER. Units up to and including 5 tons are eligible.

BUILDING ENVELOPE

Building envelope rebates are available for both new and existing buildings. The following rebates and specifications are designed to help offset the incremental cost to improve the buildings envelope with higher efficient specifications.

Upgrades to Existing Buildings (see below for New Construction)		
Measure	Incentive per unit	Criteria (see additional requirements below)
Efficient windows Tier 1	\$3.00 per SF window unit	U-value of 0.30 or less for north, south, east, & west glazing AND have a SHGC of 0.25* or less for east, south & west glazing (**performance rating for entire window & frame based on NFRC Certified Product Database)
Efficient windows Tier 2	\$6.00 per SF window unit	U-value 0.18 or less for non-operable & 0.22 or less for operable windows for north, south east & west glazing AND SHGC of 0.25* or less for east, south & west glazing (**performance rating for entire window & frame based on NFRC Certified Product Database)
Existing window: add window film	\$1.50 per SF glass	SHGC 0.35 or less for east, south & west glazing. Existing windows must be clear single or double pane.
Roof insulation	\$0.32 per SF roof	Insulation entirely above deck R-30 c.i. FOR EXISTING BUILDINGS ONLY Metal building R-19 + R-13 Liner system or R-25 + R-10 Liner system
Attic Insulation	\$0.16 per SF attic	Total insulation value \geq R-49
Wall insulation	\$0.06 per SF wall	Mass R-20 c.i. Metal building R-0 + R-21 c.i. or overall U-value of 0.05 Steel framed R-13 + R-12 c.i. or overall U-value of 0.05 Wood framed R-13 + R-8.5 c.i. or R-19 + R-6 c.i. or overall U-value of 0.05
Cool roof	\$0.18 per SF roof	ENERGY STAR labeled material and application

*A higher SHGC may be allowed if the window is externally shaded. Contact Efficiency Works for details. Requires pre-approval.

** Window performance criteria verification must be demonstrated by at least one of the following:

1. NFRC Certified Product Database (CPD) Product ID Number(s) – must be current in NFRC database; see <http://www.nfrc.org/>
2. NFRC Component Modeling Approach Software Tool (CMAST) simulation report, validated by ACE (Approved Calculation Entity) agency; see <http://www.nfrc.org/>
3. Letter of Results from NFRC-accredited simulation laboratory. See <http://www.nfrc.org/>

Upgrades to New Buildings and Major Renovations		
Measure	Incentive per unit	Criteria (see additional requirements below)
Efficient windows Tier 1	\$1.50 per SF window unit	U-value of 0.30 or less for north, south, east, & west glazing AND have a SHGC of 0.25* or less for east, south & west glazing (**performance rating for entire window & frame based on NFRC Certified Product Database)
Efficient windows Tier 2	\$3.00 per SF window unit	U-value 0.18 or less for non-operable & 0.22 or less for operable windows for north, south east & west glazing AND SHGC of 0.25* or less for east, south & west glazing (**performance rating for entire window & frame based on NFRC Certified Product Database)
Roof insulation	\$0.16 per SF roof	Insulation entirely above deck R-35 c.i.
		Metal building R-19 + R-13 Liner system or R-25 + R-10 Liner system
		Attic insulation R-49
Wall insulation	\$0.03 per SF wall	Mass R-20 c.i.
		Metal building R-13 + R-18 c.i. or overall U-value of 0.05
		Steel framed R-13 + R-12 c.i. or overall U-value of 0.05
		Wood framed R-13 + R-8.5 c.i. or R-19 + R-6 c.i. or overall U-value of 0.05

*A higher SHGC may be allowed if the window is externally shaded. Contact Efficiency Works for details. Requires pre-approval.

- ** Window performance criteria verification must be demonstrated by at least one of the following:
1. NFRC Certified Product Database (CPD) Product ID Number(s) – must be current in NFRC database; see <http://www.nfrc.org/>
 2. NFRC Component Modeling Approach Software Tool (CMAST) simulation report, validated by ACE (Approved Calculation Entity) agency; see <http://www.nfrc.org/>
 3. Letter of Results from NFRC-accredited simulation laboratory. See <http://www.nfrc.org/>

Additional Requirements

- Insulation and product rating must be met or exceeded to qualify; no partial improvement can be applied. R-value is an average across total square footage being insulated.
- Building must have air conditioning and/or electric heat to qualify for envelope incentives.
- Energy savings estimates are based on energy models for a reference building that may or may not accurately predict the savings that will be achieved by your project.
- Existing buildings may have limitations to the amount of additional insulation to meet these requirements. Efficiency Works will accept the total R-value of the assembly that combines existing R-value assemblies and the new addition that increase the overall R-value to meet the required levels. Potential qualifying assemblies will be accepted on a case by case basis.

Replacement windows:

- To qualify for an incentive, windows must meet or exceed the listed U-value and SGHC criteria based on whole-window ratings per NFRC criteria listed above, not just the center-of-glass (COG) ratings.
- Incentives are available only for windows within 45 degrees of true east, west, or south orientations.

Window films for Existing Windows

- Window films must be professionally installed.
- Incentives are available only for windows within 45 degrees of true east, west, or south orientations.

Roof & Wall Insulation

- The c.i. designation stands for Continuous Insulation. This is insulated sheathing panels completely covering the exterior side of the steel framing, mass wall, or roof deck thus providing a continuous thermal break to the outside.
- For metal building roofs the recommended construction is with a Liner system offered by several manufacturers. For metal roofs the recommended construction is standing-seam roofs with two layers of blanket insulation. The first layer is draped perpendicularly over the purlins with enough looseness to allow the second insulation layer to be laid above it, parallel to the purlins.
- For steel framed walls the first layer is installed continuously perpendicular to the exterior of the girts and is compressed as the metal skin is attached to the girts. The second layer of insulation is installed parallel to the girts within the framing cavity.

FOOD SERVICE EQUIPMENT

Rebates for foodservice equipment are applied to the purchase of high efficiency equipment that qualifies as ENERGY STAR rated or rated by the Consortium for Energy Efficiency (CEE). Rebates do not apply to used or non electric savings food service equipment. Note that additional rebates for water savings may be available on the Water Efficiency portion of this guide. Leasing equipment can qualify for a rebate if lease terms are for a minimum of 4 years.

Food Service Equipment

The following are foodservice rebates offered by Efficiency Works:

New High Efficiency Equipment	Minimum Required Criteria (see below for qualifying models)	Incentive per Unit
High Efficiency Ice Machine (kWh/100 lbs of ice)	CEE Tier 2	\$300
High Efficiency Ice Machine (kWh/100 lbs of ice)	ENERGY STAR	\$200
Insulated Hot Food Holding Cabinets (min 7 cu ft)	ENERGY STAR	\$600
Reach-In Refrigerators & Freezers (< 19 ft ³) (glass or solid door)	ENERGY STAR	\$250
Reach-In Refrigerators & Freezers (19 - 30 ft ³) (glass or solid door)	ENERGY STAR	\$500
Reach-In Refrigerators & Freezers (31 - 60 ft ³) (glass or solid door)	ENERGY STAR	\$750
Reach-In Refrigerators & Freezers (61 - 90 ft ³) (glass or solid door)	ENERGY STAR	\$1,000
Electric Steamers	ENERGY STAR	\$1,200
Electric Fryers	ENERGY STAR	\$200
Electric Griddles	ENERGY STAR (> 70% HL Eff)	\$600
Combination Ovens - Electric	ENERGY STAR (> 70% HL Eff)	\$2,000
Convection Ovens - Electric	ENERGY STAR (> 70% HL Eff)	\$400

Vent Hood Controls for Commercial Kitchen

Qualifying vent hood controls must use sensors to measure heat intensity and variable frequency fans to modulate or “turn off” exhaust and/or make up air fans during low cooking times. Rebate is calculated at \$400 per horsepower of controlled fans –for both exhaust and make up air if applicable.

Additional References

The following table lists additional references to find qualifying equipment lists and more ways to save in a commercial kitchen.

Minimum Required Criteria Reference	Website Links	Description
CEE Tier 2 & 3 Qualifying Model Lists www.cee1.org	http://www.cee1.org/com/com-kit/com-kit-main.php3	Visit the Consortium for Energy Efficiency (CEE) website for a list of all CEE qualifying kitchen equipment; including Tiers 2 & 3.
ENERGY STAR Qualifying Model Lists	http://www.energystar.gov/index.cfm?c=products.pr_find_es_products	ENERGY STAR website homepage to find ENERGY STAR qualifying equipment models.
General Energy Savings Calculators www.fishnick.com	http://www.fishnick.com/	Interactive FSTC commercial kitchen equipment interactive web-based tool, displaying estimated savings with energy efficient appliances.

GROCERY EFFICIENCY

Rebates for high efficiency grocery equipment include many energy savings measures that improve efficiency of grocery and refrigeration operation. The following table lists rebates for easy low or no cost improvements up to higher capital improvements that can be implemented on grocery or restaurant refrigeration equipment.

Tune-up Existing Reach-in or Open Display Cases and Existing Walk-ins

Auto closer for walk-in or reach-in freezer and cooler doors	\$ 50 per door
Auto closer for walk-in freezer doors	\$50 per door
Auto closer for walk-in cooler doors	\$50 per door
Gaskets for walk-in or reach-in cooler doors	\$6 per lineal foot of door perimeter
Gaskets for walk-in or reach-in freezer doors	\$7 per lineal foot of door perimeter
Strip curtain on walk-in cooler doors	\$75 per door
Strip curtain on walk-in freezer doors	\$150 per door
Suction line insulation	\$1.50 per foot

Requirements

Auto closers for walk-in freezer and cooler doors should be applied to the main insulated solid door of a walk-in. The auto-closer must be able to firmly close the main door of the walk-in whenever it is closed to within one inch of full closure. Incentive is based on equipping each door with a new auto-closer or replacement of a existing auto-closer in disrepair. Adjustments of existing auto-closers do not qualify for incentives.

Auto closers for reach-in freezer and cooler doors should be applied to the glass door of a reach-in case. Reach in door must have a minimum perimeter of 15 feet. Incentive is based on each door that is equipped with a closer. Only full replacement or repairs that include replacement of hard parts qualify.

Strip curtain on walk-in doors for new strip curtains only added to walk in or reach in doors.

Door gaskets must replace a worn or damaged gasket. Replacement gaskets must meet the manufacturer’s specifications regarding dimensions, materials, attachment method, style, compression, and magnetism. Incentive is based on total linear footage of installed new gaskets.

Upgrade Existing or New Reach-in or Open Display Cases and Walk-ins

Measure Description	For Existing Unit Retrofits	For New Unit Upgrades
Zero energy glass doors w/ co ASH <2a>	\$125 per door	\$50 per door
Low energy glass doors <2b>	\$75 per door	NA – required by Code
Anti-sweat heater (ASH) controls <3>	\$100 per door	NA – required by Code
LED case lighting replacing T8/electronic ballast	\$100 per lamp	
LED case lighting replacing T10/12/magnetic ballast	100 per lamp	NA
Occupancy sensor controlling LED or T8 lamp case lighting <5d>	\$8 per lamp	
EC motors in display cases, walk-in coolers, compressor head fans (electronically commutated motor)	\$50 per motor	NA – required by Code
EC motors in walk-in coolers and freezers evaporator and condenser fans and compressor head fans (electronically commutated motor)	\$ 100 per motor	NA – required by Code
Night covers – vertical or horizontal	\$20 per LF	NA
Smart defrost control walk-in freezer (greater than or equal to 1.5 horsepower)	\$400 per controller	
Evap fan controls walk-ins	\$50 per fans controlled	\$50 per fans controlled
Outside air economizers for walk-ins (walk-in must be ≥ 1,000 cu. ft.)	\$1,250 per economizer	

Additional Requirements

Zero Energy Doors (ZED) with no Anti-Sweat Heaters (ASH) consist of triple-pane glass with either heat-reflective treated glass or gas fill and are equipped with no anti-sweat heaters for reach-in glass doors coolers and freezer installations. ZED per door rebate only applies to replacement or installation of glass doors on existing or new display cases and existing walk-in or warehouse coolers/freezers. A lower per door rebate is available for NEW walk-in/warehouse Zero Energy doors. b) Low Energy Doors are new glass doors replacing existing glass door with an amp draw of less than 0.39 amps per door for rebate. Anti-Sweat Heater Control rebate is not available if Zero or Low Energy Door rebate is claimed.

Anti-Sweat Heater Controls must install a controller that reduces the energy use of anti-sweat heater by 50% by sensing humidity, dew point or condensation. Rebate only applies to adding ASH controls to existing or new display cases and existing walk-in or warehouse coolers/freezers doors. No rebate is available for NEW walk-in/warehouse. Zero or Low Energy Door rebate is not available if ASH Control rebate is claimed.

Case Lighting Retrofit existing case equipped with T12 lamps/magnetic ballasts with T8 lamps/electronic ballasts. Rebate only applies to existing or new display cases and existing walk-in or warehouse coolers/freezers. No rebate is available for NEW walk-in/warehouse.

LED case lighting must replace a) existing T12/10 lamps and ballasts and sockets in an existing or new display case or existing walk-in cooler or freezer. b) LED case lighting must replace existing T8 lamps and ballasts and sockets in an existing or new display case or existing walk-in cooler or freezer. c) Rebate available for equipping new reach-ins, walk-in or warehouse coolers/freezers with LED lighting (instead of the standard T8 lamp equipped units). d) OCCUPANCY SENSOR ADDED TO T8 or LED CASE LIGHTING: Occupancy sensor control added to T8 or LED case lighting increases annual kWh savings, and is an added rebate amount based on number of lamps controlled.

EC Motors in Display Cases must replace existing shaded pole motor with electronically commutated motor (ECM) in display case coolers/freezers. Rebate only applies to existing or new display cases for less than one horsepower motors.

EC Motors in Walk-in Cooler/Freezer must replace existing shaded pole motor with electronically commutated motor (ECM) in the evaporators used in existing walk-in or warehouse coolers/freezers. Rebate applies to retrofitting existing evaporator with new ECM motors or new evaporators supplied with ECM motors. No rebate is available for ECM motors/evaporators used in NEW walk-in/warehouse coolers/freezers.

EC Motors on compressor head fans must replace existing shaded pole compressor head-cooling fan motors with electronically commutated motors. Motor retrofits must take place on low temperature reciprocating compressor systems with existing 35-55 watt output head fan motors. Compressors must be an integral part of a refrigeration system with a remote air cooled or evaporative condenser. New ECM motor may not be more than 20 watt output. Must install, or be equipped with, electronically commutated motor (ECM) on compressor head fans in walk in coolers.

Smart Defrost Controls (on Walk-In Freezer Condensing Unit) are eligible technologies will use mini-processors to sense temperature and pressure and monitor the system operation to determine the need for a defrost cycle for the evaporative coils and provide electric defrost only when necessary. (Systems typically work with existing timed defrost controllers). Eligible technologies must be electric defrost controllers and have third party operational verification testing data. Rebate requires controlling a condensing unit horsepower rating of 1.5 or greater.

Evaporator Fan Controls Shaded Pole in Walk-in Cooler/Freezer with evaporator fan control systems must turn off a evaporator fans at least 70% of the time the compressor is not running, must reduce the airflow of evaporator fans in walk-in coolers when compressor(s) cycles off while no refrigerant flows through the evaporator, and must control a minimum fan load of 1/20 horsepower when the fan(s) operate continuously at full speed. NOTE: This measure may not result in significant energy savings if the system is undersized or if the evaporator does not use off-cycle or time-off defrost. Rebate only applies to existing or new display cases and existing walk-in or warehouse coolers/freezers doors. No rebate is available for NEW walk-in/warehouse. Controls on evaporator fans equipped with EC Motors qualify if EC Motor is installed at same time as the new controller(s). EC Motor rebate still qualifies.

Outside Air Economizers \geq 1,000 cu. ft. where outdoor air and exhaust dampers must close automatically for summer isolation. Eligible equipment must be capable of using outdoor air of less than 34° F while maintaining the set point of the cooler. Please include the walk-in box volume (L x W x H) dimensions. Walk-in coolers smaller than 1,000 cu. ft. are not eligible for rebates.

OFFICE EQUIPMENT AND APPLIANCES

The following are rebates to improve the control and efficiency of office equipment and appliances:

Office Equipment		
Existing Equipment	New IT Processing Components	Rebate per Unit
PC or no existing equipment	New ENERGY STAR desktop or side computer	\$12
PC or no existing equipment (Fort Collins Utilities Electric Customers Only)	ENERGY STAR rated thin client	\$50
Servers	Virtualized servers and server virtualization software	\$250
60-100 W incandescent/halogen desk lamp or none	New ENERGY STAR LED desk lamp	\$15
Linear fluorescent undercabinet fixture (with T12/T8 lamps) or none	New ENERGY STAR LED undercabinet fixture	\$5
150-300 W incandescent/halogen floor lamp or none	New ENERGY STAR LED torchiere	\$20
Office plug load equipment	Smart strip energy efficient surge protector*	\$7
Office plug load equipment	Plug strip w/ motion sensor or occupancy schedule	\$20
Vending machine	Occupancy or schedule control	\$90
Datacenter efficiency	Contact Efficiency Works for more details	

Additional Requirements

Server Virtualization must submit virtualization software agreement and provide proof the consolidated servers have been removed and fully decommissioned. Offsite virtualization hosting not eligible for this incentive.

Thin Client incentives are available in Fort Collins only, due to funding provided by Fort Collins Utilities. Thin clients must be ENERGY STAR rated. Customer must provide the following information: plans for old PCs; number, location, and power requirements for virtual desktop servers; project cost. Customers may wish to consult the Fort Collins e-waste guidelines and resources web page at: <http://www.fcgov.com/ewaste/>

Appliances		
Existing Equipment	New IT Processing Components	Rebate per Unit
Clothes Washer, Residential****	ENERGY STAR	\$25
Clothes Washer, Commercial, Vended****	ENERGY STAR	\$25
Clothes Washer, Commercial, Non-Vended****	ENERGY STAR	\$25
Dishwasher, Residential****	ENERGY STAR	\$25
Refrigerator, Residential	ENERGY STAR	\$50

**** Additional rebates may be available for Fort Collins Utilities water customers. See page 29 for more information.

VARIABLE FREQUENCY DRIVES (VFD'S)

Prescriptive variable frequency drive rebates are available up to 75 horsepower for compressor, fan, and pumping systems. Custom rebates may be available for air compressors.

Motor Capacity (hp)		Rebate (\$/hp)		
Min	Max	Fan	Pump	Compressor
1	5	\$120	\$120	\$120
7.5	10	\$100	\$100	\$100
15	20	\$85	\$85	\$85
25	30	\$75	\$75	\$75
40	50	\$65	\$65	\$65
60	75	\$55	\$55	\$55

Additional Requirements:

- All VFD incentive applications must be pre-approved.
- Incentives are only available for new VFDs installed where none were previously used.
- Incentives are not available in new construction or renovation projects if the VFD is required by ASHRAE 90.1-2013.
- Incentives are not available for redundant or stand by pumps or fans.
- Incentives are not available for VFDs installed in unitary cooling equipment if the VFD is required to achieve the AHRI cooling efficiency rating and if the equipment is receiving a cooling efficiency incentive.
- Customer acknowledges that he or she has been made aware of the potential for VFDs to cause harmonic distortion on the facility's electric distribution system and that harmonic distortion can sometimes negatively impact the operation of sensitive electric equipment interconnected with the distribution system.
- VFD must be automatically controlled.

WATER EFFICIENCY

Prescriptive rebates for water efficiency improvements to your facility and site are available to save water inside and out. **These rebates are only for Fort Collins Utilities Water Customers.**

New High Efficiency Equipment	Minimum Required Criteria (see below for qualifying models)	Incentive per Unit
Ice Machine*	CEE Tier 2 or ENERGY STAR	\$100
Electric Steamers*	ENERGY STAR	\$750
Residential Clothes Washer	ENERGY STAR	\$50
Commercial Clothes Washers Vended	ENERGY STAR	\$250
Commercial Clothes Washers Non Vended	ENERGY STAR	\$125
Commercial Dishwasher	ENERGY STAR	Up to \$2,000
Tank Toilets (1.1 GPF or less, must verify old toilet was recycled)	WaterSense	\$75
Flushvalve Toilets (1.28 GPF or less, must verify old toilet was recycled)	WaterSense	\$100
Urinals (less than 0.125 GPF)	WaterSense	\$100
Waterless Urinal	Select From List on App	\$100
High Efficiency Showerhead (1.5 GPM or less)	WaterSense	\$10
Ultra High Efficiency Sink Aerators Call Fort Collins Utilities at 970-416-2877 for free aerators	0.5 GPM or less	FREE
High Efficiency Pre-Rinse Spray Valves Call Fort Collins Utilities at 970-416-2877 for up to 2 free spray valves	WaterSense	FREE
Rebates for irrigation equipment are no longer available through this rebate application. Contact Eric Olson at Fort Collins Utilities for more information 970-221-6794 or eolson@fcgov.com		

*Additional rebates are in addition to rebates for same unit in Foodservice.

CUSTOM EFFICIENCY

The Custom Efficiency rebate offering was developed to complement the Efficiency Works suite of rebates focused on achieving electricity and water savings goals and supporting Participant implementation. This overview is meant to establish eligibility requirements, processes, procedures, and forms, while leaving room for innovation. Participant custom efficiency promotes the implementation of electric energy and water saving measures at qualifying Participant facilities. Rebates promoted through Efficiency Works serve to reduce the cost of implementing energy and water reducing measures and upgrading to high-efficiency equipment. Due to the nature of a custom efficiency rebate, a wide variety of measures and measures are eligible. Measures eligible for prescriptive rebates are ineligible for the custom efficiency rebates.

Custom Measure Eligibility

All electric energy and water efficiency projects are potentially eligible for the custom efficiency rebate. However, any measure eligible for prescriptive rebates through Efficiency Works are ineligible for the custom efficiency rebate. Efficiency Works will review qualifying prescriptive program equipment periodically and may adjust measures and eligibility requirements in the future as market conditions and equipment standards change.

The Program does not explicitly specify eligible measures in the custom efficiency offering to provide maximum flexibility in identifying potential projects. However, to be eligible, measures must meet the following requirements:

- Measures must produce a measurable and verifiable reduction in energy or water consumption.
- Measures must produce savings through an increase in equipment energy or water efficiency or better utilization of energy through the use of improved production equipment or controls.
- Measures must have an implementation cost premium to achieve the energy or water efficient aspects of the project to qualify for rebate (i.e., if there are no costs to improve energy efficiency, then it is not eligible for a rebate).
- Measures must have a minimum useful life of 10 years to qualify for standard rebates. Reduced rebates may be available for measures with shorter lives.
- Measure must meet minimum cost-effective requirements with simple payback between 1 and 15 years, or determined remaining useful life of the project and equipment by Efficiency Works.
- Measures that save both energy and water will be evaluated on the savings of both in which the rebate shall be the additive of the two as long as the total is within any payback limits.

Minimum Equipment Efficiency Standards and Requirements

Custom efficiency rebates are designed to promote projects that improve efficiency above and beyond the industry standard, Code, or pre-determined baseline consumption. Efficiency Works reserves the right to determine the appropriate baseline for all custom efficiency projects. For example, Efficiency Works will not award rebates to Participants to simply update systems and equipment from outdated technology to standard technology.

Examples of Projects Eligible for Rebates

Examples of measures eligible for rebate are listed below:

- Lighting upgrades for new construction or major renovations
- Installation of plate in frame heat exchanger to allow for water side economizer operation
- Building Automation System (BAS) installations or upgrades and proposed energy efficient control sequences
- Building envelope improvements, when not covered by prescriptive measures in rebate application
- Refrigeration compressor and condenser replacement with more efficient units
- Compressed air equipment and system upgrades
- Industrial process, controls and/or operational reconfigurations or improvements
- Water efficiency measures including: irrigation, restroom and kitchen fixtures, industrial water use, cooling towers, and ozone systems, when not covered by prescriptive measures in rebate application

Examples of Projects Ineligible for Rebates

Examples of measures ineligible for rebate are listed below*:

- Measures where project installation commenced (including but not limited to executing contract agreement, demolition of existing equipment, purchasing new equipment, installing new equipment) prior to the submittal of an Efficiency Works Rebate Application and written notification from Efficiency Works of project pre-approval.
- Measures that achieve savings through **routine** equipment maintenance (e.g., cleaning HVAC coils or grills, repairing steam leaks, fixing or replacing steam traps, etc.)
- Measures that are solely demand management and/or load control <1>
- Measures that rely solely on changes in Participant behavior or system operation <1>
- Measures that are required by state/federal law, building or other codes and standards
- Measures that generate electricity, including cogeneration or renewable energy generation <1>
- Diagnostic equipment (e.g., thermal imaging equipment to identify loose electrical connections, ultrasonic leak detectors, etc.) <1>
- Projects that result in non-electric savings. <1>
- Measures which are eligible for rebate through the existing prescriptive rebate programs <1>

<1> Note that these measures may not be eligible for custom efficiency rebates, but may be eligible in other Efficiency Works rebate offerings. Contact Efficiency Works for more information.

Measure Savings and Costs

In general, energy and water savings and project costs are calculated in comparison to the equipment inventory and operation prior to implementing qualified projects, specifically:

- If the project is an elective retrofit and the equipment is still operable (i.e., early replacement), the baseline is the existing equipment and operation; and therefore the energy and/or savings is the difference between the existing equipment usage and the new high-efficiency equipment or process energy or water usage and the eligible project cost is the full cost to implement the project.
- If the project is replacement of equipment at the end of its useful life (i.e., replace on failure or has exceeded useful equipment life), the baseline is equipment with efficiency levels that are equivalent to those in applicable building code requirements or standard industry efficiency levels; therefore the energy and/or water savings is the difference between the standard-efficient equipment energy or water usage and the new high-efficiency equipment energy usage and the eligible project cost is the incremental difference between the standard equipment and the high-efficiency equipment.

Calculations of the Participant's cost savings will use the applicable energy and demand rate (\$/kWh and \$/kW), or make use of a blended energy rate that is appropriate for the load factor and demand coincidence factor of the energy savings. Water efficiency project cost savings will be based on the rate per gallon.

Eligible Measure Costs

Project costs are based upon either the actual or incremental expenses incurred by the Participant in connection with determining the baseline in Section 2.3 above. This may include costs associated with the construction, installation and/or implementation of an eligible project.

Eligible costs may include:

- Design fees / Labor and installation cost / Engineering and consulting expenses / ESCO (energy service company) fees
- Material equipment costs / Demolition and disposal fees / Financing fees
- Participant labor expenses (calculated as hourly rate x hours) for pre-approved, qualified Participant staff to provide labor for project implementation.

All project expenses are subject to review and approval by Efficiency Works. Participants shall provide cooperation and access as is reasonably required for the determination of eligible costs. Acceptable documentation of eligible costs may include: invoices, work orders, cancelled checks, and accounting system reports. These costs must be included with the submitted finalized Efficiency Works Application with a signed Request for Payment document and W9 tax form from rebate recipient.

Rebate Guidelines

Rebates will be paid at the greater of \$500 per kW saved during the Summer Peak Period (Monday through Friday, 3 to 6 p.m., June through August) or \$0.10/kWh per annual kWh, or gallons, saved, but will not exceed 75% of the project cost (See Efficiency Works Rebate Application for program year requirements). The water rebate is \$5,000 per annual acre feet saved. Rebates cannot reduce the project simple payback below 1 year or have a simple payback greater than 15 years (or equipment useful life) after rebate. Participants may be subject to a maximum rebate in each calendar year in order to ensure the program serves a diversity of Participants across the four municipalities. In special cases, the maximum rebate may be exceeded, subject to approval by Efficiency Works. Efficiency Works will reserve the right to waive or adjust the rebate amounts and caps on a case by case basis and determine at their sole discretion the program year to which a rebate is attributed.

In cases where the final project delivers energy or water savings in excess of the preapproved values, final rebate payments will be based on the original verified or calculated energy or water savings. In cases where the final project delivers energy or water savings are less than the preapproved values, final rebate payments will be based on the lower adjusted verified or calculated energy or water savings. Final rebates may change based on actual installation of the equipment and project. Re-approval from Efficiency Works is required if the final rebate amount is expected to exceed more than 10% of the pre-approved rebate amount, or equal to 110% of the preapproved rebate

To qualify for rebates, energy and water efficiency measures must be cost effective as solely determined by Efficiency Works. Efficiency Works reserves the right to re-calculate pre-approved project rebates (increased or decreased) to reflect changes in project scope of work or other factors.

- All projects must be pre-approved. Projects commenced by the Participant prior to receiving formal Efficiency Works pre-approval are not eligible for rebates.
- Equipment is eligible for rebate based on the final commissioning or installation date not the purchased date.
- Efficiency Works reserves the right to adjust rebates in the future as market conditions change.
- Efficiency Works reserves the right to verify sales receipts, cancelled checks as well as conduct on-site inspections of pre- and post-installation project equipment and operations in order to verify project installation during the Participant's normal business hours, before issuing rebate.

Rebate Availability

Rebate requests will be reviewed on a first-come, first-served basis until all rebate funding has been committed. Upon receipt of an Efficiency Works Rebate Application, program staff will review the project for eligibility and, if eligible, the Participant will be notified by email of project preapproval and receive an approval code. Program rebate funds will be reserved for up to 45 days beyond the project completion date listed in the approved Efficiency Works Rebate Application. Extension of the project completion date may be granted, pending available budgets and Efficiency Works staff approval. Extension requests shall be submitted in writing and approvals, if offer, will be provided in writing. Upon receipt of finalized Efficiency

Works Rebate Application, program staff will review any project changes and the need for post-installation on-site verification will be decided. Participant rebates will be paid within six (6) weeks of receipt of a finalized Efficiency Works Rebate Application and required documentation. Rebate dollars and the energy and water savings will be allocated to the annual program budget based on the date the Efficiency Works Rebate Application is approved.

On-Site Verification

Basic verification guidelines include:

- All project pre-approvals are subject to an on-site verification of installation by Efficiency Works prior to pre-approval of the project. Efficiency Works will notify the project representative upon receipt of the Efficiency Works Rebate Application for pre-approval if onsite verification will be required for their project. Efficiency Works reserves the right to verify project installations on-site prior, during, or after the installation of the project. Efficiency Works will inspect at their discretion based on the project scope and estimate rebate and savings to be achieved.
- Efficiency Works will be responsible for verifying project implementation, start-up or commissioning details, and other verification activities, including site inspections. Participants and their program partners may be required to provide supporting documentation, information or materials and access to plant and equipment operations to complete the verification process.

On-site verification is defined as an on-site inspection to verify that a project was completed as intended including: all steps were taken to complete installation, equipment was installed as invoiced, assumptions were put in practice, calibrations were completed, etc. Verifications are completed prior to the issuance of an rebate check to the Participant; therefore, savings analysis can be adjusted prior to the issuance of the check if changes in scope are observed. Savings values are evaluated based on engineering calculations using typical equipment characteristics and operating schedules for particular applications, which can include-site testing or metering. Savings estimates will be developed based on industry-accepted performance standards or estimated existing equipment performance (where available). Changes in implementation assumptions will be carefully considered when altering the project savings.

Project Development Assistance

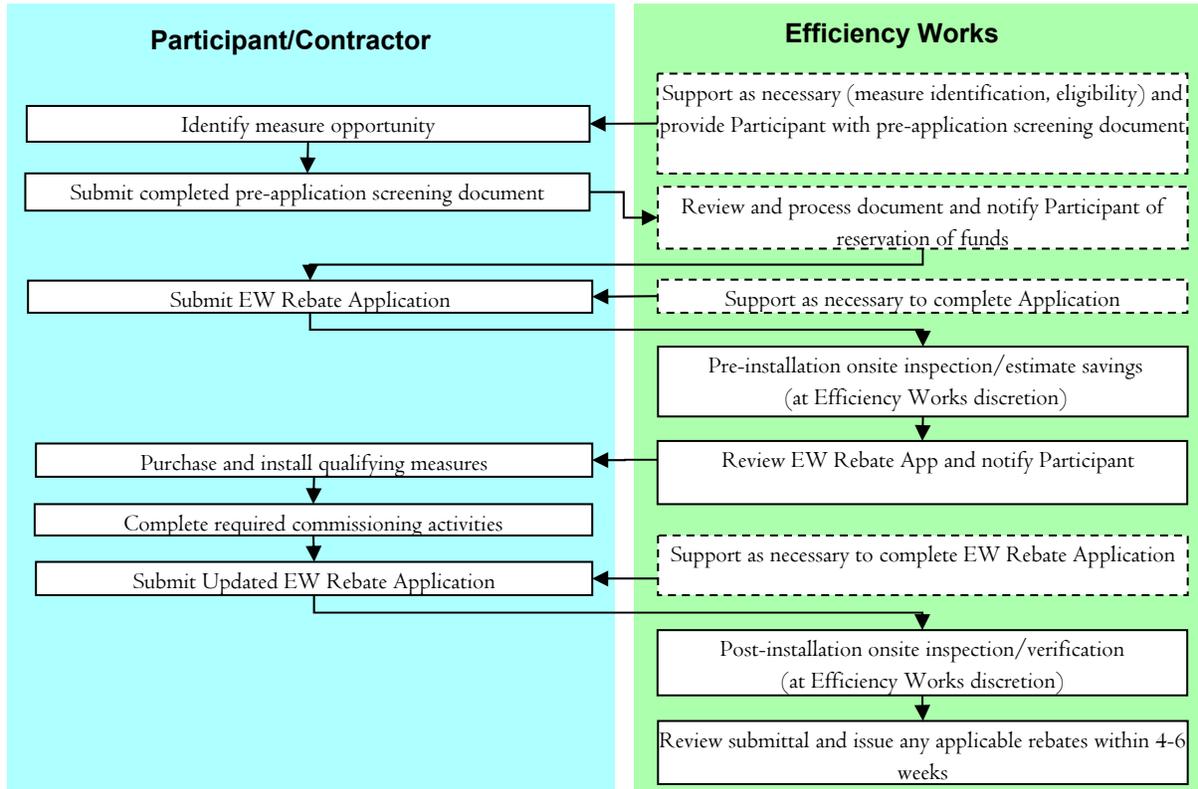
Efficiency Works will provide Participants with development assistance on eligible measures; however, the scope of the assistance is limited. Participants are expected to work with trade allies to develop initial project savings and cost estimates. Participants must provide estimated energy or water savings and calculations when they submit the Efficiency Works Rebate Application. Efficiency Works will then work with both the Participant and their service provider to refine the estimated energy or water savings and pre-approve eligible projects.

Program Application

The Efficiency Works Rebate Application includes Custom Efficiency rebate tab to be completed for pre-approval.

Program Participation Process

This section provides information on participating in Efficiency Works' custom efficiency rebate offering including; the program process, required submittals, and milestones. The following is the detailed Efficiency Works custom efficiency process flow chart and the higher level flow chart to illustrate program participation paths.



PROGRAM OVERVIEW

Most buildings have never gone through a formal, systematic commissioning or quality assurance process, and are likely performing below their potential. Efficient operation of existing major building systems presents a significant opportunity for energy and demand savings, usually with little or no capital investment. Recommissioning or retrocommissioning¹ is a “building tune-up” that not only identifies problems due to system operation deficiencies or design flaws that occurred during construction, just as traditional commissioning of a new building does, but it also identifies and recommends solutions to problems that have developed during the building’s existence. Retrocommissioning seeks to assist with equipment and system functionality, and optimizing their integrated operation to reduce energy waste and improve building performance and occupant comfort.

One of the primary objectives of Efficiency Works is to offer our Customers every opportunity to help manage their energy expenses. Efficiency Works suite of available program initiatives provides rebates for many energy efficient technologies and products available in today’s market. The Efficiency Works *Building Tune-up Program* is uniquely suited to fit within existing rebate programs by offering energy analysis services to identify low-cost and no-cost energy and water efficiency measures through Retrocommissioning (RCx). In addition to being the electric utility, Utilities are also the water utility for most facilities in their electric service territory. Each municipality may have additional water efficiency rebates for Retro-Commissioning Measures (RCMs) identified in the RCx project that target water savings.

The Efficiency Works *Building Tune-up Program* is an energy efficiency offering that provides Customers with expert building analysis and RCx services at a discount for services defined in this manual to help lower Customers’ energy and water costs by optimizing a facility’s energy using systems. Efficiency Works *Building Tune-up Program* does not provide detailed engineering support or rebates for capital equipment measures – rebates for these types of measures may be available under other Efficiency Works programs. Savings are realized through the systematic evaluation of facility systems and Customer’s implementation of cost-effective measures targeted to improve facility operation that, in many cases, also improve occupant comfort and production efficiency. The focus is no- and low-cost RCx Measures (RCMs) that save energy and water.

Because of the variation in the types of systems in different types and sizes of buildings, three participant options to accommodate many types of buildings, which are described below:

- **Tier 1 – Direct Implementation:** designed to improve energy and water efficiency for simple building systems in commercial buildings. These simple systems are

¹Recommissioning by definition is the commissioning of a building that has been previously commissioned in its life, Retrocommissioning by definition is the commissioning of a building that has NOT previously been commissioned. For purposes of the Platte River *Building Tune-up Program* documents, the term retrocommissioning will be used for both recommissioning and retrocommissioning.

normally found in smaller to medium sized buildings less than 50,000 square feet (sq ft), but can be found in larger buildings as well. These building systems typically last 15 to 25 years with periodic preventative maintenance designed to keep the systems running, not necessarily in an efficient manner. The Tier 1 Option uses a direct implementation, prescriptive approach to enhance the performance of the building energy and water systems, allowing them to operate at their highest efficiency while maintaining occupant comfort and potentially extending the life of the building equipment. The Tier 1 Option also offers free technical services and minimizes the upfront studies, reporting, and paperwork usually associated with large building tune-up projects, instead focusing the majority of the costs on implementation (of those costs, 75% will be covered by the program). This option combines the Planning and Implementation/Investigation Phases (Phases defined below) into one comprehensive step. The program provides a rebate up to \$0.15 per sq ft of building and Customer must commit to \$0.05 per sq ft up to \$12,000 for implementation services.

- **Tier 2 – RCx Study and Implementation Support:** designed as a hybrid of the Tier 1 and Tier 3 Options to include a flexible, no-cost tune-up analysis of simple or complex systems likely found in, but not limited to, medium-sized buildings. This Option mimics Tier 3 but is reduced in scale and scope as the buildings are typically around 50,000 to 100,000 sq ft and allow for direct implementation of common, pre-defined measures for commercial buildings. This approach strikes a balance between the reporting and the field data collection and analysis associated with the Tier 1 and 3 Options. This option will include the Planning Phase, and then move into the Implementation Phase (either immediately or later) based on the planning survey results, with oversight provided by the Retro-commissioning Service Provider (RSP). Customer must commit to \$0.05 per sq ft up to \$12,000 for implementation services.
- **Tier 3- RCx Study, Implementation Support, and Verification:** offers a typical RCx four-phase approach (Application, Planning, Investigation/Implementation, Verification) to customers with facilities that have sophisticated, energy and water intensive building and control systems, usually (but not always) found in facilities of 100,000 sq ft or greater. The tune-up analysis will be a no-cost service, fully funded for the qualified customers. Qualified participants are expected to cover the costs associated with implementing the measures recommended by the tune-up analysis, attend meetings, and assist trade allies in acquiring facility information. Program participants are commercial and industrial facility owners who have demonstrated a commitment to spend \$0.05 per sq ft up to \$12,000 to implement identified retrocommissioning (RCx) measures with an estimated total project simple payback of two years or less based upon total energy savings. It should be noted that even though this rebate program is focused on electricity and water, Customers who are in Xcel Energy’s gas service territory may also be considered for a gas savings rebate through Xcel’s RCx program.

Eligibility Requirements

To participate in Building Tune-up Program, Customers must purchase electricity from one of the four Utilities of Platte River (Town of Estes Park Light & Power Department, Fort Collins Utilities, Longmont Power & Communications, and Loveland Water and Power) on an eligible non-residential retail electric rate schedule. Table below lists eligible Customer price plans.

Eligible Rate Schedules for Building Tune-up Program

Utility	Town of Estes Park Light & Power	Fort Collins Utilities	Longmont Power & Communications	Loveland Water and Power
ELIGIBLE RATE SCHEDULES	Large Commercial Small Commercial Municipal	E400 Series E300 Series E250 Series E200 Series	CCD CC CD CE GFE (municipal energy) GFD (municipal demand)	Loveland – PS Loveland – LG Loveland – SG

Customers can verify their rate schedule by looking on a recent bill. Refer to the Customer electric bill for Town of Estes Park, Fort Collins, Longmont, and Loveland. Customers with questions regarding their account should contact their utility Account Manager.

For the purposes of Efficiency Works energy efficiency programs, a Customer is defined as a company or organization that receives electric service from one of the Utilities of Platte River: Town of Estes Park Light & Power Department, Fort Collins Utilities, Longmont Power & Communications, and Loveland Water and Power under an approved rate schedule. A Customer is a holder of a single account, multiple accounts in aggregate or corporate accounts. Multiple accounts or corporate accounts with a single Customer identification number will be considered a single Customer. An organization of this type can participate in multiple efficiency programs, but will be subject to any applicable Customer rebate caps.

The delivery of Program services follows a Phase schedule (detailed below) that scales in scope based on the Tier that eligible participants fall into. Table 0-1 represents an overview of each activity per phase, and its applicability per Tier; more detailed Phase explanations follow in subsequent sections.

Table 0-1: Tier Applicability per Phase

Phases	Tier 1	Tier 2	Tier 3
Application Phase (No Cost to Customer)			
Buildings <50,000 sq ft of conditioned space	✓		
Buildings with >50,000 sq ft , but <100,000 sq ft of conditioned		✓	
Buildings >100,000 sq ft of conditioned space; including industrial			✓
Building owner must authorize work to be performed if applicant is not the owner of the building.	✓	✓	✓
Free of major problems requiring costly repairs or replacements, with no planned major system renovations or retrofits	✓	✓	✓
Building must have a functioning BAS with trending/storage capabilities or ability to substitute this function with data logging		✓	✓
System receives periodic preventative maintenance (e.g., filter replacement, coil cleaning, refrigerant charge, and belt tension	✓	✓	✓
Provide facility access, personnel time to meet with RSP	✓	✓	✓
Provide and assist with the reporting and collection of information		✓	✓
Application is submitted to Platte River with signed agreement	✓	✓	✓
Planning Phase (No Cost to Customer)			
Fully funded technical services	✓	✓	✓
Must be performed by a qualified RSP	✓	✓	✓
RSP conducts a technical review, building and system conditions are further gauged. potential tune-up opportunities evaluated		✓	✓
RCx Plan Report is developed for presentation to customer and inputted into BTU Plan Approval Form of the application (Page 4 –	✓	✓	✓
BTU Work Order is completed for presentation to customer and inputted into BTU Plan Approval Form of the application (Page 4 –	✓		
BTU Plan Approval Form including the Customer Selection Form are submitted to customer for review and approval of RCMs for	✓	✓	✓
Commitment to fund at least \$0.05 per sq ft (up to \$12,000), based on building size in the tune-up measures, with an estimated total	✓	✓	✓
Investigation / Implementation Phase			
Immediate implementation and completion of selected measure tabs in BTU Application. BTU Work Order is adjusted based on actual	✓		
Vendor quotes or staff work load estimates obtained, if applicable		✓	✓
Field data collection and functional testing			✓
Activities minimized to focus on implementation		✓	
Facility staff or vendor and RSP engaged to help facilitate the tune-up		✓	✓
Tune-up testing of the systems completed, incorporating measured and verified data, estimating the potential energy savings for identified measures, including system calculations and documenting the			✓
Diagnostic and Calculation (D&C) plans developed; measures implemented after they are identified and/or summarized in the D&C			✓

Verification Phase and completion of project (No Cost to Customer)

Verification sampling of entire building group (i.e., not all buildings get M&V), pre- and post-monitoring after the measures have been	✓		
RSP, staff, and vendor (if applicable) revisits the site to verify that		✓	✓
Final BTU Report is completed and submitted to customer (located in	✓		
Updated RCx Plan submitted to customer for review and approval		✓	
Verification report submitted to customer for review and approval			✓
RSP conducts a technical review of all verification reports		✓	✓

Eligible Customers include existing facilities that are:

1. Planning no major renovation or large capital investments for the facility shall be pending, and owner/O&M staff shall express a commitment for active involvement in the process.
2. Considered to have energy and water savings opportunities and measures that result in less than two year simple payback.

Platte River retains the right to make final determination of Customer eligibility and which Tier is most applicable to the building.

The facility owner and O&M staff must express a commitment to be actively involved in the RCx process. Active involvement will include:

- Providing access to the facility.
- Providing time for facility personnel to interface with the Retro-commissioning Service Provider (RSP).
- Providing and assisting with the reporting and collection of information pertaining to the RCx of the facility.
- A commitment to spend at least: \$0.05 per sq ft up to \$12,000.

Program Dates

Building Tune-up Program became effective on April 1, 2010 and is on-going. RCx rebates are not eligible for prior Customer-funded RCx activities or without necessary pre-approvals.

Rebate Availability

Participant applications to participate in Efficiency Works *Building Tune-up Program* will be reviewed on a first-come, first-served basis until all rebate funding has been committed. Current availability of rebate funds can be checked by contacting Platte River or your Utility.

Partnership with Xcel Energy (Tier 3 only)

Platte River's Building Tune-up Program is partnering with Xcel Energy's RCx program in order to maximize program benefits. Xcel Energy offers rebates for both RCx studies and for gas measures implemented during a RCx project. Xcel Gas Customers that participate in the program will be required to submit applications to Xcel Energy's RCx program and should follow Xcel's requirements for submitting and obtaining the RCx rebate. Platte River will work with Xcel RCx rebate to supplement the total cost of the RCx Study. For example, if the cost of the RCx is \$20,000 and Xcel's rebate for the gas portion is \$2,000, Platte River will supplement the remaining \$18,000 for the cost of the study. Any rebates obtained from Xcel for

implementation of gas saving measures will not be factored in Platte River's program, and will be handled directly through Xcel Energy.

FAQ'S

1. What is the Efficiency Works Building Tune-up Program? The BTU program is Platte River and its four owner utilities' (Estes Park, Fort Collins, Longmont, and Loveland) retrocommissioning (RCx) program that help funds the cost to perform RCx services and helps customers achieve low or no cost energy savings by tuning up their existing equipment.

2. What are commissioning, re-commissioning and retrocommissioning? In general, commissioning is the practice of insuring the energy systems are operating as efficiently as it can and as designed by performing detailed testing and diagnostics of these systems. Typically low or no cost measures are identified that you can do to save energy in an existing building, but require an experienced commissioning agent to perform this analysis. Definitions are as follows:

☐☐ *Commissioning* (New Construction): Insuring that a building will operate as the designers intended it to; design/submittal/BOD/OPR reviews, construction observations, witness system startup, functional testing, training, warranty checks

☐☐ *Retrocommissioning* (Existing Building): Commissioning a building that has never been commissioned; systematically reviewing the comfort, operating issues, and energy performance to insure that the building is functioning in an optimum manner

☐☐ *Re-commissioning* (Existing Building): Commissioning an existing building that has already been commissioned or retro-commissioned

☐☐ *Continuous or Monitoring Based (MBCx) Commissioning*: An ongoing process to monitor and resolve operating problems, minimize comfort complaints, and optimize energy performance

3. Who should I contact to start this process or ask questions? You can contact your city utility account representative, qualified retro-commissioning service provider (RSP) or Efficiency Works to get started.

4. What is considered a project, per building or multiple buildings per company (campus)? A project is per building.

5. Do I need pre-approval by Platte River before I start work on my project? Yes

6. Do I have to use one of the RSPs on your list to perform the work? Yes, but depends on your type and size of building being retro-commissioned.

a. Typically retro-commissioning performed on buildings that are less than 50,000 square feet will require the work to be performed by a qualified RSP (or other approved by Platte River). Work will consist of a Walk-through Assessment to identify the opportunities and implementation utilizing the Building Tune-up Work Order tab of the BTU Application.

b. Typically retro-commissioning performed on buildings that are greater than 50,000 square feet will have an RCx Plan (or study) and is required to be performed by a qualified RSP (or other approved by Platte River). Implementation of the selected RCx measures may be performed by any contractor or in-house staff.

7. Are O&M Savings included in the SPB for RCMs? No. They can be used as leverage for additional information or help borderline measures, but will not be part of initial SPB calculations.

8. Is the Xcel Energy participation on the Fast Tracks side of the program? Or how does that work? Contact Xcel Energy for more information

9. What level of scoping does an RSP need to do if we are bringing in the customer? Is the application enough? At minimum, the application is all that is required for applying to the program to get pre-approval to start your project; just help them fill out the application completely.

10. Is the RSP for Tier 2 and 3 buildings required to be part of the Implementation Phase if we are implementing the measures ourselves or through a third party contractor? Yes, we strongly recommend that they are playing an advisory role to ensure the verification phase goes smoothly and savings are realized.

11. Is the RSP for Tier 1 building required to be part of the Implementation Phase if we are implementing the measures ourselves or through a third party contractor? Yes, tune-up work performed on the smaller sized buildings (typ. Less than 50,000 sq ft) is required to be done by a qualified RC.

12. Is savings +/- 20% on a per measure basis or on a per project basis? Per measure, but measures are not set in stone at this phase. This applies to the Planning Phase RCM calculations, in terms of the level of accuracy expected on the predicted energy savings analysis provided by the RSP. During the Implementation Phase, the accuracy is expected to increase to +/- 5-10% for the RCM savings.

13. Is trending going to be required as part of the deliverables for the Planning Phase? No. but trending is preferable when a building has complex systems that will be commissioned and achieve verifiable energy savings.

14. Can trending take the place of functional testing? Partially. Functional testing is necessary as we need confidence that points are all calibrated before trusting the trend data. It would also be worth testing a few sequences before trending them as well.

15. Are the RSP/RCs going to recommend capital improvements as part of the scope of work? This is not required as part of the scope, but we recommend that capital improvement measures are identified for further analysis to be performed at the discretion of the customer outside of the BTU project.

16. What happens if RSP has to go back 2-3 times to do verification? The RSP can spend the budget really fast if they don't have watch over the controls and contractors and the RSP should not be responsible for that.

There are multiple facets to this answer:

- RSP should budget for some minor rework as this will undoubtedly happen even with a good contractor.
- There should be a 50/50 responsibility of the Customer and the RSP to make sure that the end of Implementation and the Verification phases go smoothly. This goes in hand with the RSP staying involved during implementation, looking over the shoulder of the customer doing the work, ensuring it's being done correctly. Also we recommend that the customer provide some sort of sign off near the end of the Implementation Phase at a meeting with the RCx team, stating that all

of the work is implemented and functioning per the recommendations of the RSP.

- There should be an agreement between customer and PRPA that will protect against this. For example, if the customer says that all implementation is complete, and the RSP determines that it is not complete and results in the RSP having to do additional verification analysis and site trips, the customer should be responsible for reimbursing the RSP for their additional time.

Direct Implementation - Tier I Buildings

The following section describes the targeted buildings, rebate structure and phases associated with the Tier 1 Buildings.

Targeted Buildings

The following typical characteristics are associated with the Tier 1 buildings:

- Conditioned floor area: up to 49,999 sq ft
- HVAC equipment shall be between 2-20 years old and must not be at the end of their useful life
- Typically single zone thermostats – manual or programmable
- Single zone packaged equipment or split systems
- Other systems targeted: water fixtures, PCs, Domestic Hot Water, lighting and plug load controls, custom measures.
- **Example of other unique circumstances that may target a building for this tier:**
 - Building is a 60,000+ square foot building conditioned only with Roof Top Units (RTU's) with economizers and single zone thermostats.
 - Building is 30,000 sq ft and is conditioned by two constant or variable volumes, built up, air handling units with DX cooling, economizers, and terminal units. Building may have single zone thermostats (or sensors and central control) per terminal unit with no trending capability and/or front end customer access.

Rebate Structure

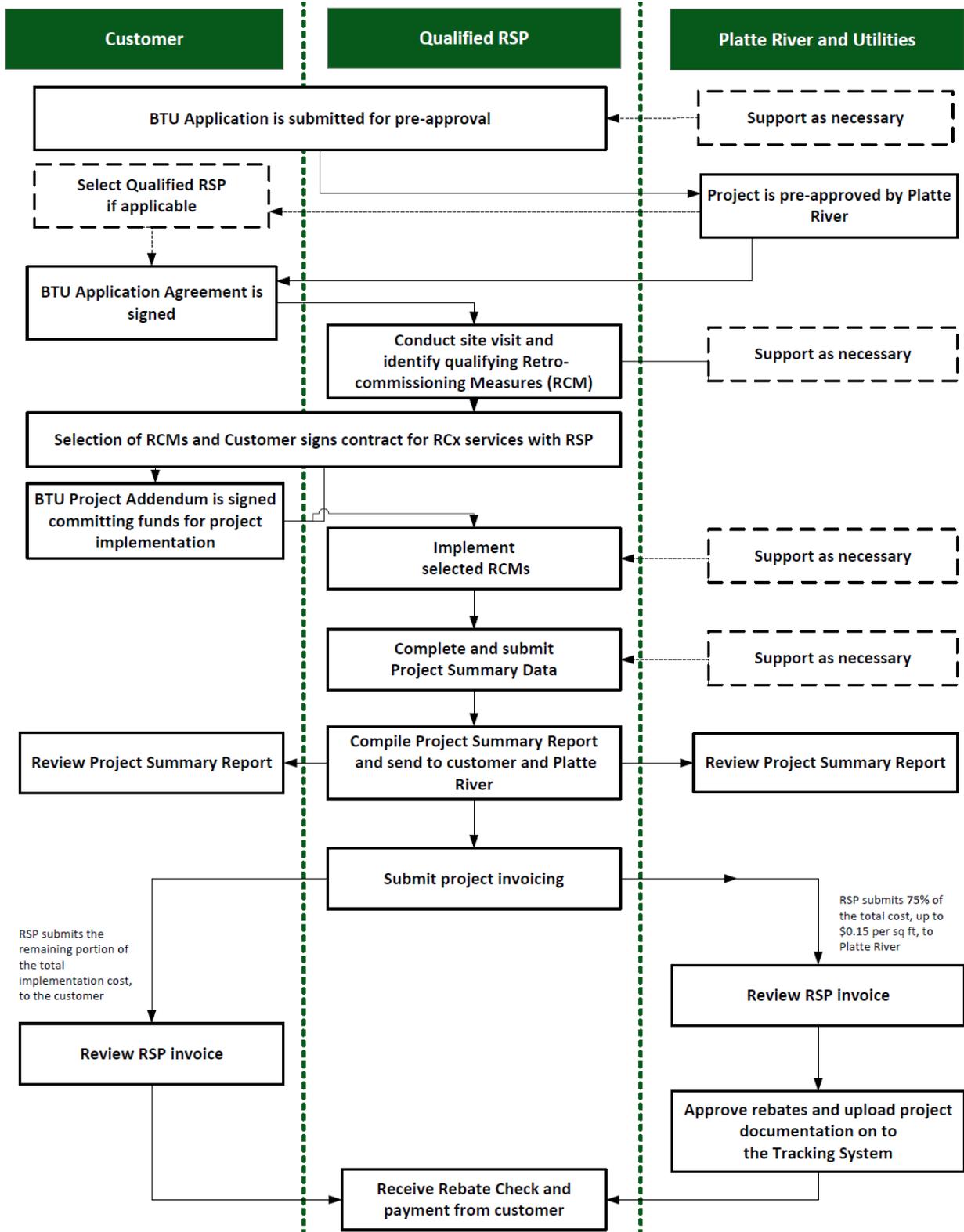
In this option, services are performed exclusively by qualified RSP that specialize in services that are offered through the Tier 1 Option. To encourage participation of small buildings in the Tier 1 Option, Platte River and its Utilities offer 75% of the measure implementation cost as a rebate. Once Platte River screens a facility for the Tier 1 Option, the customer will select and schedule the RSP to perform the Tier 1 RCx services. The RSP will submit the final paperwork to Platte River on behalf of the customer for the rebate equal to 75% of the cost of the services performed, or \$0.15/sq ft. If the customer chooses, Platte River will pay the rebate directly to the RSP and the RSP will invoice the remainder to the customer; which is \$0.05/sq ft. Platte River will send the rebate check directly to the contractor (or the authorized third party) within 4-6 weeks of the receipt of the contractor invoice. If tune-up costs exceed this amount, written approval is required by Platte River and the participant and the participant agrees to pay the additional cost. Work is performed by the qualified RSP with some engineering support available by Platte River.

The Participant will have to complete and show clear documentation (like invoice, maintenance log sheet, building maintenance records, etc.) of preventative maintenance before tasks pertaining to the Tier 1 Option can be implemented. If Platte River or the selected RSP discover that preventative maintenance has not been performed according to the evidence provided or condition of the equipment, the services will cease, and the participant will be responsible for a \$200 charge to cover the contractor's time for the assessment.

The customer may pursue additional measures that are identified during the Retrocommissioning process and will be responsible for the costs of these measures that exceed the \$0.15 per sq ft rebate offered by Platte River. Other identified energy and water efficiency measures may qualify for rebates through other Platte River or the service area Municipality rebate programs.

Participation Process

The Tier 1 Option participation process is outlined below.



Building Tune-up Program Participation Procedures for Tier 1 Buildings

Application Phase

Contact a qualified Retro-commissioning Service Provider (RSP) or Utility or Efficiency Works Representative for help with application to get started. Pre-approval is required for all projects to be considered for funding in the Efficiency Works Building Tune-up Program (BTU) program. To receive pre-approval, submit completed Efficiency Works BTU application and agreement prior to work being performed; including the following required pages: Page 1 - Customer Info, Page 2 - Project Pre-screening, and Page 3 - signed Building Tune-up Program Agreement. Electronic submittals are allowed by emailing the application and signature pages to tuneup@prpa.org. Note that Alternative Payment Recipient and second signature on the Agreement page are to be completed after the selection of the RSP if customer prefers the rebate to be paid directly to the qualified RSP. If RSP is already selected for the project, then this may be signed at the time submitting the application for pre-approval.

- Customer completes application with assistance from Efficiency Works, Utility, or qualified RSP.

Once the application is received, Efficiency Works will verify customer account number, installation address for submitted account number, valid equipment installation date, equipment eligibility and capacity, and potential incentive amount. Applications which are incomplete or are not eligible to participate will receive an email, letter, or phone call describing to the customer the changes necessary to qualify for the program. Once the project is pre-approved, the customer or party submitting the application will receive an approval code to authorize the initial preliminary site assessment to begin (or Planning Phase).

Key RSP Application Phase Deliverables

- 1) Completed BTU Application and signed Agreement are submitted to Efficiency Works.

Planning Phase

The customer will select an RSP, if one has not already been selected, to conduct a preliminary site assessment and verify the operation of HVAC equipment and preventive maintenance status (see Section 3.6.1. Preliminary Maintenance Check for details) are used to generate an initial list of measures to assess overall project feasibility. The RSPs are trained to look for the prescriptive Retro-Commissioning Measures (RCM) to provide a list of potential RCMs to the customer. This initial work establishes the general framework – or plan – for the balance of the tune-up activities.

Key RSP Planning Phase Deliverables

- 1) Complete site assessment walk-through *and* the project "BTU Work Order" tab (located in the BTU Application).
- 2) Attendance at Project Planning Meeting and proposal of potential RCMs.
- 3) Complete Customer Selection Form in BTU Plan Approval Form.
- 4) Customer signs BTU Plan Approval Form to authorize the implementation of the selected RCMs and committed funds prior to the Implementation Phase.
- 5) Customer and selected RSP enter into an agreement and/or contract for scope of RCx services

The RSP then thoroughly discusses the potential RCMs in detail with the customer. Customer will select the RCMs that are to be implemented by the RSP based on general simple payback criteria of less than 2 years.

Implementation Phase

The Investigation and Implementation work is considered one Phase because the activities are linked for cost-effectiveness. For Tier 1, as noted above, the Retrocommissioning Service Provider (RSP) will proceed with the Implementation Phase right after the Planning Phase.

Key RSP Implementation Phase Deliverables

- 1) Revised and completed BTU Application and Addendum #1 (if changes were made from the original pre-approved application), including customer report and measure tabs.
- 2) Provide Proof of Work Performed – invoices, etc.
- 3) Final Report to Customer – See Appendix C and BTU Application.

Potential Measures

The prescriptive measures described below are inexpensive ways to achieve significant energy savings. A detailed description of each measure is given below. These measures are all listed in the BTU Application and require the following protocols to meet program specifications; RSP is required to complete each tab in the workbook as it applies to the selected RCMs in the Planning Phase.

Preliminary Maintenance Check

Checking coil cleanliness on rooftop units helps ensure that the participant is performing preventative maintenance that is a pre-requisite for participation. If the coils are not clean, then the date of the last cleaning should be obtained from the participant. If it has been more than six months since the last cleaning and no cleaning is scheduled, then the unit should not be re-commissioned.

Other preventative maintenance tasks that should be checked before recommissioning is performed are:

- Confirming there is proper airflow and appropriate motor speed
- Checking fan belt tensions
- Investigating filter condition and most recent replacement

Scheduling Existing Controls Equipment

This measure involves evaluating and adjusting the temperature schedules in the existing programmable thermostat or control system. The conditioning schedule is adjusted so that heating and cooling equipment is fully operational only while the building is occupied. This means utilizing temperature setbacks during unoccupied times. For buildings with centralized

Air Handling Units (AHUs), this means shutting down the air handler and associated systems during unoccupied times.

For buildings with programmable thermostats in use, the occupied temperature setpoint is called for one to two hours before occupants start arriving. If the programmable thermostat has “adaptive intelligent recovery” capability, then the occupied schedule starts when the first occupants arrive. Unoccupied time periods begin immediately when the majority of occupants start leaving for the day. This approach is used because the thermal mass of the building is assumed to keep the internal building temperature close to the occupied temperature setpoint until most occupants have left for the day.

Occupied temperature setpoints are not typically adjusted unless they are way outside of the “normal” temperature range. The most aggressive, energy-saving setpoints are utilized during the unoccupied periods. Typically, the unoccupied setpoints are set to be eight degrees away from the occupied setpoint. For heating setpoints, this means eight degrees lower; for cooling, this means eight degrees higher. Studies have shown that this temperature difference is optimum for saving energy in the long run. Using a larger temperature difference will make the system “work harder” when bringing the space temperature to the occupied setpoint and reduces the energy savings associated with the setbacks.

Table 0-2 Recommended Setpoints for A Typical Office Space

Setpoints (°F)		
Mode	Cooling	Heating
Occupied	72	68
Unoccupied	80	60

After schedules are updated, the contractor should discuss with the participant changes made to the schedule and answer any questions they may have. Familiarizing the participant with the changes made to schedules will hopefully facilitate the persistence of the energy savings.

Installing and Scheduling Programmable Thermostats

This measure involves installing programmable thermostats, then programming them with the appropriate temperature schedules using the approach outlined above. If an existing thermostat does not have scheduling capabilities, then it should be replaced. If any existing programmable thermostats do not have ‘auto change-over,’ they will be evaluated on a case by case basis for replacement with a programmable thermostat that has ‘auto change-over’ functionality.

If the HVAC systems are controlled by independent thermostats, then thermostats should be consolidated and replaced. This will minimize the two systems working against one another and wasting energy.

If a new thermostat has been installed, the contractor should take some time to educate the participant on the temperature schedule, how to operate the new thermostat, and answer any questions they may have. The instructions for the thermostat should also be left with the participant.

Adjusting or Adding Economizers

This measure ensures that airside economizers are functioning in a way that will minimize the energy consumption of the refrigerant compressor. This involves evaluating the minimum and maximum damper settings, making sure that these settings are being achieved when called for, and adjusting the actuators as needed. The methodology for this is listed below:

- Call for cooling at the unit
- Confirm it modulates
- Repair/adjust if not working properly

Calibrating or Replacing Economizer Sensors

The outside air temperature sensors for airside economizers should be checked to see if they are out of calibration. If so, they should be calibrated if possible. If they can't be calibrated, then they should be replaced. This task should help ensure that the economizer is operating optimally. This measure also replaces the Honeywell C7400 (Enthalpy) and C7650 (Dry Bulb) OA sensor with new OEM replacement (C7660) to correct a logic error and convert it to dry. This measure also replaces the Honeywell W7450 (Dry Bulb) and W7460 (Enthalpy) OA sensor with new OEM replacement to correct a logic error and convert it to dry bulb.

Repairing /Replacing Economizer Damper Actuators

Actuators and linkage should be adjusted, if possible. If an airside economizer damper actuator cannot be adjusted to function as desired, it should be replaced. Linkages should be replaced if necessary, as well. This will ensure that the outside air dampers on economizers are going to the minimum positions when in heating or cooling mode and are fully economizing in the appropriate temperature range.

Demand Control Ventilation (DCV) Controls

This measure ensures utilizes existing economizer controls and new CO2 sensors placed in the return air of the RTU or AHU to calculate the amount of occupants are in the space and allow the proper amount of ventilation to match the occupant number. Typically the DCV is installed on existing airside economizers and are most cost effective if the space served by the RTU has a variable occupant load, such as: conference rooms, theaters and auditoriums, gymnasiums, waiting areas/lobbies, etc. The energy savings are a result of not having to re-condition ventilation or outside air unnecessarily if the space is mostly unoccupied.

Installing or Adjusting Direct Expansion (DX) Outside Air Lockout Controls

This measure is applicable to package Roof Top Units (RTU) or Air handling units (AHU) with two stage (or more) DX Cooling and economizer controls. The RTU could be prematurely engaging the mechanical cooling when the outside air temperatures are cool enough to satisfy the cooling needs of the space with outside air. The recommended outside air lockout temperature is below 50 degrees F. This measure will prevent the compressor from running

below this temperature and allows the outside air damper to mix with the return air temperature to satisfy the cooling need in the space. Note that you may have to consider the addition of crank case heaters to prevent the compressor from freezing since the operation of the compressor at low ambient temperatures is likely (this is evaluated on a case by case basis) and also note that comfort issues may occur if the RTU or AHU currently has difficulty maintaining the cooling load in the space.

Adjusting Minimum Outside Air Fraction

The goal of this measure is to minimize the conditioning energy necessary for air handling equipment, while still meeting code-required fresh air requirements. The minimum outside air levels will be adjusted using the flow plates, or other approved tool, to measure CFM of outside air per unit. Table 0-3 shows recommended outside air for ventilation in a given space type and is based on ASHRAE 62.1

Table 0-3 ASHRAE 62.1 Ventilation Rates

Use Type	CFM/Person	Plus CFM/SF
Retail	7.5	0.12
Grocery	7.5	0.06
Office	5.0	0.06
School	10.0	0.12
Warehouse	10.0	0.06
Assembly	5.0	0.06
Common Areas	0.0	0.06
Restaurant (dining)	7.5	0.18

Measuring RTU or Split

Total Airflow of Systems

The goal of this measure is to verify that the unit is moving the proper amount of airflow (CFM) for the cooling capacity. The recommended airflow rate should range from 350 to 550 CFM/Ton. This measure is recommended for RTUs and split systems in order to maximize the full efficiency of the system. See Appendix E for RTU Airflow Protocol and related tab in the BTU Application.

Split System Cooling and Heating Efficiency

The goal of this measure is to verify that the unit is operating at its highest efficiency. The protocol for verifying this efficiency and operation of the unit is found in Appendix F: Split System Heating and Cooling Protocol, Installing Direct Expansion (DX) and Outside Air Lockout Controls (OALC).

This measure is applicable to buildings where the heating and cooling systems are controlled independently of one another. There is potential for unnecessary, simultaneous heating and cooling for systems of this type if they are not controlled properly. By installing lockout controls, annual operating hours of cooling systems can be reduced, but the primary goal is to ensure that the HVAC systems are not unnecessarily working against each other.

This measure is not typically applicable to packaged rooftop units, since these units can be in heating or cooling mode, but not both modes at the same time.

There are many options for lockout controllers on the market today, and no specific brand or type of controller is recommended for this program. Compatibility with existing equipment, reliability, product features, and cost should all be considered when choosing the appropriate controller.

Electronically Commutated Motors (ECMs): Some split systems may be good candidates for replacing their original shaded pole motor with an ECM. The ECM uses a fraction of the wattage of a shaded pole or PSC motor commonly found in furnaces. This measure should be evaluated on a case by case basis and will depend on the applicability of an ECM to the split system. Proper airflow and system warranties need to be considered before implementing this measure.

Installing low flow water faucet aerators and per-rinse spray valves

This measure is intended to replace water faucet aerators and kitchen pre-rinse spray valves with lower flow models. Aerators in hand sinks (lavatories) will be replaced with 0.5 gallons per minute Gallons Per Minute (GPM) aerators. The 0.5 GPM aerators should not be installed in sinks where grit type soap like mechanics often use and may not be a good fit where domestic hot water is regulated by the health department. Owners should be aware that low flow aerators will increase the time it takes for hot water to reach the faucet if it is not a recirculation system.

Low-flow pre-rinse spray valves that meet or exceed EPA 2005 federal minimum efficiency standard of 1.6 GPM can be installed to replace older higher flow models. These low-flow models reduce water use in the building and are designed to clean as or more effectively than the higher flow models. Information on models that have been tested to meet flow and performance standards can be found at www.fishnick.com/equipment/sprayvalves.

Installing or adjusting occupancy sensors or other lighting controls

Interior Lighting: This measure adjusts existing occupancy sensors or timers to operate effectively. Also, new installations of occupancy sensors or timers are allowed in the Building Tune-up Program (BTU) program. Occupancy sensors are most applicable in spaces with intermittent occupancy that control more than 4-6 fixtures, and where the lights often get left on.

Exterior Lighting: This measure adjusts existing exterior photocells or timers to operate effectively. Also, program allows the replacement of a malfunctioning photocell. Typically photocells can malfunction due to poor placement or age.

De-lamping of light fixtures

Many times a building will have fluorescent fixtures that have 3 or 4 lamps whereas the related space may have enough light levels with only one or two fluorescent lamps. It is important to check the ballast specifications to see if the ballast operation is compatible with the removal of a specific number of lamps from one fixture. If the removal of the lamps is not a viable option, Platte River's efficiency programs will provide cash rebates for the permanent removal of lamps and installation of new lamps, ballasts, and reflector kits. This measure removes lamps from a fixture to save energy and not sacrifice light levels. See Appendix M: De-lamping Guide for information on how to de-lamp a fixture.

Installing controls for plug load devices

There are new products entering the market that can allow you to turnoff (wireless and/or web based) plug loads in the building when the building is unoccupied and reduce energy use and phantom loads. Plug load devices may include: copiers, printers, task lights, PC monitors, electric space heaters, fans, radios, and etc. (Contact Platte River for information on these control options.)

PC Power Management

This measure is intended to activate sleep/standby settings on the Personal Computers (PCs) in the building and reduce energy use during periods of inactivity and unoccupied times. The implementation of the measure may require the companies' IT department involvement and/or approval. The following settings for computers and monitors/displays are based on ENERGY STAR recommendations. See *Appendix O - Computer Power Management Protocol* for more details on how to implement this measure on your personal computers.

- Set display to turn off (sleep) after 3 minutes of no use. (2 - 10 minutes is acceptable)
- Set computer to go to sleep (standby) after 20 minutes of no use. (10 - 30 minutes is acceptable)

Domestic Hot Water Temperature Adjustments

This measure lowers the temperature setting on the DHW tanks to 120 degrees F.

Domestic Hot Water Pump Timer Adjustments or New Installation

This measure adjusts the setting of the Domestic Hot Water (DHW) recirculation pump timers to only run during periods of highest use and NOT run during unoccupied times of the building use. Also, allows for the addition of pump timers when applicable. An addition of a pump timer may also be available if an Electronically Commuted Motor (ECM) is purchased to replace the old shaded pole pump motor. ECMs will save additional energy to the timer control.

Heating Adjustments for furnaces and boilers

This measure is a tune-up of the natural gas furnace(s) or boiler(s). For natural gas furnace tune-up protocols, see the heating mode section Appendix F: Split System Heating and Cooling Protocol

Advanced Controls

Typically advanced controls refer mostly to Building Automation System (BAS) systems which have a more cost effective way to add additional controls to equipment or BAS controls. The following are examples of advanced controls in the program:

- Install averaging sensors
- Relocate thermostat
- Install override timer
- Integrate economizer and DX controls

- Add morning warm up/cool down controls
- Calibrate BAS sensors
- Program BAS control systems

Custom Measures

Custom measures are allowed in the BTU program and are encouraged to be implemented if there is a potential for significant energy or water savings.

The customer will work with a qualified RSP to implement tune-up measures to implement the measures described above as applicable. Final implementation costs may vary from the estimated market costs; however, the market costs will be used to document customer implementation obligations. A brief report will be submitted summarizing the initial observed conditions, the implemented measures, the estimated energy savings, the implementation costs, and the rebate provided by Platte River.

Verification Phase

For Tier 1, verification will be done on a sampling basis (i.e., a percentage of all the small buildings that participate in the program), and will need to be carefully planned to allow for pre- and post-monitoring after the measures have been implemented. The results of the data collected and analyzed will be compared to the deemed savings for the measures proposed for Tier 1, and the savings will be adjusted accordingly. To streamline costs, a "good" candidate will be identified during a site walk-thru and observations made of the building systems. Before the trade ally proceeds with implementation, data loggers will be placed on the building systems for at least a week before the implementation, left on during implementation, and will remain for a week after implementation is complete. These collected data will be used to verify the deemed savings used in the Tier 1 projects.

RCX STUDY & SUPPORT - TIER 2 BUILDINGS

The following section describes the targeted buildings, rebate structure and phases associated with the Tier 2 Buildings.

Targeted Buildings

The following typical characteristics are associated with the Tier 2 buildings:

- Typical building size: 50,000 to 100,000 sq ft
- The facility shall be at least 2 years old
- The facility must have an existing and fully functional Energy Management System or Building Automation System (BAS), direct digital control. Fully functional means:
 - Ability to trend multiple data points and store them for a minimum of 2-weeks.
 - Ability to monitor real-time operation on a Graphical User Interface (GUI).
 - EMS/BAS controls most of the facility's high energy consuming equipment.
- In some cases, data logging and trending of equipment not on a BAS system will be accepted, this option must be approved by Platte River

- Facility may have packaged roof top units or air handle units with variable air volume terminal units; possibly re-heat. And may have central plant – typically one boiler and chiller or DX cooling/furnace in air handling units; or combination of both.
- **Example of unique circumstances that may target a building for this tier:**
 - Building is 30,000 sq ft and is conditioned by variable volume, built up; air handling units with DX cooling, economizers and VAV boxes with reheat. Building may have single zone temperature sensors controlling each VAV and a BAS system with trending capability.

Rebates

Efficiency Works pays 100% of the cost for the RSP to assemble the retro-commissioning plan, implementation support, and a brief updated RCx Planning Report, but not direct implementation of selected RCMs. The RSP costs depend on scope and size of facility. The customer is required to hire and pay for a contractor or use in house staff to implement measures and provide support to the RSP throughout the project. Customer Financial Commitment is based on \$0.05 per sq ft up to \$12,000 towards implementation, once the planning phase report is accepted. If the customer still does not make the improvements within a mutually agreed upon timeline, they shall reimburse the utility for the costs incurred to date for their project.

No additional rebates will be available to Customer through this program (i.e., no energy rebates). However, if energy or water efficiency measures are identified that are beyond the scope of Efficiency Works Building Tune-up Program, the Customer may seek to qualify those measures through Efficiency Works' standard and custom electric efficiency rebate programs or provided by their local Utility if not offered by Efficiency Works. Customers may be subject to a rebate threshold per Customer per calendar year. Any rebates received through Xcel Energy or other party as part of any Platte River program will not count towards the Customer's annual rebate threshold.

Participation Process

The participation process for Tier 2 is listed below:

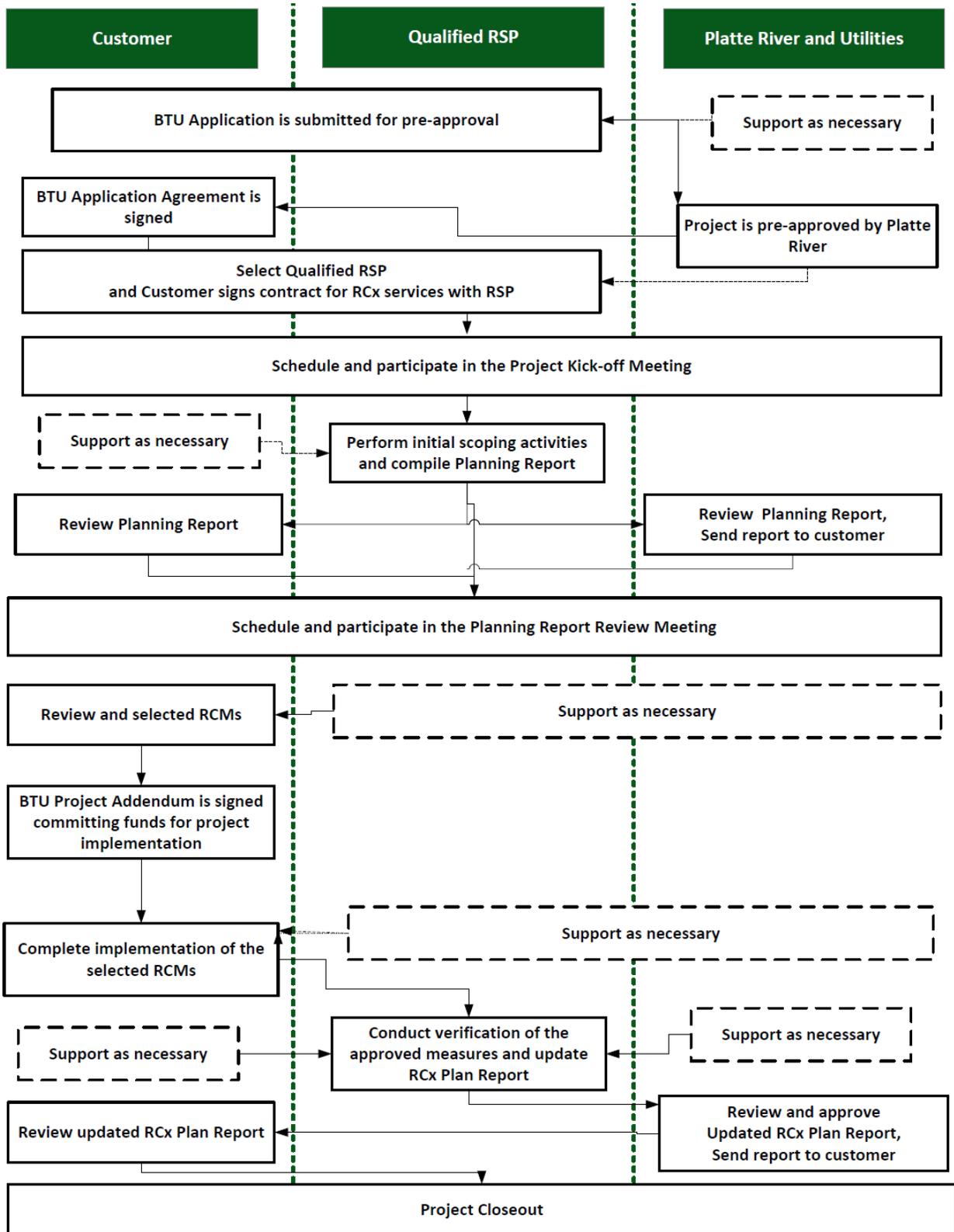


Figure 0-1 BTU Participation Procedures for Tier 2 Buildings

Application Phase

Contact a qualified Retro-commissioning Service Provider (RSP) or Utility or Efficiency Works Representative for help with application to get started. Pre-approval is required for all projects to be considered for funding in the BTU program. To receive pre-approval, submit completed Building Tune-up (BTU) application (Appendix A) and agreement prior to work being performed; including the following required pages: Page 1 - Customer Info, Page 2 - Project Pre-screening , and Page 3 - signed Building Tune-up Program Agreement. Note that Alternative Payment Recipient and second signature on the Agreement page are to be completed after the selection of the RSP if customer prefers the rebate to be paid directly to the qualified RSP. If RSP is already selected for the project, then this may be signed at the time submitting the application for pre-approval.

Electronic submittals are allowed by emailing the application and signature pages to info@efficiencyworks.CO.

Pre-approving applications is an important part of the process. When screening program applications, Efficiency Works will consider buildings with the following conditions to be placed in the Tier 2 Option of the BTU program:

- Buildings with more than 50,000 sq ft, but less than 100,000 sq ft of conditioned square feet, the customer must permit and/or authorize changes to the HVAC system's operations by a program-qualified RSP.
- The building shall have systems that are free of major problems requiring costly repairs or replacements, with no planned major system renovations or retrofits.
- The HVAC system receives periodic preventative maintenance (e.g., filter replacement, coil cleaning, refrigerant charge, and belt tension checks) and demonstrates general functionality. Also, the facility should have accessible and up-to-date building documentation and records.

Also, to qualify for the Tier 2 Option specifically, participants must express a commitment to be actively involved in the tune-up process. Active involvement will include:

- Providing facility access and time for facility personnel and/or their HVAC/controls contractor(s) to interface with the selected RSP.
- Providing and assisting with the reporting and collection of information pertaining to the building's tune-up.
- Spending \$0.05 per sq ft up to \$12,000 to implement identified RCMs with an estimated total project simple payback of two years or less, based upon electric and natural gas savings.

Once the application is received Efficiency Works will verify customer account number, installation address for submitted account number, valid equipment installation date, equipment eligibility and capacity, and potential incentive amount. Applications which are incomplete or are not eligible to participate will receive an email, letter, or phone call describing to the customer the changes necessary to qualify for the program. Once the project is pre-approved, the customer or party submitting the application will receive an approval code to authorize the initial preliminary site assessment to begin (i.e. Planning Phase).

When the application is approved by Efficiency Works, the retrocommissioning process begins with the Planning Phase, which consists of identification of project objectives, targeting of systems for improvements, defining tasks and responsibilities, and a Retrocommissioning Plan is developed as a result. The Implementation Phase follows, in which the building owner or representative is responsible for implementing the mutually agreed upon measures (between Platte River and the Owner) noted in this report. Once the improvements are made in the Implementation Phase, their success is validated in the Verification Phase.

The retrocommissioning procedures focus on electric and natural gas energy savings opportunities with low cost implications. Capital measures that are identified through Efficiency Works Building Tune-up Program may be directed to Efficiency Works' prescriptive or custom rebate offerings.

Efficiency Works Building Tune-up Program does not address fire and life safety or basic equipment safety controls. Additionally, the program does not provide services for new construction or to meet commissioning requirements of other rebate programs offered by Platte River.

Key RSP Application Phase Deliverables

- 1) Completed BTU Application and Agreement are submitted to Efficiency Works
- 2) Customer and selected RSP enter into an agreement and/or contract for scope of RCx services

Planning Phase

Following the acceptance of a project into the program and selection of an RSP, work begins by establishing the scope and timeline for the balance of the project. Customer is required to have an agreement with the selected RSP before work is performed and Planning Phase begins. This Planning Phase typically takes about four to six weeks. Key activities include a project kick-off meeting with the owner representative, engineering or facility staff, RSP, and Efficiency Works and Utility representatives. A preliminary site assessment is completed by the RSP during this phase, where findings are used to generate the RCx Plan for the project and assess overall project feasibility. The RCx Plan establishes the general framework for the balance of the RCx activities. Upon its completion, a Planning Review meeting is held with the owner representative, engineering or facility staff, RSP, and Efficiency Works and Utility representatives to review the scope of the plan. At the completion of the Planning Phase, the customer enters into the formal agreement with Efficiency Works if the project appears viable to commit to implementing the selected RCMs.

Project Kick-off Meeting

The initial project kick-off meeting is held soon after acceptance of the project application and the RSP is selected thereafter (if applicable). Key attendees include the owner's representative, facility and engineering staff, contractors, the selected RSP, Platte River, and/or the Utility

representatives. The meeting is used to introduce key performers for the RCx project team and explain the timing and key steps of the project.

Site Assessment Activities

Site assessment activities often follow directly after the kick-off meeting with the RSP conducting a preliminary site visit to understand key facility systems and their operation. Site assessment activities conducted by the RSP also involve:

- Consulting with the facility's personnel to understand their concerns and identify areas where additional focus may be warranted
- Reviewing the facility system documentation and utility bills

Facility operations, maintenance schedules, equipment control sequences, set points, control parameters, schedules, occupant activities, and component operation are also documented at this point in the project.

Identification of RCMs

Utilizing the information gathered during the kick-off meeting, utility usage data, and from the site assessment, the RSP is responsible for identifying potential RCMs. For each RCM, the RSP will evaluate and document the following parameters:

- Annual electric and natural gas energy savings potential
- Average electric demand savings potential in Summer and Winter months
- Estimated implementation cost
- Savings persistence
- Impacts on building occupant comfort and process operations
- Installation of water measures – low flow aerators and pre-rinse spray valves (if applicable)

Savings calculations must be supported by field observations, actual equipment specifications, and operating conditions. Calculations based solely on rules of thumb or unsupported assumptions are not acceptable.

Retrocommissioning Plan

Using the information gathered and identified RCMs, the RSP develops the RCx Plan. The RCx Plan describes the building energy systems, identifies specific RCMs, estimates electric energy and demand savings, natural gas savings, and demonstrates project feasibility. The plan serves as the guiding document for the balance of the project. A viable RCx Plan is required before a Customer signs the BTU Plan Approval Form and for the project to continue under the program. A sample of the required RCx Plan template is included in Appendix G of this manual. The RCx Plan template will be updated, if necessary, to align with Xcel Energy's reporting requirement for an RCx study. Deviations from this template must be pre-approved in writing by Efficiency Works.

If identified savings opportunities fail to meet or exceed the project savings target, Efficiency Works may renegotiate a reduced scope of work and fee for the Implementation and

Verification Phase with the RSP. If a project cannot demonstrate reasonable feasibility, the owner may be redirected towards another energy efficiency program offering from Efficiency Works. If this is the case, the RSP will be paid for Planning Phase services only. No additional work will be performed or payments made.

Planning Review Meeting

For approval of the RCx Plan, the Planning Review meeting is held with the owner representative, engineering or facility staff, RSP, and Efficiency Works and Utility representatives to review the scope of the plan, the impacts and economics of the identified potential measures. To help facilitate this meeting, RSPs are required to prepare the Customer Selection Form (Table A of the BTU Plan Approval Form of the application). This document will be utilized throughout the balance of the RCx process to communicate RCM opportunities and seek Customer approval to proceed with implementation. A sample of this form is provided in Appendix A of this manual.

At the completion of the Planning Review meeting, the customer reviews the potential RCMs, completes and signs the BTU Plan Approval Form; and provides initial indication to approve of the measures to be refined and/or implemented in the Implementation Phase. By signing the BTU Approval Form, the customer commits to spend a minimum of \$0.05 per square foot of building size up to \$12,000 for the selected RCMs identified in Table A: Customer Selection Form. Note: selected RCMs are to be placed in Table A: Customer Selection Form located in

Key RSP Planning Phase Deliverables

- 1) Attendance at Project Kick-off Meeting
- 2) RCx Plan Report (including the Building Site Assessment Form if applicable)
- 3) Complete Customer Selection Form in BTU Plan Approval Form
- 4) Attendance at Project Planning Meeting and proposal of potential RCMs
- 5) Customer signs BTU Plan Approval Form to authorize the implementation of the selected RCMs and committed funds prior to the Implementation Phase

Addendum #1: BTU Plan Approval Form of the BTU Application Agreement.

Implementation Phase Overview

The Implementation Phase consists of installing the recommended RCMs. This phase may require eight to twenty weeks and is conducted during times when affected building systems are operational.

The Customer is responsible for implementing the RCMs identified and agreed to during the Planning Phase. Upon completion, the Customer will notify Platte River that the measures have been installed.

During the Implementation Phase, the RSP, with assistance from the facility and engineering staff, will expand upon the site assessment activities completed during the Planning Phase to develop and implement the RCx measures. The principal RSP Implementation Phase activity includes working with facility staff to guide the RCx activities and identify additional RCMs.

The facility owner implements RCMs after the Planning Phase Report has been completed and accepted. A key requirement to the success of this approach is that sufficient information be collected by the RSP to document the baseline and estimate the RCMs' electric and natural gas energy savings potential before implementation begins.

The implementation costs used to calculate project economics under the program are based upon reasonable market costs as determined by the RSP and approved solely by Efficiency Works. Resources to obtain market costs include, but are not limited to industry accepted project estimation resources, vendor quotes, or professional judgment. The Customer is afforded the flexibility to utilize in-house staff or an outside contractor to implement RCx measures implementation. Final implementation costs may vary from the estimated market costs; however, the market costs will be utilized to support the \$0.05 per sq ft up to \$12,000 contractual obligations.

Implementation Support

During the Implementation Phase, the RSP works provides oversight with the Customer's implementation team to identify the recommended measures and provide recommendations to "fix" the problems. The implementation team includes the facility engineers, operational staff, and the mechanical, electrical, and controls contractors. The goal of this phase is to fully implement all agreed-upon RCx measures and stand ready for final verification.

Implementation of the RCMs is the sole responsibility of the Customer. However, the RSP is required to provide technical support during this phase for the Customer to implement the RCMs. A description of the Customer's role and the RSP's role in implementation is provided below.

- **Customer Implementation** funding commitment is a minimum of \$0.05 per sq ft, up to \$12,000, for the implementation of the selected RCMs. Examples may include: mechanical/electrical contracting, professional engineering design, controls modifications, and installation of equipment that is required for the RCM. The Customer may choose to solicit these services from the RSP, in which case the RSP would be working under direct contract with the Customer and not Efficiency Works.
- **RSP Implementation** assistance is provided to Customers to guide them from a through the scope of work of the contractor required to implement each RCM. The main activity for the RSP will be answering technical questions. These costs are included as part

Key RSP Implementation Phase Deliverables

- 1) Ongoing RCM implementation support for Customer
- 2) Inspection Report / Punch List for installed measures
- 3) Presentation of Implemented RCMs to customer

of the RSP's price for the implementation phase of the project.

Verification Phase Overview

During the Verification Phase, the RSP revisits the site to verify that measures have been properly completed (e.g. new control strategies are functioning properly, repairs have been made, etc). The RSP updates the RCx Plan Report that summarizes the final findings and impacts from the project. The target timeline for completion of the Verification Phase is approximately three to ten weeks for a typical project.

Verify RCM Implementation

Initial RSP verification activities will include a site visit to confirm the installation of the RCMs approved in the Planning Phase Report. The RSP will report these preliminary findings to Platte River. If discrepancies are found between the implemented RCMs and those agreed to with the building owner during the Implementation Phase of the project, Efficiency Works may require that all verification activities be halted until they are implemented by the Customer.

To confirm that the recommended RCMs were properly implemented and savings estimates are accurate, the RSP is required to complete the verification activities identified in the Planning Phase Report. The verification will be limited to spot measurements, visual checks, and/or interviews with the party responsible for implementation. Generally, the verification procedures follow Option A of the International Performance Measurement & Verification Protocol. Re-trending of the points on the BAS collected during the Planning Phase will only be conducted if directed and approved by Efficiency Works. As a general rule, trending will not be required for the Tier 2 verification phase.

Any discrepancies noted between the actual and recommended RCMs must be documented and presented in the Updated RCx Planning Report. It is essential that documented data be included in the report to support the final savings calculations and account for such implementation discrepancies. If discrepancies exist, the associated savings are recalculated, and the revised savings for each measure are presented in the report.

Updated Retrocommissioning Plan

The Updated RCx Plan Report serves as final documentation for each of the project's implemented RCMs. The purpose of this report is to document that the RCMs were properly implemented and document verified electrical demand, energy, and natural gas savings for each RCM. The results of the verification activities for each implemented RCM will be used by the RSP in preparation of this report. This report includes a summary of completed RCMs, a summary of the verification activities, closed out master list of deficiencies, and the final estimated costs and energy savings.

The updated RCx Plan Report is submitted to Efficiency Works for review and comment. Any requested changes are incorporated and a copy of the approved report is presented to the Customer.

Key RSP Verification Phase Deliverables

- I) Updated Retrocommissioning Plan Report



RCX STUDY AND SUPPORT - TIER 3 BUILDINGS

The following section describes the targeted buildings, rebate structure and phases associated with the Tier 3 Buildings.

Targeted Buildings

The following typical characteristics are associated with the Tier 2 buildings:

- Typical building size: greater than 100,000 sq ft
- The facility shall be at least 2-years old
- The facility must have an existing and fully functional Energy Management System or Building Automation System (BAS) (direct digital control). Fully functional means:
 - Ability to trend multiple data points and store them for a minimum of 2-weeks
 - Ability to monitor real-time operation on a Graphical User Interface (GUI)
 - EMS/BAS controls most of the facility's high energy consuming equipment
 - In some cases, data logging and trending of equipment not on a BAS system will be accepted, this option must be approved by Platte River
- Facility may air handle units or multi-zone units with and have central plant – typically more than one boiler and chiller and/or industrial processes.

Rebate Structure

Efficiency Works pays 100% of the cost for the RSP to assemble the retro-commissioning plan, implementation support e, and a brief verification summary report, but not direct implementation of selected Retrocommissioning Measures (RCMs). The RSP costs depending on scope and size of facility. The customer is required to hire and pay for a contractor or use in house staff to implement measures. Platte River will not provide an energy rebate. Customer Financial Commitment is based on \$0.05 per sq ft up to \$12,000 towards implementation, once the planning phase report is accepted. If the customer still does not make the improvements within a mutually agreed upon timeline, they shall reimburse the utility for the costs incurred to date for their project.

Typically the rebate is paid in part upon the deliverables of each phase: Planning Phase (15% of total rebate), Implementation Phase (70% of total rebate) and Verification Phase (15% of total rebate); and can be issued directly to the RSP if the customer chooses to do so on the BTU Application.

No additional rebates will be available to Customer through this program (i.e., no energy rebates). However, if energy or water efficiency measures are identified that are beyond the scope of Efficiency Works Building Tune-up Program, the Customer may seek to qualify those measures through Efficiency Works prescriptive and custom electric efficiency rebate programs or provided by their local Utility if not offered by Efficiency Works. Customers may be subject to a rebate threshold per Customer per calendar year. Any rebates received through Xcel Energy or other party as part of any Efficiency Works program will not count towards the Customer's annual rebate threshold.

Table 0-1 lists some typical RCMs for Tier 3 buildings.

Table 0-1 Example Eligible and Ineligible RCMs for Tier 3 Buildings

Eligible RCMs	Ineligible RCMs
Reduce minimum outside air flow Correct economizer operation Eliminate simultaneous heating and cooling Reduce/reset supply air static pressure set points Eliminate chilled water short-circuiting Improve chiller or other equipment sequencing Reduce/reset condenser water setpoints Correct refrigerant charge Improve equipment scheduling Reduce air flow in Control Volume (CV) air handling systems Improve refrigeration system controls Improve process controls	Fuel switching Measures that negatively affect occupant comfort Major equipment replacement (capital expenditure) Measures necessary for basic facility operation Measures that produce electricity Terminate or relocate existing processes/operations Measures that compromise safety and/or code requirements

Participation Process

The program administrative process for each approved project follows four basic program phases:

- 1) Application Phase
- 2) Planning Phase
- 3) Implementation Phase
- 4) Verification Phase

This process is illustrated in Figure 0-1 is an overview about each phase of a Tier 3 building with a focus on Customer responsibilities. The total estimated time period to complete a retrocommissioning project is four to nine months.

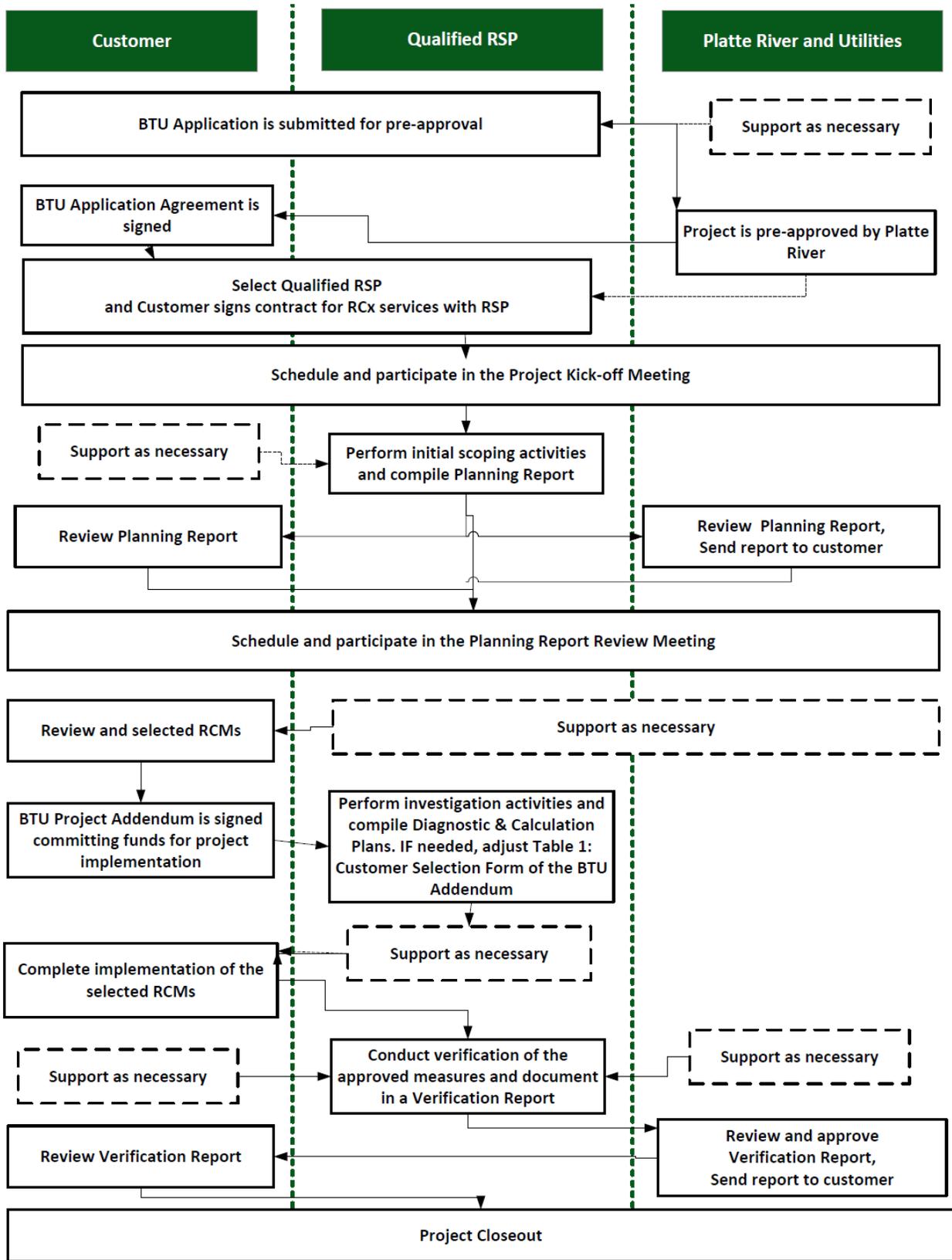


Figure 0-1 Program Participation Procedures for Tier 3 Buildings

Application Phase

Contact a qualified Retro-commissioning Service Provider (RSP) or Utility or Efficiency Works Representative for help with application to get started. Pre-approval is required for all projects to be considered for funding in the BTU program. To receive pre-approval, submit completed BTU application (Appendix A) and agreement prior to work being performed; including the following required pages: Page 1 - Customer Info, Page 2 - Project Pre-screening , and Page 3 - signed Building Tune-up Program Agreement. Note that Alternative Payment Recipient and second signature on the Agreement page are to be completed after the selection of the RSP if customer prefers the rebate to be paid directly to the qualified RSP. If RSP is already selected for the project, then this may be signed at the time submitting the application for pre-approval.

Electronic submittals are allowed by emailing the application and signature pages to info@efficiencyworks.CO.

Pre-approving applications is an important part of the process. When screening program applications, Platte River will consider buildings with the following considerations to be placed in the Tier 3 Option of the BTU program:

- Buildings with more than greater than 100,000 sq ft of conditioned square feet. The customer must permit and/or authorize changes to the system operations by a program-qualified RSP.
- Facility must be greater than 2 years old.
- The building shall be free of major problems requiring costly repairs or replacements, with no planned major system renovations or retrofits.
- The systems receive periodic preventative maintenance (e.g., filter replacement, coil cleaning, refrigerant charge, and belt tension checks) and demonstrate general functionality. Also, the facility should have accessible and up-to-date building documentation and records.

Also, to qualify for the Tier 3 Option specifically, participants must express a commitment to be actively involved in the tune-up process. Active involvement will include:

- Providing facility access and time for facility personnel to interface with the selected RSP.
- Providing and assisting with the reporting and collection of information pertaining to the building's tune-up.
- Spending \$0.05 per sq ft up to \$12,000 to implement identified RCMs with an estimated total project simple payback of two years or less, based upon electric and natural gas savings.

Once the application is received Efficiency Works will verify customer account number, installation address for submitted account number, valid equipment installation date, equipment eligibility and capacity, and potential incentive amount. Applications which are incomplete or are not eligible to participate will receive an email, letter, or phone call describing to the customer the changes necessary to qualify for the program. Once the project is pre-approved, the customer or party submitting the application will receive an approval code to authorize the initial preliminary site assessment to begin (i.e. Planning Phase).

When the application is approved by Efficiency Works, the retrocommissioning process begins with the Planning Phase, which consists of identification of project objectives, targeting of systems for improvements, defining tasks and responsibilities, and a retrocommissioning plan is developed as a result. The Implementation Phase follows, in which the building owner or representative is responsible for implementing the mutually agreed upon measures (between Efficiency Works and the Owner) noted in this report. Once the improvements are made in the Implementation Phase, their success is validated in the Verification Phase.

The retrocommissioning procedures focus on electric and natural gas energy savings opportunities with low cost implications. Capital measures that are identified through Efficiency Works Building Tune-up Program may be directed to Efficiency Works prescriptive or custom rebate offerings.

Efficiency Works Building Tune-up Program does not address fire and life safety or basic equipment safety controls. Additionally, the program does not provide services for new construction or to meet commissioning requirements of other rebate programs offered by Platte River.

<u>Key RSP Application Phase Deliverables</u>
1) Completed BTU Application and Agreement are submitted to Platte River
2) Customer and selected RSP enter into an agreement and/or contract for scope of RCx services

Project Kick-off Meeting

The initial project kick-off meeting is held soon after acceptance of the project application and the RSP is selected thereafter (if applicable). Key attendees include the owner’s representative, facility and engineering staff, contractors, the selected RSP, Efficiency Works, and/or the Utility representatives. The meeting is used to introduce key performers for the RCx project team and explain the timing and key steps of the project.

Site Assessment Activities

Site assessment activities often follow directly after the kick-off meeting with the RSP conducting a preliminary site visit to understand key facility systems and their operation. Site assessment activities conducted by the RSP also involve:

- Consulting with the facility’s personnel to understand their concerns and identify areas where additional focus may be warranted
- Reviewing the facility system documentation and utility bills
- Performing non-invasive measurements and functional tests as necessary to provide a thorough understanding of the facility’s systems
- Completing a Building Site Assessment Form

Facility operations, maintenance schedules, equipment control sequences, set points, control parameters, schedules, occupant activities, and component operation are also documented at this point in the project.

Appendix F of this manual includes a sample copy of the Building Site Assessment Form. Deviations from this template must be pre-approved in writing by Platte River. Similar documentation is required for compressed air, refrigeration, and industrial process systems if applicable.

Identification of RCMs

Utilizing the information gathered during the kick-off meeting, utility usage data, and from the site assessment, the RSP is responsible for identifying potential RCMs. For each RCM, the RSP will evaluate and document the following parameters:

- Annual electric and natural energy savings potential
- Average electric demand savings potential in Summer and Winter months
- Estimated implementation cost
- Savings persistence
- Impacts on building occupant comfort and process operations
- Installation of water measures – low flow aerators and pre-rinse spray valves (if applicable).

Savings calculations must be supported by field observations, actual equipment specifications, and operating conditions. Calculations based solely on rules of thumb or unsupported assumptions are not acceptable.

Retrocommissioning Plan

Using the information gathered and identified RCMs, the RSP develops the RCx Plan. The RCx Plan describes the building energy systems, identifies specific RCMs, estimates electric energy and demand savings, natural gas savings, and demonstrates project feasibility. The plan serves as the guiding document for the balance of the project. A viable RCx Plan is required before a Customer signs the BTU Plan Approval Form and for the project to continue under the program. A sample of the required RCx Plan template is included in Appendix G of this manual. The RCx Plan template will be updated, if necessary, to align with Xcel Energy's reporting requirement for an RCx study. Deviations from this template must be pre-approved in writing by Platte River.

If identified savings opportunities fail to meet or exceed the project savings target, Platte River may renegotiate a reduced scope of work and fee for the Implementation and Verification Phase with the RSP. If a project cannot demonstrate reasonable feasibility, the owner may be redirected towards another energy efficiency program offering from Efficiency Works. If this is the case, the RSP will be paid for Planning Phase services only. No additional work will be performed or payments made.

Planning Review Meeting

For approval of the RCx Plan, the Planning Review meeting is held with the owner representative, engineering or facility staff, RSP, and Efficiency Works and Utility representatives to review the scope of the plan, the impacts and economics of the identified potential measures. To help facilitate this meeting, RSPs are required to prepare a the Customer Selection Form (located in the BTU Plan Approval Form of the application). This document will be utilized throughout the balance of the RCx process to communicate RCM opportunities and seek Customer approval to proceed with implementation. A sample of this form is provided in Appendix A of this manual.

At the completion of the Planning Review meeting, the customer reviews the potential RCMs, completes and signs the BTU Plan Approval Form; and provides initial indication to approve of the measures to be refined and/or implemented in the Implementation Phase. By signing the BTU Approval Form, the customer commits to spend a minimum of \$0.05 per square foot of building size up to \$12,000 for the selected RCMs identified in Table A: Customer Selection Form. Note: selected RCMs are to be placed in Table A: Customer Selection Form located in Addendum

Key RSP Planning Phase Deliverables

- 1) Attendance at Project Kick-off Meeting
- 2) RCx Plan, including the Building Site Assessment Form
- 3) Complete Customer Selection Form in BTU Plan Approval Form
- 4) Attendance at Project Planning Meeting and proposal of potential RCMs
- 5) Customer signs BTU Plan Approval Form to authorize the implementation of the selected RCMs and committed funds prior to the Implementation Phase

#1: BTU Plan Approval Form of the BTU Application Agreement.

Implementation Phase Overview

The Implementation Phase consists of a detailed analysis followed by implementation of the recommended measures. It involves the detailed investigation of the RCMs identified in the RCx Plan, and further investigation to identify additional RCMs. The investigation component of this phase includes activities such as conducting detailed site assessments, diagnostic testing, and trending analyses to evaluate current facility operating procedures, equipment functionality, and to verify planning phase assumptions. Throughout the Implementation Phase, the RCx measures and associated costs, savings, and economic impacts will be updated and summarized in the Customer Selection Form. This phase may require eight to twenty weeks and is conducted during times when affected building systems are operational.

As RCx opportunities are finalized, the Customer will be asked to fund the implementation of such measures. The Customer is responsible for implementing the RCMs identified and agreed to during the Implementation Phase. Upon completion, the Customer will notify Platte River that the measures have been installed.

During the Implementation Phase, the RSP, with assistance from the facility engineering staff, will expand upon the site assessment activities completed during the Planning Phase to develop and implement the RCx measures. The principal RSP Implementation Phase activities include the following:

- Working with facility staff to guide the RCx activities and identify additional RCMs

- Gathering additional information to assess equipment operation
- Updating the Customer Selection Form
- Developing Diagnostic testing and Calculation plans for each RCM
- Estimating the potential electric and natural gas energy savings for identified RCMs
- Assessing the cost to implement RCMs
- Assisting the Customer's implementation team to implement the RCM
- Educating the implementation team on the ramifications of RCM and how and why to maintain the changes implemented
- Closing out/updating items either in a punch list or master list of deficiencies as they are mitigated

The facility owner typically implements RCMs after all RCM Diagnostic and Calculation Plans have been finalized. However, the facility owner is encouraged to implement selected RCMs as individual measures are finalized. A key requirement to the success of this approach is that sufficient information be collected by the RSP to document the baseline and estimate the RCMs' electric and natural gas energy savings potential before implementation begins.

The implementation costs used to calculate project economics under the program are based upon reasonable market costs as determined by the RSP and approved solely by Platte River. Resources to obtain market costs include, but are not limited to industry accepted project estimation resources, vendor quotes, or professional judgment. The Customer is afforded the flexibility to utilize in-house staff or an outside contractor to implement RCx measures implementation. Final implementation costs may vary from the estimated market costs; however, the market costs will be utilized to support \$0.05 per sq ft up to \$12,000 contractual obligations.

Focused Assessment

A focused assessment of the energy using systems and equipment is necessary to build on the general site assessment done in the Planning Phase. The assessment focuses on problem areas identified by facility staff, identified RCMs, and potential new RCMs. At the facility level, the following information is typically collected and documented:

- Facility location, use, and operating/occupancy schedule
- Systems with highest electric/natural gas energy use and demand
- Significant control, operational, and maintenance problems
- Comfort problems
- Operations and maintenance (O&M) practices
- Major equipment sequences of operation

At the system and equipment level, the assessment involves collecting nameplate information and conducting a minimum standard set of diagnostic tests and parameter measurements. Standardized RCx forms for common equipment types are provided in Appendix F. The system and equipment assessments generally include the following information:

- Nameplate data
- Design and operational intent
- Actual operation (e.g. set points, schedule, sequence of operation)
- Actual operating parameters (e.g. temperature, pressure, flow)

Results from the assessment will be used to develop the Diagnostic and Calculation Plans, the Customer Selection Form, and a punch list or master list of deficiencies. The tasks outlined Table 0-2 provide a summary of the typical investigation activities expected to be executed for major system components. This scope of work is provided as an example, and may change for different facility types.

Table 0-2 RCx Survey Elements Summary (Example)

System or equipment	Survey minimum requirements
Chiller	Document sequence of operations Sequence of Operation (SeqOp) Verify/justify SeqOp Document actual schematic Spot measure actual performance (kW/ton) Document setpoints Verify temperature and pressure sensor calibration Verify thermostat calibration Document operations and maintenance (O&M) procedures Collect trend data to identify operational problems and establish baseline operation
Air Handling Unit	Document SeqOp Verify/justify SeqOp Document system type Document nameplate ratings Document actual schematic Document temperature, pressure at control points Verify economizer operation (if present) Verify damper operation and sealing Verify temperature and pressure sensor calibration Verify proper chilled water, hot water, and/or steam valve operation Measure motor/fan load, flow, pressure Identify operating point on fan curve Verify inlet guide vane /discharge damper / Variable Frequency Drive (VFD) operation (if present) Document O&M procedures Collect trend data to identify operational problems and establish baseline operation

System or equipment	Survey minimum requirements
Cooling Tower	Document SeqOp Verify/justify SeqOp Document system type Document nameplate ratings Document temperature, flow at control points Document O&M procedures Collect trend data to identify operational problems and establish baseline operation
Control System	Document SeqOp for the HVAC system, integrating the equipment SeqOps Verify/justify SeqOp Verify and sketch system schematic

Presentation of RCMs

Following approval of the RCM Diagnostic and Calculation Plans by Platte River, the RSP will update the Customer Selection Form. This form includes measure descriptions, energy savings, implementation costs, simple payback periods, and estimated completion dates. The Customer Selection Form also identifies three separate RCM bundles recommended by the RSP with an option for customization.

Together with the RSP and Platte River, the facility representatives review the project recommendations. The bundle of RCMs to be implemented is agreed upon by all parties, taking into consideration factors such as comfort, safety, or liability as input by the participants in the meeting. Also to be considered is the Customer’s commitment to spending at least the minimum amount for the facility \$0.05 per sq ft up to \$12,000 for implementation of agreed upon RCx measures that result in a bundled estimated simple payback of 2 years or less. Although this meeting provides a singular formal communication of results, the RSP is also encouraged to review RCM status with the building ownership on an ongoing basis to facilitate a quick implementation timeframe.

Implementation Support

During the Implementation Phase, the RSP works hand-in-hand with the Customer’s implementation team to identify the recommended measures and provide recommendations to “fix” the problems. The implementation team includes the facility engineers, operational staff, and the mechanical, electrical, and controls contractors. As the Customer approves RCx measures, the implementation team will be asked to “fix” the items associated with the relevant measures. The goal of this phase is to fully implement all agreed-upon RCx measures and stand ready for final verification.

Implementation of the RCMs is the sole responsibility of the Customer. However, the RSP is required to provide technical support during this phase for the Customer to implement the RCMs. A description of the Customer’s role and the RSP’s role in implementation is provided below.

- **Customer Implementation** activities are specific to funding implementation of the recommended RCMs (\$0.05 per sq ft up to \$12,000). Examples may include: mechanical/electrical contracting, professional engineering design, controls modifications, and installation of equipment that is required for the RCM. The Customer may choose to solicit these services from the RSP, in which case the RSP would be working under direct contract with the Customer and not Efficiency Works.
- **RSP Implementation** assistance is provided to Customers to guide them from a recommended solution to the physical installation of the RCM. These activities may take the form of troubleshooting recommended control sequences, suggesting alternative RCM strategies during implementation, commenting on alternative design solutions, and answering technical questions. These costs are included as part of the RSP's price for the implementation phase of the project.

<u>Key RSP Implementation Phase Deliverables</u>
1) Diagnostic and Calculation Plans for all RCMs
2) Updated Customer Selection Form
3) Presentation of Implemented RCMs to customer
4) Ongoing RCM implementation support for Customer

Verification Phase Overview

During the Verification Phase, the RSP evaluates facility trending data (from the building EMS, facility sub-meters, or utility meter) and revisits the site to verify that measures have been properly completed (e.g. new control strategies are functioning properly, repairs have been made, etc). The RSP prepares and submits the Verification Report that summarizes the final findings and impacts from the project. The target timeline for completion of the Verification Phase is approximately three to ten weeks for a typical project.

Verify RCM Implementation

Initial RSP verification activities will include a site visit to confirm the installation of the RCMs approved in the Customer Selection Form. Activities will consist of visual inspections and functional testing/retesting as appropriate to ensure RCMs were completed as anticipated. The RSP will report these preliminary findings to Platte River. If discrepancies are found between the implemented RCMs and those agreed to with the building owner during the Implementation Phase of the project, Efficiency Works may require that all verification activities be halted until they are implemented by the Customer.

To confirm that the recommended RCMs were properly implemented and savings estimates are accurate, the RSP is required to complete the verification activities identified in the completed RCMs' Diagnostic and Calculation Plans. The verification may consist of data trending, spot measurements, visual checks, and/or interviews with the party responsible for implementation. Generally, the verification procedures follow Option A or Option B of the International Performance Measurement & Verification Protocol.

Any discrepancies noted between the actual and recommended RCMs must be documented and presented in the Verification Report. It is essential that documented data be included in the report to support the final savings calculations and account for such implementation discrepancies. If discrepancies exist, the associated savings are recalculated, and the revised savings for each measure are presented in the report.

Verification Report

The Verification Report serves as final documentation for each of the project's implemented RCMs. The purpose of this report is to verify that the RCMs were properly implemented and document verified electrical demand, energy, and natural gas savings for each RCM. Planning and results of the verification activities for each implemented RCM will be used by the RSP to prepare the Verification Report. This report includes a summary of completed RCMs, a summary of trending and functional testing, and the final estimated costs and energy savings.

The Verification Report is submitted to Efficiency Works for review and comment. Any requested changes are incorporated and a copy of the approved report is presented to the Customer. A copy of the required Verification Report template is included in Appendix H of this manual. Deviations from this template must be pre-approved in writing by Efficiency Works.

Key RSP Verification Phase Deliverables

- 1) Verification Report
- 2) Participation in presentation of Verification Report to Customer, if necessary

All BTU Required Forms referenced above are available upon request. Contact info@efficiencyworks.CO or call 877-981-1888.

Efficiency Works offers business customers FREE technical support to identify opportunities that reduce operating costs and environmental impacts by analyzing existing building systems and equipment.

Process

1. Participant completes and submits the assessment application
2. Efficiency Works Assessor schedules the assessment with the participant
3. Efficiency Works Assessor performs the assessment with the participant (typically two to four weeks from application submittal)
4. Efficiency Works Assessor completes and sends a report to the participant (typically within 30 days of the assessment)
5. Efficiency Works Assessor(s) will follow up to provide assistance in completing your project by reviewing bids and rebates, and financing available.

All information gathered through this application will remain confidential and will only be provided to the participant and their designated provider(s) unless specifically authorized by the participant.

Assessment Types

- **Simple Facility Assessment** summarizes in a brief report your facility's energy and water efficiency opportunities and related savings rebates available.
- **Expanded Facility Assessments** provides more detail on specific opportunities for your facility than the simple report. This is a valuable tool for managers and planning your efficiency goals.
- **Fort Collins ClimateWise Expanded Assessments:** ClimateWise partners are eligible for an expanded assessment that also includes solid waste, recycling, composting and transportation. If interested, contact ClimateWise prior to the assessment to become a partner; this would simply expand the focus of the current appointment, not postpone it.
- **Fort Collins Building Code Required Assessment:** Fort Collins building code requires an energy assessment for alterations with a construction valuation above \$50,000. This excludes first-time interior finishes or if a previous energy assessment was performed within three years. The Efficiency Works assessment satisfies this code requirement. If completed early enough in the design process, the assessment may identify opportunities that can be incorporated into the planned project more cost effectively than if done separately. Implementation of any identified recommendations is voluntary. The assessment must be scheduled before receiving the permit.

INNOVATIVE TECHNOLOGY AND PILOT PROGRAMS

Efficiency Works and its partnering utilities strive to find new and effective ways to save energy, water and resources. The innovation and pilot program is an opportunity for customers and utilities to fund pilot projects and innovative technologies that are outside of the rebate programs.

Typically potential innovative, pilot projects funded by the utilities will meet similar criteria as a custom efficiency energy or water savings project. This is a starting point to see what information we will request initially and then discuss the opportunity further. Contact Efficiency Works for more information.