



**State Energy Conservation Office (SECO)
Municipally Owned Utility (MOU) or Electric Cooperative (Co-op)
SB-924 Energy Efficiency Report
Data Entry Form**

MOU or Co-op: United Electric Cooperative Services
 County: Johnson
 Contact: Michael Lattner
 Contact Title: Electrical Engineer
 Address: 3309 N. Main St
 City: Cleburne
 Zip: 76033
 Phone: 817-556-4019
 Fax: 817-556-4012
 E-mail Address: Michael@united-cs.com

1) Is your MOU or Co-op hereby reporting on energy efficiency as required by SB-924, PURA Sections 39.9051 and 39.9052?

Yes No

2) Energy Efficiency Goals: Please tell us about the goals that your MOU or Co-op has related to energy efficiency:

Instructions: Provide a brief description of your MOU or Co-op's energy efficiency goals for the previous calendar year. Examples may include information about energy efficiency for MOU or Co-op customers or utility facilities. Supplemental information may be provided at your option on any long-term energy efficiency goals that your MOU or Co-op might have. Please use a separate sheet of paper if you need more space.

United Cooperative Services' energy efficiency program has multiple objectives. The primary purpose is to help member-owners manage their energy use to effectively hold down their electricity costs. Another objective is to obtain as much participation from the membership in reducing usage during peak energy use periods to avoid the need for ERCOT to mandate controlled outages, as the entity did on Feb. 2, 2011. The lack of new electric generation coming on line in recent years has left the state in a precarious reliability environment and conservation and efficiency measures are the quickest means of minimizing the negative impacts of having insufficient generation available.

3) Your MOU or Co-op's Energy Efficiency Programs:

Instructions: Input information as applicable; add fields as necessary. For the previous calendar year, please list energy efficiency programs and provide applicable estimated achieved savings – energy and/or demand, or other program performance metric (for example participation.) Add additional lines as needed.

Energy Efficiency Program	Estimated Energy Savings or	Estimated Demand Savings or	Other Program Performance Metric
United Rebate Program	394 MWh	0.1 MW	165 participants
United Energy Audit Program	972 MWh	0.3 MW	696 participants
United-Owned Distributed Generation	36 MWh	0.0 MW	
Member-Owned Distributed Generation	49 MWh	0.2 MW	51 participants
United LED Area Lights	15 MWh	0.0 MW	
United Voltage Reduction Control	61 MWh	2.2 MW	
Brazos Rebate Programs	2002 MWh	0.5 MW	2458 participants
Totals	3,529 MWh	3.3 MW	3370 participants

4) Program Materials / Additional Information

Instructions: Public information about your energy efficiency programs (brochures, website information, etc.) may be attached and provided with this form.

United Cooperative Services publicly promotes its energy efficiency and conservation programs by:

1. Maintaining a section devoted to energy efficiency and conservation on the company website (www.united-cs.com).
2. Hosting community open house meetings to promote energy efficiency and conservation to membership and general public.
3. Engaging in multiple speaking engagements at civic and business organization functions throughout the cooperative's 14-county service area with an emphasis on promoting energy efficiency and conservation.
4. Including energy efficiency and conservation articles in every issue of the cooperative's monthly newsletter to the membership.
5. Placing hundreds of radio, print, and billboard advertisements stressing the merits of energy efficiency and conservation.
6. Budgeting \$50,000 annually in grant funds to help members finance energy efficiency projects at their homes and businesses.

Attached to this form are descriptions of United's energy efficiency programs.

Brazos Electric Power Cooperative, of which United is a member, has an Energy Efficiency Rebate Program (EERP) that provides incentives for its member cooperatives to promote energy efficiency measures. United is reporting the results of the Brazos rebate program that have gone to United's service area. A detailed description of the Brazos EERP is attached.

5) Please submit this form to SECO at: SB924.Reporting@cpa.state.tx.us

ENERGY STAR NEW HOME CONSTRUCTION REBATE \$500

*Separate from Total Home Rebate



Members must submit to United the Energy Star Certificate for the new home to qualify for the rebate. With the help of independent Home Energy Raters, Energy Star builder

partners choose appropriate energy-saving features for their homes. Raters conduct on-site testing and inspections to verify the energy efficiency measures, as well as insulation, air tightness, and duct sealing details. Either the builder or homeowner is responsible for obtaining the rating from a certified Energy Star rater. Obtain more information at www.energystar.gov. Any newly constructed home three stories or less can earn the Energy Star label if it has been verified to meet EPA's guidelines, including: single family, attached, and low-rise multi-family homes; manufactured homes; systems-built homes; log homes, concrete homes; and even existing retrofitted homes.

ENERGY INNOVATION MEMBER RESOURCES

To assist members in achieving energy saving goals, United offers a number of energy innovation products. These products are **FREE** and **available only while supplies last**. Typically, these products can be obtained during a Free Home Energy Audit. Compact Fluorescent Light bulbs (CFLs) are available in a range of styles and wattages.

- Low Flow Shower Head (to reduce hot water heater energy consumption)
- Low Flow Faucet Aerator
- Water Heater Blanket (Energy Audit Required)

Leading the Way in Energy Innovation



Your Touchstone Energy® Cooperative



Your Touchstone Energy® Cooperative

www.united-cs.com

REBATE PROGRAMS

A Wealth of Savings Opportunities

ENERGY INNOVATION REBATES

United Cooperative Services' commitment to Energy Innovation continues to grow stronger and this year that's being demonstrated through an expanded rebate program that paves the way for members to waste less energy and hold onto precious energy dollars. The 2011 Energy Innovation Rebate Program, in cooperation with Brazos Electric Cooperative, is more robust than ever and now includes substantial monetary rebates, complimentary energy-saving resources and a dedicated team of Energy Innovation experts prepared to perform FREE energy analyses at member homes. The program has something for just about everyone, so take advantage of these generous member benefits.

HVAC REBATES

The following items are eligible for rebates under **United's 2011 Energy Innovation REBATE PROGRAM** and are based on individual pieces of equipment for new residential construction, and full replacement upgrades made to existing HVAC equipment. **TOTAL REBATES PER HOME ARE CAPPED AT \$1,200.**

AIR-SOURCE HEAT PUMP

- Minimum SEER of 14.0 — \$100
- Minimum SEER of 15.0 — \$200
- Minimum SEER of 16.0 — \$300
- Minimum SEER of 17.0 — \$400
- Minimum SEER of 18.0 or higher — \$500
- Dual Fuel Incentive — \$75

*No rebates are given for central air/strip heat systems (Electric Furnaces). Complete system change-outs required for retrofit rebates.

GEOHERMAL/GROUND-SOURCE HEAT PUMP

REBATE: \$200/ton
Minimum EER of 11.0

WASTE HEAT RECOVERY SYSTEM

REBATE: \$200/unit

HVAC TUNE-UP

REBATE: \$100 (One Rebate Per Unit Per Year)

An annual tune-up by a HVAC professional can improve unit efficiency by as much as 20 PERCENT.

EnergyStar®

ROOM AIR CONDITIONER

REBATE: \$30 Residential only! Room air conditioner units are typically mounted in a window so that part of the unit is outside, and part is inside. An insulated divider to reduce heat transfer losses typically separates the two sides. To be eligible for this rebate, the unit must be EnergyStar rated and have minimum EER of 10.8.

DIGITAL/PROGRAMMABLE THERMOSTAT

REBATE: UP TO \$50 Residential only! Member must replace an analog mercury thermostat with digital or programmable thermostat. This offer is not available for new homes. Energy audit required and /or provide United with invoice proving that prior thermostat was analog mercury.

WATER HEATERS

REBATE: \$75

- 40-gallon minimum capacity
- 0.92 GAMA efficiency factor
- 5-Year Tank, 1-Year Parts Warranty
- Dual 4,500-watt elements

*Rebates only given for NEW HOME CONSTRUCTION electric water heaters (No rebates are offered for gas, tankless and retrofit water heaters).

FREE Insulated Water Heater Blanket

While supplies last—Water heater must be electric and in an unconditioned space. A Free Energy Audit is also required to be eligible.

ATTIC INSULATION RETROFIT REBATE

- FREE ENERGY AUDIT required prior to installation for ALL retrofit insulation rebates.
- \$.02 per inch installed per square foot
- Upon inspection, must have 8 inches or less
- Rebates paid only up to a max. depth of 12 inches

TOTAL HOME REBATE INCENTIVE

NEW HOME — \$150 REBATE

- R-13 WALL INSULATION if framed 2x4
- R-19 WALL INSULATION if framed 2x6
- R-38 ATTIC INSULATION
- 100% Storm or Double-Pane Windows with Low E Glass
- Weather Stripping and Caulking at Soleplate, Wiring and Plumbing Entries.

VERIFICATION & PAYMENT

Energy Innovation rebates are available only for qualifying purchases and/or services. The availability of the Energy Innovation Rebate Program is limited and rebates will be processed on a first-come, first-served basis. To be eligible for the rebate program, all rebate forms and accompanying documentation must be submitted within **60 days** of the completion of construction and/or installation. **Rebates are capped at \$1,200 per home. Documentation (receipts, invoices, insulation label, etc.) verifying insulation levels and window types must accompany all rebate applications; including those qualifying for the TOTAL NEW HOME BONUS incentive.** The rebate will be paid after United has received completed forms and verification (which includes an insulation card or invoices detailing the purchase). United reserves the right to make on-site inspection of any equipment submitted for a rebate. Payment is made to the person who filed for program participation. Any other payment arrangements must be submitted in writing by the homeowner or developer.

All water heater efficiency ratings are based on the ratings shown in the GAMA directory. A licensed dealer or contractor must install the heating/cooling systems. SEER ratings are based on the Air-Conditioning and Refrigeration Institute Directory of equipment for single-family residential use. To qualify for United's HVAC equipment rebate, both heat pump components—indoor (coil) unit and outdoor (condenser) unit—must be properly matched and determined by the ARI guide. **Rebates will not be considered when only one component is replaced.**



► See More Details

United Electric Cooperative Services
Energy Efficiency Programs
2011-2012

EnergySmarts Grants

Residential Grants — Members at or below 200% of the federal poverty level, and own or are in the process of purchasing a home, are eligible to apply for one residential grant. Renters are ineligible to receive grants. The home undergoing retrofit/new construction *must* be served by United. Energy audits are *required* to identify and/or validate potential energy conservation measures, respective costs, energy savings and payback periods. Projects must be completed prior to receiving the grant. The member must demonstrate a financial need to qualify for a grant and must select the vendor responsible for completing the work. Grants are capped at \$1,000.

Residential DG Grants — Residential members who install approved renewable DG systems at the residence in which they receive electric service from United are eligible for one grant per unit at a maximum of two grants per member. The DG installation must be completely installed and operational in 2012, meet United's DG specifications and inspected by a United representative prior to receiving a grant. The DG installation must be on property served by United. Existing DG unites and rental properties are not eligible for grant funding. Invoices are required for grant funding approval. Grants will be capped at \$500 for wind applications and \$1,000 for solar applications. The interconnected DG capacity must exceed 500 watts.

Commercial & Industrial or Agricultural DG Grants — Commercial & Industrial, as well as Agricultural members who install approved renewable DG systems at the location in which they receive electric service from United are eligible for one grant per unit at a maximum of two grants per member. The DG installation must be completely installed and operational in 2011, meet United's DG specifications and inspected by a United representative prior to receiving a grant. The DG installation must be on property served by United. Existing DG unites and rental properties are not eligible for grant funding. Invoices are required for grant funding approval. Grants will be capped at \$2,000 for per application, maximum of two grants. The interconnected DG capacity must exceed 4 kilowatts.

Commercial Grants — Commercial and Industrial members seeking to implement energy-saving measures (e.g., energy efficient lighting, etc.) may apply for a grant. Grants will be capped at \$1,000. The facility in which the energy-saving measures are being implemented must be served by United. Energy audits are required to identify and validate potential energy conservation measures, respective costs, energy savings and payback periods. Projects must be completed prior to receiving the grant. Grants are limited to one grant per year, and one grant per project. For example, a business' lighting retrofit project this year would qualify only for one grant even if the project was completed in phases over several years because the project objective is "lighting retrofit".

LED Area Lights

United is testing new light emitting diode (LED) fixtures/bulbs to determine if it would be economically viable to offer an LED area light option to members. United is currently testing 5 different LED fixtures.

Home Energy Audits

United performs about 900 home energy audits every year. During the audit, United's energy experts evaluate the home for possible energy efficiency upgrades, and arm the member with energy efficiency information and energy savings items such as CFLs, water heater blankets and low-flow faucet aerators as detailed in the Brazos EERP summary. Also, for an additional cost, United will perform a blower door analysis to identify air leaks in the home.

Distributed Generation at United's Offices

In order to demonstrate its commitment to renewable, distributed generation (DG), United has undertaken a project to install several DG systems at its different office sites. The objective of this project is for United to gain insight into the installation, maintenance and performance of these systems, and to pass that information along to members who may be interested in installing a system of their own.

Brazos Electric Power Cooperative, Inc.
Energy Efficiency Rebate Program
2011-2012

Purpose

Brazos Electric's Energy Efficiency Rebate Program ("EERP") is designed to encourage member cooperatives ("Members") to promote cost effective energy efficiency measures that will reduce wholesale power costs and support a Member's individual energy innovation¹ goals. Brazos Electric's EERP is a program to reward energy efficient practices by paying incentive rebates to participating Members when retail members install more efficient lighting, HVAC, insulation and other various qualifying equipment that reduces energy consumption.

Introduction

After reviewing an independent consultant's recommendation of energy efficiency programs in January 2009, the Members reached consensus on trying to develop an EERP with an assortment of energy efficiency measures and programs. In June 2009, the Brazos Electric Board of Directors approved implementation of the EERP with a September 2009 start date.

Some of the identified benefits and program assumptions of the EERP are as follows:

1. Provide the Members with cost effective energy efficiency programs for use by their respective retail members.
2. Brazos Electric to document the program design, develop forms, and provide education of available programs for Members.
3. A Member may select from the approved list of cost effective energy efficiency programs included in the EERP that the Member wants to offer and market to its retail members.
4. Currently include only those programs that have a positive benefit/cost ratio as determined by independent consultant's analysis of specific measures included in its study.
5. Limit the administrative costs of the programs and maximize the incentives to the end-use retail member that participates in the energy efficiency program.
6. Members able to choose eligible programs they prefer to include in their respective member services program.
7. A rebate program is easier to administer at the G&T level resulting in lower costs with a larger percentage of funds available for incentive rebates.
8. Centralized measurement, verification and incentive rebate processing.
9. Potential for economies of scale purchasing.
10. Incentive rebates and administrative costs limited to the allocated EERP annual budget for each Member based on the Member's previous year's MWh sales multiplied by the applicable surcharge rate.

¹ NRECA's adoption of resolution 09-f-1, Wise and Innovative Energy Use, details energy innovation as a four-legged platform consisting of conservation, energy efficiency, demand response and distributed resources.

Eligible Energy Efficiency Programs

Below is a list of the energy efficiency measures that have been approved for the Brazos Electric EERP for 2011 and 2012. The incentive levels developed by the independent consultant in its Energy Efficiency Study were based on a 30% reimbursement of the incremental cost of the energy efficient measure.

COMPACT FLUORESCENT LIGHTING (“CFL”)

Compact Fluorescent Lighting: Residential fluorescent bulbs and fixtures present a significant opportunity for energy and maintenance savings. On a per lamp basis, compact fluorescent lamps are generally 75 percent more efficient than incandescent bulbs and last up to ten times longer. In addition, CFL bulbs produce about 75 percent less heat, so they are safer to operate and can cut energy costs associated with home cooling. CFL bulbs vary in size and shape. Their appearance can be a spiral-shaped fluorescent tube or they can appear as a standard shape, such as the R-30 floodlight used in recessed cans. Dimmable CFL bulbs and 3-way CFL bulbs are also eligible.

HOME ENERGY AUDIT

All incentive rebates for the Home Energy Audit (excluding the HVAC Tune-up) will only apply for those homes that have **residential electric water heating only**. The eligible energy efficiency measures are: Low Flow Showerhead, Low Flow Faucet Aerators, Water Heater Blanket and Pipe Wrap. While Brazos Electric has no specific information or knowledge on this issue, some have raised a concern that some manufacturers may consider the use of a water heater blanket to void the warranty for the hot water heater.

Low Flow Showerheads: An existing showerhead is replaced with a new unit that has a low-flow rate (less than 2.0 gallons/minute). Significant savings in hot water use can be achieved by installing low-flow showerheads and faucets. The single best action is to replace old showerheads as showers use 37% of the hot water in typical U.S. homes. Members should procure and install the replacement showerheads in the home. Retired showerheads should be removed and retained by the Member.

Low Flow Faucet Aerators: An existing faucet is replaced with a new unit that has a low-flow rate (less than 1.5 gallons/minute in bathrooms and less than 2.2 gallons/minute in kitchens). Members should procure and install the replacement aerators in the home.

Water Heater Blanket: Water heater blankets are designed to wrap around an existing water heater tank to improve insulation, prevent heat loss, and save energy. Installing an insulating blanket can reduce standby loss (heat lost through the walls of the tank) by as much as 25-40%. Members should procure and install the water heater blanket.

Pipe Wrap: Insulating hot water pipes will reduce losses as the hot water is flowing to the faucet and, more importantly, it will reduce standby losses when the tap is turned off and then back on within an hour or so. Pipe wrap will conserve energy and water that would normally be lost waiting for the hot water to reach the tap. Energy loss still occurs after pipe wrap has been installed, though to a smaller degree than the losses observed in non-insulated pipes. Members should procure and install the pipe wrap on all exposed and accessible hot water lines.

HVAC Tune-Up: HVAC tune-up and maintenance helps to keep heat pump and central air conditioning units running at top efficiency, prevent equipment failures, and extend the life of the equipment. A tune-up by a service professional can improve unit efficiency by as much as 20%. An annual HVAC tune up includes: checking and correcting the unit's refrigerant pressure and tubing, checking and adjusting belt tension, cleaning and lubricating the indoor blower unit, replacing filters, cleaning inside the "A" coil, and checking the thermostat, wiring, and other electric parts. A receipt from a qualified contractor stating that the above work was completed should be provided to the Member.

ENERGY STAR RATED NEW HOME CONSTRUCTION

Energy Efficient New Homes Construction (Energy Star Home Rating - 15% more efficient): New homes are designed to be built to Energy Star standards: at least 15 percent more energy efficient than those built to the **2004** International Residential Code ("IRC").

Savings are based on heating, cooling, and hot water energy use and are typically achieved through a combination of the following: high performance windows, controlled air infiltration, upgraded heating and air conditioning systems, tight duct systems, high efficiency water heating equipment, and high efficiency building envelope standards. Energy Star homes also encourage the use of energy-efficient lighting and appliances. These features contribute to improved home quality and homeowner comfort, and to lower energy demand and reduced air pollution. The Member should receive the Energy Star Certificate for the new home for the program. Members can submit a RRR to Brazos Electric for the incentive rebate for the Energy Star New Home Construction program after receipt of verification that the new home meets the standards set forth above for residential retail member's served by the Member.

CEILING INSULATION (SPACE HEATING & COOLING)

Ceiling Insulation: Ceiling insulation levels vary greatly depending on the age of the home, type of insulation, and activity in the attic (*i.e.*, using the attic for storage and HVAC equipment). To be eligible for this rebate, the existing insulation must be less than or equal to R8 (3.75 inches of insulation or less) and must be improved to R38 or greater (approximately 17 inches or greater of insulation). Incentive rebates for this program are limited to ceiling insulation upgrades for single family homes and not for mobile homes; further, the upgrades only apply to electric air conditioners with electric resistance heating and cannot be used in situations where a heat pump is installed as a primary heating source. Members can submit a RRR to Brazos Electric for the incentive rebate for the Ceiling Insulation program after the Member determines that the installation was completed at the retail member's residence in accordance with the preceding requirements.

HIGH EFFICIENCY ELECTRIC HEAT PUMP (SPACE HEATING & COOLING)

High Efficiency Electric Heat Pumps: Electric heat pumps operate by transferring heat from one place to another. In the heating mode, a heat pump extracts heat from outside a residence and delivers it to the house. Like a furnace, most heat pumps work with forced warm-air delivery systems. Heat pumps can also be operated to cool a house during summer months. In the cooling

mode, the cycle is reversed and heat is taken from the house and transferred to the outside air. Because heat pumps rely on the outside air as the heat source in the wintertime, they are much more common in warmer climates.

Heat pumps are rated for both heating and cooling – both in terms of capacity and efficiency. Heating efficiency is indicated by the heating season performance factor (“HSPF”). Cooling efficiency is indicated by the seasonal energy efficiency rating (“SEER”). Both indicate the relative amount of energy needed to provide a specific heating or cooling output. New residential heat pump standards went into effect in January 2006. Heat pumps manufactured after January 2006 must achieve a HSPF of 7.7 and a SEER of 13 or higher.

14 SEER High Efficiency Electric Heat Pumps: For this program, the baseline replacement model has a HSPF of 7.7 and a SEER of 13. The 14 SEER High Efficiency Heat Pump has a HSPF of 8.2 and a SEER of 14.

15 SEER High Efficiency Heat Pumps: For this program, the baseline replacement model remains at HSPF 7.7 and SEER 13. The 15 SEER High Efficiency Heat Pump has a HSPF of 9.0 and a SEER of 15.

The incentive rebates for this program apply for replacement of existing HVAC equipment at any residential home (including mobile homes) and new home construction. The retail member must obtain a receipt with the Air-Conditioning Heating and Refrigeration Institute (“AHRI”) designation of the qualifying installation from the retail member’s contractor to present to the Member for verification purposes. This incentive rebate is not applicable for homes that use natural gas, propane or other fossil fuel for heating.

The incentive rebates for this program are as follows: (1) the 14 SEER rebate is applicable to any unit purchased and installed with (a) a SEER equal to or greater than 14 but less than 15, and (b) a HSPF equal to or greater than 8.2; and (2) the 15 SEER rebate is applicable to any unit purchased and installed with (a) a SEER equal to or greater than 15, and (b) a HSPF equal to or greater than 9.0. Members can submit a RRR to Brazos Electric for the incentive rebate for the High Efficiency Heat Pumps program after the Member determines that the installation was completed at the retail member’s residence in accordance with the preceding requirements.

ENERGY STAR ROOM AIR CONDITIONERS

Energy Star Room Air Conditioners: Room air conditioner units are typically mounted in a window so that part of the unit is outside and part is inside. An insulated divider to reduce heat transfer losses typically separates the two sides. The outdoor portion generally includes a compressor, condenser, condenser fan, fan motor, and capillary tube. The indoor portion generally includes an evaporator and evaporator fan. The minimum federal standard used in this analysis (based on model type and capacity) is an Energy Efficiency Ratio (EER) of at least 9.8. Currently, units with an EER of 10.8 are eligible for the ENERGY STAR® label. This analysis assumed a room air conditioner cooling capacity of 8,000 Btu/hr and 1,926 full-load cooling hours (Dallas climate zone).

ENERGY STAR DISHWASHER (Electric Water heating Only)

Energy Star Dishwasher: Dishwashers exceeding minimum qualifying efficiency standards established under Energy Star Program with an Energy Factor (EF) $\geq .65$ (versus the current federal standard energy factor $\leq .46$). Energy Star labeled dishwashers save energy by using both improved technology for the primary wash cycle, and by using less hot water to clean. Construction includes more effective washing action, energy efficient motors and other advanced technology such as sensors that determine the length of the wash cycle and the temperature of the water necessary to clean the dishes. In addition, a high efficiency dishwasher can save approximately 635 gallons of water a year if used to run an average of 4 loads per week. This measure is limited to homes having electric water heating and dishwashers.

HIGH EFFICIENCY WATER HEATER

High Efficiency Water Heater (stand-alone): In this measure, baseline replacement stand alone electric water heaters are replaced with high efficiency stand alone storage tank water heaters. Storage water heaters work by heating up water in an insulated tank. However, because heat is lost through the walls of the storage tank, energy is consumed even when no hot water is being used. New high-efficiency storage water heaters contain higher levels of insulation around the tank, reducing standby losses. In this analysis a baseline replacement model (EF=.90) is replaced with a high efficiency model (EF=.94). This measure applies to homes operating primarily electric heating systems and electric water heaters. (Note: Does not apply to electric tankless water heaters.)

COMMERCIAL LIGHTING (T-8 BULB REPLACEMENT)

T-8 Commercial Bulb Replacement: A variety of high efficiency fixtures, ballasts and lamps exist in the market today, producing the same amount of lumens, while consuming less electricity. Deemed lighting savings are mature components of utility-sponsored demand-side management offerings around the country. This measure considers BULB REPLACEMENT only, not replacement of fixtures or ballasts.

Numerous commercial and industrial buildings already have T8 bulbs and ballasts, but are looking for a low-cost way to save energy. Standard T8 bulbs typically sold as 32 watt bulbs, but can be replaced with 28 watt or 25 watt bulbs to save energy immediately. Utilities that are currently running these programs offer a \$1.00 incentive to change out to a 28 watt bulb and a \$1.50 incentive for a 25 watt bulb.

COMMERCIAL LIGHTING (FIXTURE UPGRADES)

A variety of high efficiency fixtures, ballasts and lamps exist in the market today producing the same amount of lumens while consuming less electricity. Deemed lighting savings are mature components of utility sponsored demand-side management offerings around the country.

Many different types of energy efficient fixtures exist today. The Commercial Lighting Fixture Upgrade program measures the difference between the original fixture and the new fixture in base wattage. Incentive rebates are calculated based on this difference. Due to the many potential variations of fixture upgrades for lighting, this program does not specifically designate the eligible

incentive rebate for a particular fixture types. Rather, the incentive rebate is calculated using the savings in base wattage comparison between the original and new fixture.

The Member should work with its commercial retail member to perform a detailed pre- and post-audit to verify base wattage differences and upgrade verification. Members can submit a RRR to Brazos Electric for the incentive rebate for the Commercial Lighting Fixture Upgrade program after the Member determines that the installation was completed at the commercial member's location in accordance with the preceding requirements.

A non-exclusive list of potential upgrade items are listed below:

Super T8 Fixture - from 34W T12; from standard T8: High-Performance or Super T8 lamp/ballast systems have higher lumens per watt than standard T8 systems. This results in lamp/ballast systems that produce equal or greater light than standard T8 systems, while using fewer watts. When used in a high-bay application, high-performance T8 fixtures can provide equal light to high intensity discharge high-bay fixtures, while using fewer watts.

T5 Fluorescent High-Bay Fixtures; Troffer/Wrap; Industrial Strip; Indirect: A T5 high-bay fixture has a fixture efficiency of over 91%, while a metal-halide fixture has a fixture efficiency of approximately 70%. By using a more efficient fixture, a space can be lit with fewer watts or fixtures. Typically, a 4-lamp F54T5HO system using 240 watts will provide as much light on a target surface as a standard 400 watt metal-halide fixture using 455 watts.

Induction Fluorescent 23W: Inductive fluorescent lamps are white light sources with very good color rendering and color temperature properties. These lamps are energy efficient and offer extremely long life (over 100,000 hours), good lumen maintenance characteristics, and instant-on capability. The lamp enclosure is called a "vessel" that varies in shapes and is coated on the inside with phosphor. Dimming capability is already available in Europe and will be available in the near future in the United States. They are powered by a small generator (about the size of a fluorescent ballast) attached to the lamp via a short fixed-length cable. The generator induces a current in the lamp which causes it to glow (there are no electrodes to wear out). The larger, diffuse nature of these sources makes them excellent for lighting larger volumes and surfaces. They are often used in place of low- to medium-wattage high intensity discharge sources because of the instant-on capability and reduced maintenance associated with the longer lamp life. This lamp source has promising application for indoor and outdoor lighting applications.

Exterior High Intensity Discharge: Exterior metal halide ("MH") or high-pressure sodium ("HPS") high intensity discharge fixtures less than or equal to 100 watts. Assumes an efficient high intensity discharge 90 W bulb replaces a baseline quartz halogen 200 W bulb.

Electronic High Intensity Discharge Fixture Upgrade: This measure assumes that a 320 W Pulse Start Metal Halide (MH) high intensity discharge light fixture replaces a standard 400 W high intensity discharge fixture.

Halogen Infra-Red Bulb: A new development in halogen technology is the advent of Infra-Red bulbs. Available only in PAR30, PAR38, and MR16 type bulbs, it is used for spot-lighting, often in museums, retail establishments, and restaurants. The technology generally offers around 20% energy-savings, and longer lamp life.

Metal Halide Track: A metal-halide track head produces equal or more light as compared to halogen track head(s), while using fewer watts. Typically, a 39 watt PAR20 metal-halide track head using 43 watts can be used in place of three 50 watt halogen PAR20 track heads.

Integrated Ballast MH 25W: Integrated ballast 25W Par 38 metal halide lamps are three times more efficient than the Par 38 halogen lamps that they replace. Light output is comparable and the 10,500 hour life of the metal halide lamps is up to three times longer than standard halogens. Very good color rendering of 87 and a crisp white light (3000K) make this a good replacement lamp for general, ambient or accent lighting. The integrated ballast allows for an easy upgrade from a halogen Par 38. Due to the high pressure and operating temperature of metal halide lamps, there are some safety considerations concerning these efficient lamps.

Lighting Power Density: Efficient lighting with a reduced wattage compared to the baseline, other than controls. This methodology is generally applied to commercial new construction and remodel or renovation of existing buildings, including both facilities that are and are not subject to Act 250 review.

LED Exit Sign: Exit signs illuminated with light emitting diodes (“LEDs”).

Traffic Signal Upgrades: Traffic signals illuminated with LEDs save energy over the traditional light bulb traffic signals. Several utilities across the country have initiated programs for this type of upgrade.

LED Freezer/Display Lighting: Replacing standard bulbs in freezer display departments with LEDs allows both energy savings from light and heat. Further, several studies indicate that LED lighting in freezer sections actually provide better lighting colors for consumers.