



RIPUC DOCKET 4663
PASCOAG UTILITY DISTRICT'S
DEMAND SIDE MANAGEMENT
PROGRAM

FY 2017

TABLE OF CONTENTS- RIPUC DOCKET 4663

Contents

Letter of Transmittal _____	1
Schedule A Proposed Budget for Demand Side Management Program 2017 _____	2
Schedule B Executive Summary-2017 _____	4
Schedule C Program Details 2017 _____	10
Schedule D Reconciliation of Demand Side Management Budget 2016 _____	23
Schedule E Summary of Energy Saving for the 2016 Programs _____	25
Schedule F Demand Side Management Tariff _____	27
Schedule G 2017 Program Information _____	28
Schedule H Highlights of Pascoag's 2016 Programs (photographs, news articles, etc.) _____	32
Schedule I Customer Information _____	37
Schedule J 2016 Lighting Project Information _____	42

RIPUC DOCKET 4663

November 2, 2016

Ms. Luly Massaro
Clerk of the Commission
Rhode Island Public Utilities Commission
89 Jefferson Blvd.
Warwick RI 02888

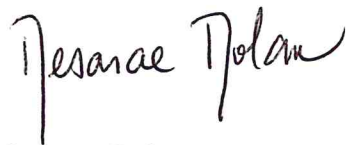
Re: RIPUC Docket No. 4663

Dear Ms. Massaro:

On behalf of Pascoag Utility District ("Pascoag" or the "District"), we herewith file an original and nine copies of Pascoag's proposed Demand Side Management Program for 2017. This submission includes Pascoag's Executive Summary, Program Details for 2017, reconciliation of 2016 DSM activities and budget, and other schedules that support this docket.

If you have any questions, please do not hesitate to contact me.

Very truly yours,



Desarae Dolan

DSM Coordinator

Cc: Ms. Karen Lyons, Esquire
Mr. William Bernstein, Esquire

Pascoag Utility District
Demand Side Management Programs - 2017 Proposed Budget

Estimated carry over from 2016	\$ 39,317
Estimated sales for 2017	\$ 112,346
Net 2017 budget	\$ 151,663

	<u>2017 Proposed</u>	
	<u>Budget</u>	
Residential Program		
DR1701 ENE Residential Conservation (ECHO)	\$ 2,580	12 month @ \$215
DR1702 Home Energy Audits with Incentives	\$ 3,250	10 Audits @ \$225, with 10% rebates up to \$100
DR1703 Energy Star Appliance Rebates	\$ 6,000	Up to 80 incentives
DR1704 Refrigerators/Freezer Buy Back	\$ 700	\$50 incentive & \$20 removal fee for a Refrigerator or Freezer; up to 10 rebates
DR1705 Energy Efficient Windows/Doors	\$ 2,000	Up to 133 windows at \$15 or up to 50 doors at \$40
DR1706 Heating System Incentive	\$ 3,000	12 Rebates at \$250
DR1707 ENERGY STAR qualified Water Heaters	\$ 900	6 Rebates at \$150
DR1708 Energy Star Lighting fixtures & ceiling/ventilation fans	\$ 650	Up to 13 rebates at \$50 maximum
DR1709 Home Office Equipment/Home Electronics	\$ 1,500	30 Rebates at \$50
DR1710 Geothermal System	\$ 100	To keep the line item open
DR1711 New Construction	\$ 1,000	2 Rebates up to \$500 maximum
DR1712 Central Air Conditioning	\$ 3,000	10 Rebates up to \$300 maximum
DR1713 Change a Light Campaign	\$ 1,000	20 Rebates up to \$50 maximum
DR1714 Smart Power Strips	\$ 200	25% rebate (average cost is between \$27-\$37)
DR1715 ENERGY STAR Pool Pumps	\$ 500	10% of cost up to \$100 maximum; 5 Rebates
DR1716 Desk Calendars- with DSM rebate information	\$ 1,000	500- Desk Top Calendars with DSM rebate information
DR1717 Committed for 2016 Programs	\$ 2,000	To accommodate programs with depleted funds from 2015
Net Residential	\$ 29,380	
Industrial/Commercial		
DI1701 Energy Star Incentive - Office Equipment	\$ 500	10 Rebates up to \$50 maximum
DI1702 Burrillville School Department	\$ 25,000	Replacing T12 fixtures/occupancy sensors at Calahan School & BHS gym lighting and occupancy sensors
DI1703 Committed Funds- Lighting & EE Projects	\$ 35,168	Money to be available for Commercial & Industrial Energy Efficiency Projects.
DI1704 Consultation Fees	\$ 250	To consult with Rise, National Grid, & ENE
DI1705 Energy Star Commercial Appliance	\$ 700	2 Appliances up to a maximum of \$350
DI1706 LED Street Light Incentive	\$ 10,000	Public Street Lighting Project
Net Industrial/Commercial	\$ 71,618	
Administrative/Ad/Education		
DA1701 Administrative	\$ 21,000	Administrative labor, mileage, supplies, training session with a luncheon for the CSR's
DA1702 Funds for Follow-up to Successful Programs	\$ 1,000	To be used on more successful programs
DA1703 Outreach/Education	\$ 7,500	Billing inserts, Culver conservation items, and the DEED membership.
DA1704 Jesse Smith Library Partnership	\$ 3,700	To partner with the Jesse Smith Library on an Energy Efficiency Project.
DA1705 Community Events	\$ 8,031	To promote Energy Efficient @ Community Events (Green Festival, Family Fair, ...)
DA1706 Burrillville High School Partnership	\$ 3,000	<small>Energy Conservation Education Project</small>
DA1707 Energy Efficiency Management continuing education	\$ 5,934	Tuition, flight, hotel, meals, APFA Energy Management Certificate Program, additional conferences
DA1708 Program Research and Development	\$ 500	Funds for future development of programs
Net Administrative/Ad/Education	\$ 50,665	
Estimated DSM 2016 Budget/ Expenses/ Balance	\$ 151,663	

Pascoag Utility District
Demand Side Management Programs - 2016/2017 Comparison

	<u>2016</u>	<u>2017</u>
Estimated carry over from 2016/2017	\$ 23,945	\$ 39,317
Estimated sales for 2016/2017	\$ 112,652	\$ 112,346
Net 2016/2017 budget	\$ 136,597	\$ 151,663

	<u>2017</u>			
	<u>2016 Approved</u>	<u>Proposed</u>	<u>Change in \$</u>	<u>% Change</u>
	<u>Budget</u>	<u>Budget</u>		
<u>Residential Program</u>				
ENE Residential Conservation (ECHO)	\$ 2,580	\$ 2,580	\$ -	0%
Home Energy Audits with Incentives	\$ 4,875	\$ 3,250	\$ (1,625.00)	-33%
Energy Star Appliance Rebates	\$ 9,000	\$ 6,000	\$ (3,000.00)	-33%
Refrigerators/Freezer Buy Back	\$ 1,050	\$ 700	\$ (350.00)	-33%
Energy Efficient Windows/Doors	\$ 2,500	\$ 2,000	\$ (500.00)	-20%
Heating System Incentive	\$ 3,000	\$ 3,000	\$ -	0%
ENERGY STAR qualified Water Heaters	\$ 900	\$ 900	\$ -	0%
Energy Star Lighting fixtures & ceiling/ventilation fans	\$ 1,000	\$ 650	\$ (350.00)	-35%
Home Office Equipment/Home Electronics	\$ 2,500	\$ 1,500	\$ (1,000.00)	-40%
Geothermal System	\$ 100	\$ 100	\$ -	0%
New Construction	\$ 1,000	\$ 1,000	\$ -	0%
Central Air Conditioning	\$ 1,500	\$ 3,000	\$ 1,500.00	100%
Change a Light Campaign	\$ 1,000	\$ 1,000	\$ -	0%
Smart Power Strips	\$ 200	\$ 200	\$ -	0%
ENERGY STAR Pool Pumps	\$ 500	\$ 500	\$ -	0%
Desk Calendars- with DSM rebate information	\$ 900	\$ 1,000	\$ 100.00	11%
Committed for 2014 Programs	\$ 2,000	\$ 2,000	\$ -	0%
			\$ -	
Net Residential	\$ 34,605	\$ 29,380	\$ (5,225.00)	-15%
<u>Industrial/Commercial</u>				
Energy Star Incentive - Office Equipment	\$ 500	\$ 500	\$ -	0%
Burrillville School Department	\$ 25,000	\$ 25,000	\$ -	0%
Committed Funds- Lighting & EE Projects	\$ 12,000	\$ 35,168	\$ 23,168.00	193%
Consultation Fees	\$ 250	\$ 250	\$ -	0%
Energy Star Commercial Appliance	\$ 700	\$ 700	\$ -	0%
LED Street Light Incentive	\$ 10,000	\$ 10,000	\$ -	0%
Community Baptist Church	\$ 8,045	\$ -	\$ (8,045.00)	-100%
			\$ -	
Net Industrial/Commercial	\$ 56,495	\$ 71,618	\$ 15,123.00	27%
<u>Administrative/Ad/Education</u>				
Administrative	\$ 21,000	\$ 21,000	\$ -	0%
Funds for Follow-up to Successful Programs	\$ 1,155	\$ 1,000	\$ (155.00)	-13%
Outreach/Education	\$ 8,200	\$ 7,500	\$ (700.00)	-9%
Jesse Smith Library Partnership	\$ 3,700	\$ 3,700	\$ -	0%
Community Events	\$ 8,442	\$ 8,031	\$ (411.00)	-5%
Burrillville High School Partnership	\$ -	\$ 3,000	\$ 3,000.00	---
Energy Efficiency Management continuing education	\$ 2,500	\$ 5,934	\$ 3,434.00	137%
Program Research and Development	\$ 500	\$ 500	\$ -	0%
			\$ -	
Net Administrative/Ad/Education	\$ 45,497	\$ 50,665	\$ 5,168.00	11%
Estimated DSM Budget/ Expenses/ Balance	\$ 136,597	\$ 151,663	\$ 15,066.00	11%

Executive Summary-Submitted by Desarae Dolan

Schedule B

RESIDENTIAL PROGRAMS:

The Residential Programs proposed by Pascoag Utility District for 2017 will mirror our 2016 programs, with adjustments to some of the line items based on the activity of the programs over the past year.

The District continues its partnership with ENERGY STAR, a U.S. Environmental Protection Agency (EPA) voluntary program that helps businesses and individuals save money and protect our climate through superior energy efficiency. It is the District's goal to encourage our customers to buy ENERGY STAR compliant products to help control consumption, demand, and reduce greenhouse gas emissions that are contributing to global warming. ENERGY STAR compliant appliances and electronics are being utilized as part of the solution to rising energy costs, and the need for energy efficiency to reduce greenhouse gas emissions. The ENERGY STAR programs that we have in place continue to experience a high customer demand.

However, the District will continue to monitor its programs and will seek permission to reallocate funds should certain programs not perform to expectations. The District is pleased with the activity in the programs for 2016. The District will be adjusting the 2017 line item budget according to this year's activity.

Energy New England ('ENE') - The energy hot line continues to be a very good resource for our residential customers. Customers with questions about high-energy demand can call the toll free number for assistance. Many questions can be answered over the phone. The customer is also offered a home energy audit. Pascoag Utility District is a member of the Energy Advisory committee that meets three to four times a year and discusses the latest information on energy conservation issues. ENE also attended our annual Green Festival to discuss energy conservation and home energy audits with interested customers. The ENE fee is \$215 per month, for a total budget of \$2,580.

ENERGY STAR Audits are a very useful educational tool for homeowners. ENE performed ten audits as of the end of October 2016. Each homeowner was given a report on ways to save energy. Many of the upgrades that are suggested in the audits correspond with programs set up for rebates by the District. It is our finding that customers will take the report and over several years replace things like the boiler, windows, doors, appliances, light fixtures, and light bulbs, thereby taking advantage of the applicable rebates.

The District would like to continue to offer the home energy audits in 2017. The District would like to decrease the number of audits from fifteen to ten; at a cost of \$225 each and have \$100 for each audit available for audit recommendations that are not covered by the rebate programs. The budget for this line item would decrease to \$3,250.

ENERGY STAR appliance rebates did not perform as well as we had hoped, despite numerous efforts to advertise the program. The District has processed rebates totaling \$4,192 through the end of October. The District is proposing to decrease this line item to \$6,000.

The District added a Refrigerator/Freezer Buy-Back Program in 2012. This program encourages our customers to reduce their power bills by removing an old, inefficient refrigerator or freezer from their house. This will help cut the demand of each refrigerator/freezer that is removed and our customers save between 503 to 1,285 kWh annually. The District proposed a budget of \$1,050 in 2016 with an incentive of \$69. The

RIPUC DOCKET 4663

District has process \$345 through the end of October. In 2017, the District is proposing to slightly decrease the budget to \$700, which will allow for 10 incentives. The rebate includes a removal fee of \$20.

The ENERGY STAR Window and Door incentive had an approved budget, of \$2,500 in 2016. The activity for this line item has been steady with incentives totaling \$1,455 being issued through October. The budget will slightly decrease to \$2,000.00 with a rebate of \$15 per window up to 10 windows and \$40 for a door.

The ENERGY STAR Heating Systems program had an approved budget of \$3,000 in 2016. The District has processed seven boiler rebates for a total of \$1,750.00 being issued through October. The District would like to continue to fund this line item at \$3,000 in 2017 and keep the rebate of 10% up to \$250.

The District would like to continue an incentive for the ENERGY STAR qualified Heat Pump Water Heaters and Energy Star Solar Water Heater in combination with an electric hot water heater. Heating water accounts for approximately 15% of a home's energy use. High efficiency water heaters use 10 to 50 percent less energy than standard models, saving homeowners money on their utility bills. The District has processed two rebates for this line item, totaling \$220 and would like to keep this program open in 2017. The District would like to continue to offer a rebate of 15% with a maximum rebate of \$150; this would allow six incentives with a budget of \$900, in 2017.

ENERGY STAR Lighting Fixtures and Ceiling & Ventilations Fans had a budget of \$1,000 in 2016 and we have issued \$188.00 in incentives. The District would like to continue this line item again next year but decrease the budget to \$650.

ENERGY STAR Home Office/Electronic equipment had an approved budget of \$2,500 and we have processed rebates totaling \$494. The District would like to decrease funding to this program to \$1,500 in 2017.

The District seeks to retain the line for Geothermal Systems with a budget of \$100. This will allow us to leave the line item open should we have a request for a geothermal system.

New Construction rebates remain slow. Forbes magazine reported that, "In May, groundbreakings stood at an annual rate of 1.138 million, below the 1.5 million needed to get supply back in line with demand. Adding to the pain—most of the homes that have been built in recent years have been for the luxury consumer, rather than lower price starter homes." The District has not processed any New Construction rebates at this time. The District is requesting that funding remain at \$1,000 for this program. Hopefully when the construction of new homes picks back up, this line item will entice contractors to install ENERGY STAR qualified equipment, which will result in homes that are more efficient. The \$1,000 request will allow the District to process two rebates.

Central Air Conditioning had a budget of \$1,500 in 2016 and the District processed seven rebates for a total of \$1,600. We received four more central air conditioning rebates in October and processed them through Funds for Follow-up to Successful Programs in the amount of \$1,070. The District would like to continue to offer a tiered rebate for central air conditioning. The rebates range from \$200 - \$300. The District believes that a customer purchasing a unit with a higher SEER and EER rating should receive a larger rebate. The ductless mini-split heat pumps are becoming more popular. They are being used to replace air conditioners and heating in older homes. These units are 30% more efficient, give more comfort and control, and can deliver both cooling in the summer and heating in the winter with high efficiency. In the cold

climates, consumers are advised to retain a supplemental heating system, in case back-up heat is needed on very cold days. The District will rebate based on the cooling seasonal energy efficiency rating (SEER) and energy efficiency ratio (EER). The District would like to increase funding of this program to \$3,000 in 2017.

The District would like to continue the Change a Light Campaign even though this program was not as active as in previous years. The District processed \$273 in rebates out of a budget of \$1,000 in 2016. This was the first year in which all rebates processed were for LED lighting only. In 2017, the District would like funding to remain at \$ 1,000.

In 2017, the District will continue the Smart Power Strip incentive because today's electronics continue to draw electricity that we pay for but do not use. The "Smart" power strip prevents this waste by plugging the main device (computer, TV, etc.) into the primary outlet and its peripherals (printer/scanner or VCR/cable box, etc.) into the other outlets. When the main device is shut down the high-tech, sensors detect this and shut everything else down. The Smart power strips can save up to 72% of the energy a system uses, eliminating 640 lbs. of CO2 per year and offers state-of-the-art surge protection. The District did not receive any applications for rebates for this line item. The District would like to continue to offer an incentive of 25% up to a maximum of \$25 with a budget of \$200, in 2017.

The District would like to continue to offer an ENERGY STAR Pool Pump incentive although the District did not process any rebates this year. Many customers in the District's territory have pools, and each one of these pools use a pool pump that re-circulates water through a filter to maintain water clarity and hygiene. What most pool owners do not realize is how much energy their pool pumps are wasting. Pool pump speeds vary based on the pool's operation. A conventional pool pump with one speed is set to run at the highest speed required to clean the pool. This leads to wasted energy during filtration operations by running faster than necessary. The ENERGY STAR certified pool pumps can run at different speeds and be programmed to match the pools operation with its appropriate pool pump speed. The energy saved is considerable and will save thousands of dollars over its lifetime. On average, an ENERGY STAR pool pump in our area saves over 1,143 kWh or \$160 in a 6-month period from May through September, making the payback less than five years. They also run more quietly and help to prolong the life of the pool's filtering system. The District is proposing a rebate of 10% of the cost up to a maximum rebate of \$100; the proposed budget would be for \$500.

In 2016, the District purchased five hundred desktop Calendars with DSM rebate information for a total cost of \$911.93. The District was able to customize the calendar with a page dedicated to promoting the DSM programs and incentives that are offered. The calendars were distributed to the walk in customer. The District would like to purchase 500 desktop calendars in 2017 for a total budget of \$1,000.

The District is estimating a carryover of \$39,317 from 2016; the District will use \$37,317 of this carryover in the 2017 budget and would like to place \$2,000 into a line item called Committed for 2016 rebates. This would allow us to use these funds to satisfy any outstanding qualified applications in the various residential programs, where the funds have been depleted or for rebates that are received after the books have been closed for 2016. In 2016, the District was able to satisfy \$565 in rebates that qualified in 2015. If the carry over funds placed in the Committed for 2015 Program exceeds the request for qualified rebates, the District proposes moving these funds to the Follow-up to Successful Programs line item and would then seek permission from the Public Utilities Commission and Division of Public Utilities and Carriers, to reallocate the funds as needed in 2017.

COMMERCIAL AND INDUSTRIAL PROGRAMS:

The ENERGY STAR Office Equipment and Electronics Program that was available to our commercial and industrial customers saw a slight decrease in activity this year. We have processed three rebates totaling \$112. The District would like to continue this program with the same level of funding for 2017, with \$500.

Burrillville School Department

The Burrillville School Department is in the process of creating estimates for replacing T12 lighting fixtures in W.L. Callahan Elementary School as well as occupancy sensors. They are also looking into new or retrofit LED lighting in the Burrillville High School gym as well as occupancy sensors. We estimate they will receive \$25,000 in incentives if they complete this project in 2017. The District would like to fund this program with \$25,000.

Committed Funds Lighting and Energy Efficiency Projects completed in 2016:

As of this filing, the District has completed one lighting project, totaling \$617.00 in rebates with 1,622 kWhrs saved annually. The District is hopeful that Pascoag Fire Department will complete a lighting project before the end of 2016 as well.

The District has identified two potential projects for 2017 that would be funded through the Committed Funds Lighting and Energy Efficiency Projects line item:

- Brigido's IGA completed their energy audit and is looking into a lighting project for its Pascoag store. The estimated rebate would be \$21,950 and would save 75,326 kWhrs annually.
- Pine Grove Health Center completed their energy audit and is looking into a lighting project. The estimated rebate would be \$13,218 and would save 91,441 kWhrs annually.

The Consultation fees line item was funded at \$250 to provide assistance from National Grid, RISE Engineering, or Energy New England with the calculation of energy savings on commercial and industrial projects. In 2017, we would like funding to remain the same.

The ENERGY STAR Commercial Appliances program has not processed any rebates in 2016. In 2017, the District is requesting a budget of \$700 for commercial appliances with rebates of 10% up to \$350 and residential appliances using the same amounts from the residential program and making them available under this line item for the commercial customers.

In 2016, Pascoag Utility purchased a total of 610 LED Street light fixtures for a total project cost of \$233,998, which included materials, labor, and transportation cost. The District was awarded a \$150,000 Grant from the Regional Greenhouse Gas Initiative to pay for the materials only. The kWh savings per year will be 178,547. This Lighting project qualifies for a 50% rebate of \$116,999 from the DSM program. The approved budget for the LED Street Light Incentive is \$10,000 for 2016. The District will be purchasing another \$60,000 worth of streetlights in 2017 and because of budget constraints due to an increase in commercial request for lighting incentives; the District will only be able to fund the LED Street Light Project to \$10,000 in 2017.

THE ADMINISTRATION/AD/EDUCATION:

The District staff spends many hours reconciling the budgets, processing rebates, working with potential rebate customers, reporting to the State of Rhode Island's Public Utility Commission, and researching new programs. The budget for the Administration line item was \$21,000, which covers the time spent to oversee this most worthwhile endeavor. The District will continue the annual training session for the customer service representatives to ensure they are able to discuss the criteria for the various programs with the customers; this training session would also include a luncheon. The District would like to fund this program at the same level in 2017.

Funds for Follow-Up to Successful Programs- this program has allowed the District to move funds to the more successful programs as needed. The District used funds from this line item to provide incentives to three Central Air Conditioning Rebates, as those funds have been depleted. The District would like to keep this line item open in 2017 with a budget of \$1,000.

Outreach/Education Program - The District purchased an annual DEED membership through American Public Power. The membership gives the District access to energy efficiency trainings and resources. The District used some of the funds to purchase energy conservation materials and to advertise the rebate program in the Bargain Buyer and with inserts in billing.

The District would like to continue the Outreach and Education line item in 2017 and fund it with \$7,500. This will allow the District to update the website with the programs for 2017 at www.pud-ri.org. The District would also use some of these funds for advertisements in the Bargain Buyer, utilize bill inserts with our programs in 2017, and purchase energy efficiency material to educate our customers, which will include booklets on energy efficiency, along with energy conservation materials. The District would also like to purchase a 2017 membership to the Demonstration of Energy Efficiency Developments Program (DEED).

Jesse Smith Library Partnership- the Jesse Smith Memorial Library in conjunction with Burrillville Recycling and the Pascoag Utility District encouraged students in grades K-6 to create Earth Day Posters depicting why it is important to recycle and conserve energy in Burrillville. A total of twelve winning posters were chosen to be included in a 2017 calendar, which will contain energy conservation and recycling tips. An awards ceremony was held on May 17, 2016 to recognize the winners of the contest. The District would like to continue to fund this line item at \$3,700. This would allow the District staff to create and purchase energy conservation and recycling calendars for 2017 and help host the awards ceremony with the Library and Burrillville Recycling.

Community Events -The 10th Annual Public Power Green Festival was held on Saturday, September 10, 2016. The District continued its partnership with the Town of Burrillville's Parks and Recreation Department to host the event at the Still Water Mill Center. The first five-hundred customers received reusable grocery bags filled with energy efficient materials and recycling tips. There were activities for children, which included a recyclable crafts, bucket rides, face painting and games. This year we ran a science workshop with PowScience on electricity for school-aged children.

Many vendors attended the Green Festival this year and a list of vendors has been included in this filing under Schedule H along with a map of the event. This event continues to grow each year. The District hosted a booth, which provided customers with energy conservation handouts and answered related questions. The District's staff also helped out at the welcome booth, on the table with raffle items, and with

rides on the bucket truck. The raffle items were donated by the vendors and local businesses to raise money for the Weekend Back Pack Project, a nonprofit agency that helps children in need. The event was very successful and by sharing the cost with the Town, the District was able to attend other events in the community.

In 2017, the District would like to continue the line item for community events in the amount of \$8,031. We will continue to partner with Burrillville Parks and Recreation to host the Green Festival, which allows the event to be more cost efficient. The partnership saves the District money, which in turn allows the District to host energy efficiency workshops at the farmers market during the summer season, and attend the Family Fair.

The District added a new line item to the budget in 2017 for the Burrillville High School Partnership in the amount of \$3,000. Currently, staff have been working with Principal Michael Whaley on developing a partnership with their Environmental Sciences program.

Energy Efficiency Management Continuing Education-In 2016, the newly appointed DSM Coordinator was able to attend several workshops through Northeast Energy Efficiency Partnership (NEEP). The District would like to increase funding to the Energy Efficiency Management Education line item in 2017 to \$5,934. This would allow the newly appointed DSM coordinator to participate in the American Public Power-Spring Education Institute to earn the Energy Efficiency Management Certificate. The training is being held this May in Minneapolis, Minnesota. Twenty hours of continuing education in the energy efficiency field is required every two years to maintain the Energy Efficiency Certificate.

Program Research and Development was created when the District wanted to research LED Street lights. The line item gives the District the ability to research products for possible incentives. The District spent \$121 in 2016 to attend the Boston Green Festival to research ways to improve our Green Festival. The District would like to fund this line item with \$500 in 2017.

Pascoag's proposed budget is based on a forecast of Sales for 2017 of 56,173,000 kWhrs. The estimated budget is \$112,346 for 2017. The District anticipates a \$39,317 carryover fund from 2016, which would bring the total 2017 budget to \$151,663.

2017 Program Details

Schedule C

RESIDENTIAL PROGRAMS

In 2017, Pascoag plans to continue all of the current Residential Programs from 2016. The customer demand still continues and the District believes these programs will continue to be successful in 2017. This summary will detail the programs proposed for 2017 and will review the success of the 2016 programs.

Energy New England – Residential Conservation Services \$2,580:

Pascoag will continue its relationship with Energy New England (“ENE”) in 2017. The Residential Conservation Service (“RCS”) provides invaluable technical support to the District staff as well as its customers.

In addition to this support, ENE supplies fulfillment materials to the customers of the District. The materials include energy smart CD’s, conservation booklets, and reference materials and resources. ENE sponsors a toll free energy hotline that is available to customers during normal business hours. Pascoag refers customers with high consumption complaints to this hotline after performing a meter test to rule out a faulty meter. If the customers’ questions cannot be resolved over the phone, ENE schedules a home energy audit, which goes into detail as to how the customer can conserve energy. This year Pascoag tested 9 meters¹ and sent letters to each customer referring these customers to the toll free energy hotline. ENE also attended the 10th Annual Green Festival. ENE answered energy related questions and handed out flyers on energy efficiency.

ENE also sponsors an Advisory Group. The Advisory Group includes people from several municipal utilities from the New England area. This group meets quarterly to share ideas on all aspects of energy conservation. Pascoag is a member of the Advisory Group.

The cost for this service will remain at \$215 per month in 2017.

Audits with Follow-Up Incentives-\$3,250:

Pascoag would like to provide ten audits in 2017, along with a maximum rebate of \$100 for incentive follow-up. This would allow the following:

10- Audits @ \$225 each	\$2,250
Money available for 10 incentives @ \$100 each	\$1,000

The cost of home energy audits will remain at \$225, in 2017. Energy New England often suggests measures that include insulation for the walls and attic, weather stripping, pipe insulation, and electrical outlet insulation. The District does not have rebates for these items and would like to continue to offer a rebate of 10%, up to \$100 per customer, to encourage them to implement these recommendations. The suggested

¹ Meters were proven to be within acceptable accuracy limits except in one instance where it had been hit by lightning.

RIPUC DOCKET 4663

measures must be implemented in the same calendar year as the audit to qualify for the incentive and cannot be a duplicate of a program already established for rebates.

The District has no auditors on staff, and has found it to be more cost effective to use ENE’s certified auditors.

ENERGY STAR Appliance Rebates: \$6,000

Pascoag would like to fund this line item at \$6,000 in 2017. This program did not perform as well as we expected this year, despite our best efforts to remind customers about this program’s availability.

When a customer purchases an appliance, there are two price tags for the item: what you pay to take it home and what you pay for the energy and the water it will use. ENERGY STAR compliant models typically use 10-40% less energy and water compared to the standard models.

Energy Star Appliance:	Savings:
Clothes Washer	25% less energy and 40% less water
Dehumidifier	15% less energy
Dishwasher	12% less energy
Refrigerator and/or Freezer	10% less energy
Air Conditioner	10% less energy
Clothes Dryer	20% less energy

There are multiple benefits to using ENERGY STAR qualified appliances. They save customers money by using less energy and they help to reduce greenhouse gas emissions, which aids in the fight against climate change.

Additionally, many of the District’s customers call before making an appliance purchase to make sure the models they are interested in qualify for rebates.

2017 Proposed Appliance Rebate Program	Incentive
Refrigerator, freezer, clothes washer and electric clothes dryer	10% not to exceed \$75.00
Dishwasher or air purifier	10% not to exceed \$50.00
Air conditioner	10% not to exceed \$25.00
Dehumidifier	10% not to exceed \$20.00

RIPUC DOCKET 4663

Refrigerator/Freezer Buyback Program: \$700

The District would like to continue the refrigerator/freezer buyback program in 2017. This program encourages our customers to reduce their power bills by removing an old inefficient refrigerator or freezer from their house. The Energy Star website estimates there are more than 60 million refrigerators over ten years old that cost consumers \$4.7 billion dollars a year in energy costs. The District increased the incentive from \$50 to \$70 to offset the recycle charge in 2015, which increased the activity for this program. The District would like to decrease the budget in 2017 to allow the removal of 10 refrigerators or freezers and ensure that they do not end up back on the grid in someone else's home. A second refrigerator/freezer removal program will cut demand and reduce the residential energy consumption.

The customer must contact the District office so we can verify the following requirements for a second refrigerator or freezer:

- They must be between 10 to 30 cubic feet using inside measurements.
- The refrigerator or freezer must be in working order.
- The customer will fill out a form with the model and make of the refrigerator/freezer and give the approximate age.

Once the criteria are met, the customer will be instructed to call Waste Management at 1-800-972-4545 to schedule an appointment to pick up the appliance. After the pickup is verified, the customer will receive a \$70 rebate, which will be applied to their electric account.

The District would like to decrease the funds to this line item to \$700; a rebate of \$50 and a removal fee of \$20 will allow us to process 10 incentives.

ENERGY STAR Windows/Skylights and Doors Incentive: \$2,000

The budget for 2016 was \$2,500 and by October, the District has processed \$1,455 in rebates. The District would like to slightly decrease funding to \$2,000 in 2017. When a customer purchases ENERGY STAR compliant windows, doors and skylights for the northern area, they will realize energy savings in lower energy use. These windows and doors also help reduce heat loss in the winter and offer protection from the summer sun, and reduce condensation and interior fading. ENERGY STAR qualified windows, doors and skylights keep your home cooler in the summer and warmer in the winter.

The District will keep the incentive at \$15 per window, up to a maximum of ten windows per customer and \$40 for one door. To qualify all windows and doors must meet energy efficiency standards:

WINDOWS			
CLIMATE ZONE	U-FACTOR ¹	SHGC ²	
Northern	≤ 0.27	Any	Prescriptive
	≥ 0.28	≥ 0.32	Equivalent Energy Performance
	≥ 0.29	≥ 0.37	
	≥ 0.30	≥ 0.42	
North Central	≤ 0.30	≤ 0.40	
South Central	≤ 0.30	≤ 0.25	
Southern	≤ 0.40	≤ 0.25	

SKYLIGHTS			
CLIMATE ZONE	U-FACTOR ¹	SHGC ²	
Northern	≤ 0.50	Any	
North Central	≤ 0.53	≤ 0.35	
South Central	≤ 0.53	≤ 0.28	
Southern	≤ 0.60	≤ 0.28	

Air Leakage ≤ 0.3 cfm/ft²
¹ Btu/h ft² · F
² Solar Heat Gain Coefficient

DOORS			
GLAZING LEVEL	U-FACTOR ¹	SHGC ²	
Opaque	≤ 0.17	No Rating	
≤ ½-Lite	≤ 0.25	≤ 0.25	
> ½-Lite	≤ 0.30	Northern North-Central	≤ 0.40
		Southern South-Central	≤ 0.25

Air Leakage for Sliding Doors ≤ 0.3 cfm/ft²
 Air Leakage for Swinging Doors ≤ 0.5 cfm/ft²

ENERGY STAR Heating System Incentives: \$3,000

The District would like to continue the funding for heating system replacement at \$3,000, in 2017. The District issued six rebates totaling \$1,750 as of October of 2016.

With the price of fuel to heat a home today, many homeowners are replacing their older systems with ENERGY STAR compliant gas and oil boilers/furnaces and making every drop of fuel count. Although these products are expensive to purchase up front, the cost difference is paid back over time through lower energy bills.

The ENERGY STAR compliant oil and gas furnaces have annual fuel utilization efficiency (AFUE) ratings of 85% and 95%, making them up to 16% more efficient than standard models. These furnaces are estimated to save customers between \$66 and \$94 in energy costs per year.

ENERGY STAR qualified boilers have annual utilization efficiency (AFUE) rating of 87% or greater. Whether the fuel is gas or oil, they are up to 12% more energy efficient than standard models. They achieve greater efficiency with improved features like electronic ignition that eliminates the need to have a pilot light burning all the time; new combustion technologies that extract more heat from the same amount of fuel; and sealed combustion that uses outside air to fuel the burner, reducing drafts and improving safety.

The District would like to keep the incentive at \$250 in 2017. This will allow twelve customers to take advantage of this program.

ENERGY STAR Solar and Electric Heat Pump Water Heaters: \$900

The District would like to continue to offer an incentive on ENERGY STAR qualified solar hot water heaters and ENERGY STAR heat pump water heaters. The potential for savings are listed below:

ENERGY STAR Solar Water Heaters can be used in combination with another back-up system. Using the sunshine to heat or preheat the water in combination with an electric tank water heater as backup will cut your annual hot water costs in half.

ENERGY STAR Heat Pump Water Heaters can save the average household \$330 per year and 2,690 kWhrs compared to a standard electric hot water heater.

The District processed two rebates that totaled \$220.00. The District would like to fund this program at the same level in 2017. An incentive of 10% of the cost, not to exceed \$150 will allow us to process six incentives in 2017.

ENERGY STAR Lighting Fixtures/Ceiling and Ventilation Fans: \$650

The District would like to reduce funding to this program to \$650 in 2017. We would like to continue the fifty percent rebate on lighting fixtures and ENERGY STAR ceiling and ventilation fans. The District processed six rebates totaling \$188, as of October 2016.

ENERGY STAR qualified lighting fixtures uses 75% less energy than incandescent lighting. They distribute light more efficiently and more evenly than the standard fixture. They come in hundreds of decorative styles including portable fixtures like table, desk and floor lamps, and hard-wired fixture options like front porch, dining room, kitchen ceiling and under-cabinet, hallway ceiling and wall bathroom vanity fixtures and ceiling fan lighting fixtures. Many fixtures have convenient features such as dimming on some indoor models and automatic daylight shut-off and motion sensors on outdoor models.

RIPUC DOCKET 4663

ENERGY STAR ceiling fans/light combination units are 60% more efficient than standard models. They operate with less noise, have high performance motors, and improved blade design that provides better performance.

The incentive will remain at 50%, with a cap of \$50.

Home Office Equipment/Home Electronics: \$1,500

The District would like to fund this line item at \$1,500 in 2017. The incentives for this line item will remain 15% of the cost, up to a maximum rebate of \$50. The District has processed \$494.00 in rebates through October. The District feels that the demand for office and electronic rebates will continue to be strong especially in the month of December:

ENERGY STAR compliant office equipment such as computers, monitors and imaging equipment like printers and copiers help to eliminate waste through special energy efficient designs. They use less electricity and when they are not in use enter into a low-power mode. The specifications for many office products continue to change making it more difficult to earn the ENERGY STAR label. The products now are 25-50% more efficient than standard equipment. The products that fall under office equipment are: computers, laptops, copiers, fax machines, digital duplicators, external power adapters, notebook computers/tablet PC's, mailing machines, computer monitors, digital picture frames, printers, scanners, all in one units, water coolers, and computer servers.

The products that fall under home electronics are audio/video such as Home-Theater-in-a-box systems, audio amplifiers, AV receivers, shelf systems, DVD players, Blu-ray disc players, docking stations for audio amplification or optical disc drive functions, battery charging systems such as cordless power tools, cordless yard care tools, hand held vacuums, personal care products, digital-to-analog converter boxes, cordless phones, and combination units, external power adapters, televisions and set-top boxes imaging equipment.

The District would like to fund this line item at \$1,500 with a rebate of 15% not to exceed \$50.

Incentives for Geothermal Systems or a Ground Source Heat Pump (GHP): \$100

Although the District has no firm commitments for this line item, we would like to continue to keep the line item open because of the potential savings.

The geothermal heat pumps are similar to ordinary heat pumps, but they use the ground instead of the outside air to provide heating, air conditioning and hot water. By using the earth's natural heat, they are among the most efficient and comfortable heating and cooling technologies currently available. They use about 45% less energy than a standard heat pump, and they are quieter than a conventional system. ENERGY STAR certified heat pumps must meet the following specifications:

Requirements (Effective January 1, 2012)		
Product Type	EER	COP
Water-to-Air		
Closed Loop Water-to-Air	17.1	3.6
Open Loop Water-to-Air	21.1	4.1
Water-to-Water		
Closed Loop Water-to-Water	16.1	3.1
Open Loop Water-to-Water	20.1	3.5
DCX		
DCX	16.0	3.6

RIPUC DOCKET 4663

The District would like to keep this line open should there be any future requests. The incentive would be 5% of the cost with a maximum rebate of \$350.

New Construction Rebates: \$1,000

The District has not processed any rebates in 2016 but would like funding to remain at \$1,000 for 2017. The budget of \$1,000 will allow us to process two rebates with a cap of \$520 per unit /home.

This line item is an excellent way to encourage contractors to upgrade to ENERGY STAR compliant windows, doors, skylights, heating systems, appliances, lighting fixtures, central air conditioning, and water heaters. Since the current building code in the town of Burrillville does not require the contractors to install Energy Star compliant products, the District feels this program is a great way to encourage energy efficiency in the construction process and to reduce the demand for electricity from these new housing developments.

Central Air Conditioning: \$3,000

The District has processed eleven rebates totaling \$2,570 in 2016. The District would like to increase funding to this line item in the amount of \$3,000 due to its popularity.

About one-seventh of all the electricity in the US is used to air condition buildings. ENERGY STAR qualified central air conditioners have a higher seasonal efficiency rating (SEER) than standard models, which makes them 8% more efficient than standard models. ENERGY STAR certified central air conditioners must meet the following specifications:

Equipment	Specification
Air-Source Heat Pumps	≥ 8.5 HSPF/ ≥15 SEER/ ≥12.5 EER* for split systems ≥ 8.2 HSPF ≥15 SEER/ ≥12 EER* for single package equipment including gas/electric package units.
Central Air Conditioners	≥15 SEER/ ≥12.5 EER* for split systems ≥15 SEER/ ≥12 EER* for single package equipment including gas/electric package units.

The District is proposing a tiered incentive based on the efficiency of the cooling unit. This would allow up to 10 rebates.

Energy Star Light Bulbs: \$1000

The ENERGY STAR label on lighting means you are getting a product that is superior in energy efficiency. ENERGY STAR qualified compact fluorescent light bulbs (CFLs) use 70%-90% less energy than incandescent bulbs and last fifteen times longer. ENERGY STAR decorative light strings use 75% less energy than conventional incandescent light strings, last ten times longer, and are cool to the touch. The ENERGY STAR qualified decorative light strings that feature LED technology are 90% more efficient. The electricity used by just one 7-watt incandescent bulb, can power 140 LEDs or enough to power a 25-foot string of LEDs.

The District proposes a rebate of 50% of the cost of the LED & CFL light bulbs with a cap of \$50 per customer. The District would like funding to remain at the same level of \$1,000 for 2017.

Desk Calendars with DSM Rebate Information: \$1000

In 2016, the District purchased 500 Desk Calendars that are personalized with information about the DSM rebates and directs our customers to our website for applications. Customers enjoy the calendars and have the DSM rebate information in a useful location.

The District would like to continue this program and is proposing a budget of \$1000 for this line item.

“Smart” Power Strips: \$200

Although the District did not receive any rebates for this program, we would like to continue to offer an incentive on smart power strips. The power strips are a way to reduce the amount of power being drawn by computers and electronic accessories when they are not in use. The smart power strips monitor power consumption and can sense the difference between when a device is on or off and can shut the power off, eliminating the idle current being drawn from the item. Most smart power strips have two always-on outlets, a master control outlet and 2-6 controlled outlets that automatically turn off or on as the master appliance is turned on or off. Standby power costs the average U.S. household \$100 annually.

The incentive will remain at 25%, up to a maximum rebate of \$25.

ENERGY STAR Qualified Pool Pump Program: \$500

The District is proposing a rebate on ENERGY STAR qualified pool pumps, which will include the two-speed, and variable speed models that are listed on the ENERGY STAR web site.

The Department of Energy and Environmental Protection Agency has set new ENERGY STAR criteria for pool pumps. ENERGY STAR rated pool pumps use 70% less energy than standard pool pumps. The estimated cost savings from operating an ENERGY STAR efficient pool pump is between \$280-\$340 per year; making the payback period less than two years.

The District has not processed any rebates for this item but is proposing keeping a rebate of 10 percent, not to exceed \$100. This would allow for five rebates in 2017.

Committed for 2016 Programs: \$2,000

The District is estimating a carryover of funds from 2016 in the amount of \$39,317. The District would like to use \$37,317 of these funds in the 2017 budget and use \$2,000 to satisfy 2016 qualified rebates for customers who do not receive a rebate because the funds for a particular program had been depleted in 2016 or for rebates that are turned in after the books are closed for 2016; the cutoff date for 2016 rebates would be February 15, 2017.

COMMERCIAL & INDUSTRIAL PROGRAMS

ENERGY STAR Incentive – Office Equipment/Electronics: \$500

The District issued three incentives totaling \$112 through October of 2016. The District continues to promote this program. The District would like to continue this program at the same level of funding in 2017.

The office equipment and electronics have the same savings that are mentioned in the Home Office Equipment/Home Electronics program. The incentive will remain at 25% of the cost, with a cap not to exceed \$50.

Industrial and Commercial Projects 2017:

Burrillville School Department:

The District has been working with the School Department on multiple energy efficiency projects. To date, they have replaced 36 exterior lighting fixtures for new 12-watt LED lights and put in 20 occupancy sensors throughout the High School. The project cost \$15,040 and they have received a rebate of \$3,260.00. This part of the project will save 8,491 kWhrs annually. The second part of this project should be completed in November/December of this year.

Committed Funds-Lighting and Energy Efficiency Projects:

Pascoag Utility District spent \$1,028.40 on retrofit LED kits for the District office. The retrofit kits will save the District 1,622 kWhrs annually. The project incentive was \$617.04.

Pascoag Fire Department is also looking into completing lighting and energy efficiency projects before the end of the year.

Committed Funds 2017- Lighting and Energy Efficiency Projects: \$35,168

The District would like to allocate funds to this line item in order to accommodate unidentified and identified projects. Often, businesses will approach the District after the file date, and ask to be considered for a rebate on a project. This line item gives the District a source of funds to work from, so we do not miss an opportunity to work with our business customers on energy efficiency projects.

The District would like to keep the rebates for lighting projects at 60% on retrofit projects and 40% on new lighting projects in 2017. These incentives have enticed customers to make the necessary changes to increase their energy efficiencies. The District would like to allocate \$35,168 to this line item and make the funds available on a first come first serve basis.

The District has identified the following projects for 2017:

- Brigido's IGA completed their energy audit and is looking into a lighting project for its Pascoag store. The estimated rebate would be \$21,950 and would save 75,326 kWhrs annually.
- Pine Grove Health Center completed their energy audit and is looking into a lighting project. The estimated rebate would be \$13,218 and would save 91,441 kWhrs annually.

Consultation fees: \$250

National Grid, RISE Engineering and Energy New England continue to provide verification of savings on the commercial and industrial projects on an as needed basis. This line item will remain at \$250 for 2017.

ENERGY STAR Commercial Appliances: \$700

The District has not processed any rebates to date. The District would like to continue to offer the businesses the same rebate criteria as seen under the residential appliance program for residential appliances.

The following appliance would qualify for rebates:

Commercial Dishwashers that earn the ENERGY STAR rating on average are 40% more energy efficient and 40% more water efficient than standard models.

Commercial Fryers that earn the ENERGY STAR rating are up to 35% more energy efficient than standard models. They also offer shorter cook times and higher production rates through advanced burner and heat exchanger designs.

Commercial Ice Machines that earn the ENERGY STAR rating are on average 15% percent more energy efficient and 23% more water efficient than standard models.

Commercial Hot Food Holding Cabinets that have earned the ENERGY STAR rating are 65% more efficient than standard models. Models that meet the requirements incorporate better insulation, reducing heat loss, and may offer additional energy saving devices such as magnetic door gaskets, auto-door closures, or Dutch doors.

Commercial Griddles that earn the ENERGY STAR rating are about 10% more energy-efficient than standard models. A qualified grill can save 1,200 kWh annually.

Commercial Ovens that earn the ENERGY STAR rating are 20% more energy-efficient than standard models. These ovens can save 1,870 kWh annually.

Commercial Refrigerators & Freezers that meet the ENERGY STAR specifications will be 40% more energy efficient than a standard option because they are designed with components such as high

efficiency compressors and improved coil design, electronically commutated motors, variable speed fans, and efficient interior lighting.

Commercial Steam Cookers, also known as compartment steamers that meet the ENERGY STAR qualifications are up to 50% more energy-efficient than standard models. They can save 11,500 kWh annually.

The District proposes a rebate of 10% with a cap of \$350 for commercial appliance or the following for the smaller Residential Appliances:

A commercial or industrial customer purchasing an ENERGY STAR compliant residential appliance will receive a rebate of up to 10% not to exceed the following for each appliance: refrigerator; freezer; clothes washer; and dryers up to \$75. A customer purchasing an ENERGY STAR compliant dishwasher or air purifier will receive an incentive up to \$50; an ENERGY STAR air conditioner will receive an incentive up to \$25; an ENERGY STAR dehumidifier will receive incentive up to \$20. The same savings would apply as listed under residential ENERGY STAR Appliance Rebates.

2017 LED Street Light Incentive: \$10,000

In 2016, Pascoag Utility purchased a total of 610 LED street light fixtures for a total project cost of \$233,998, which included materials, labor, and transportation cost. Please see the table below for the cost and annual kilowatt-hour savings from this project. The District was awarded a \$150,000 Grant from the Regional Greenhouse Gas Initiative to pay for the materials only.

TYPE of Fixture	Number purchased:	Material Cost	Labor Cost	Transportation Cost	Annual kWh Saving
24 Watt LED SL	427	\$62,769	\$41,718	\$17,080	
49 Watt LED SL	88	\$14,960	\$8,598	\$3,520	
50 Watt LED SL	20	\$ 5,260	\$1,954	\$800	
72 Watt LED Decorative SL	24	\$ 1,580	\$ 2,345	\$960	
120 Watt LED Flood Lights	51	\$32,079	\$4,983	\$2040	
MISC Materials/ Brackets		\$25,956			
TOTAL	610	\$150,000	\$59,598	\$24,400	178,547 kWh

The District's staff recently finished installing the fixtures. The project qualifies for a 50% rebate of \$116,999 from the DSM program. The approved budget for the LED Street Light Incentive is \$10,000 for 2016. The District will be purchasing another \$60,000 worth of streetlights in 2017 but due to budget constraints because of an increase in commercial requests for lighting incentives; the District will only be able to fund the LED Street Light Project to \$10,000 in 2017.

ADMINISTRATIVE/AD/EDUCATION PROGRAMS

Administrative Expenses: \$21,000

The funds will be used to pay for staff time, schools and seminars related to DSM, and reimbursement of mileage when employees use their private vehicles for DSM related activities.

Pascoag has three Customer Service Representatives who devote many hours to the DSM programs by working with the customers, taking the applications for rebates on the various programs and answering questions over the phone and in person. The DSM Coordinator spends many hours researching the compliance of the various rebates that are submitted, reconciling the DSM programs, and updating existing programs as well as creating new programs for the next year and requesting reallocation of funds. In addition, the Assistant General Manager works with the commercial and industrial customers on various C & I projects and performs site visits.

The District would also like to perform a training session with the Customer Service Representatives and include a luncheon again this year to train them on the latest criteria regarding DSM rebates for 2017.

The District would like to fund this line item at \$21,000 in 2017.

Follow-Up to Successful Programs: \$1,000

The District is requesting a line item to allow some flexibility in transferring funds up to ten percent to other programs with a high customer demand. If the carry over funds exceed our estimate, the District is proposing to move these funds to the Funds for Follow-up to Successful Programs line item in the 2017 budget. Any transfer would only be done with the Division's approval.

Outreach/Education Program: \$7,500

The District took several opportunities to educate the public on energy efficiency matters this year. We attended the Family Fair and spoke to classes at Burrillville High School about ways in which they can be involved with energy conservation projects. Customers received energy efficient information products at the Family Fair and Green Festival. We also distribute information at our office for walk in customers.

A budget of \$7,500 is requested, to use some of these funds to update the website in 2017, process bill inserts promoting the various programs, and to run advertisements in the local paper. We would

also like to purchase fulfillment materials, such as night-lights, refrigerator thermostats and other conservation materials, which will be given away at the District's customer outreach events.

In addition, the District would like to purchase an annual subscription to the DEED Program again in 2017, this allows us to see what other utilities across the United States are doing in regards to energy efficiency projects.

Jesse Smith Library Partnership - \$3,700

The District collaborated with the Jesse Smith Library and Burrillville Recycling for an Earth Day Contest, which encouraged students, grades K -8 to create posters on why recycling and energy conservation was important. The top twelve posters were chosen and will be included in a 2017 Calendar with recycling and conservation messages. An awards ceremony was held at the library and each participant received a certificate issued by the Town Council.

In 2017, the District would again like to collaborate with the Jesse Smith Library and Burrillville Recycling. This would allow us to continue the partnership for an Earth Day Poster contest for both energy efficiency and recycling. A budget of \$3,700 is requested and would be used to help fund prizes, materials, labor, and refreshments for the awards ceremony and allow us to create calendars with the posters that will hang in customers' homes for twelve months.

Community Events: \$8,031

In 2016, funds were used to purchase supplies, create and distribute flyers for the Green Festival, change date/time on banners and signs and to pay for staff time at the 10th Annual Green Festival. Many hours were dedicated to the preparation of the event. The Pascoag Utility District partnered with the Town of Burrillville's Parks & Recreation Department and hosted the event at the Stillwater Mill Center at 100 Tinkham Lane. This partnership continues to very rewarding. The Festival had something for everyone. Festivalgoers learned about local products and ideas to help them conserve energy and create a more sustainable lifestyle. There were free crafts, face painting, games, and bucket truck rides for the children. The event was very successful at raising funds from a raffle for a local nonprofit agency called the Backpack Project. We also ran an electricity workshop for school-age children with PowScience. The weather for this event was beautiful and the attendance was very high.

The District would like to continue the line item for Community Events. The District will continue the partnership with the Town of Burrillville Parks and Recreation Department in hosting the Green Festival again next year. This will allow us to attend other events in the community where we can promote the DSM programs available to the District's customers.

The District would like to fund this line item at \$8,031 in 2017.

Burrillville High School Partnership: \$3,000

The District added a new line item to the budget in 2017 for the Burrillville High School Partnership in the amount of \$3,000. Over the course of many years, the District staff worked with Charles Boucher's classes on various energy conservation projects. Pascoag had assisted with the purchase of video and computer equipment and up-grades to software, which in return was used to create conservation videos, logos, and animated characters that encouraged the use of energy conservation. Mr. Boucher retired in 2009 and since then, PUD staff has had a difficult time finding another teacher to collaborate with for similar projects. Currently, staff have been working with Principal Michael Whaley on a partnership with their Environmental Sciences program. This year the class would like to work on energy conservation campaigns at the High School. The first project would be a mural at the student entrance with energy conservation messaging. They would also plan other awareness events quarterly and message them in the school, utilizing their newsletter and their parent messaging system. Funds from this line item would help pay for materials needed in the classroom and would go toward an end of year cookout where the students present their projects.

Energy Efficiency Management Continuing Education funds: \$5,934

In 2016, the newly appointed DSM coordinator was able to attend several energy efficiency workshops through Northeast Energy Efficiency Partnerships (NEEP). In 2017, she would like to attend the American Public Power Association's Spring Education Institute to earn a certificate in Energy Efficiency Management.

The District would like to increase funding in this line item to \$5,934 in 2017 so the DSM coordinator can attend the Spring Education Institute and other learning opportunities.

Program Research and Development: \$500

The District would like to fund this line item with \$500 to have a source of funds to help develop future energy efficient programs. Staff were able to attend the Boston Green Festival this year to research ways to improve the District's Green Festival.

RIPUC DOCKET 4663

Schedule D-1

Pascaso Utility District
Demand Side Management Programs - 2016 Actual Expenses and Balances through October, 2016

Actual carry over from 2015	\$ 42,075
Estimated sales for 2016	\$ 112,652
Net 2016 budget	\$ 154,727

	2016 Approved Budget	Expenses	
Residential Program			
DR1601 ENE Residential Conservation (ECHO)	\$ 2,590	\$ 1,935	\$ 645 9 months @ \$215
DR1602 Home Energy Audits with Incentives	\$ 4,875	\$ 2,250	\$ 2,625 10 Audits @ \$225
DR1603 Energy Star Appliance Rebates	\$ 9,000	\$ 4,192	\$ 4,808 90 rebates-29 refrigerators, 23 dishwashers, 18 washing machines, 11 air conditioners, 8 dehumidifiers and 1 air purifier
DR1604 Refrigerators/Freezer Buy Back	\$ 1,050	\$ 345	\$ 705 5 buybacks
DR1605 Energy Efficient Windows/Doors	\$ 2,500	\$ 1,455	\$ 1,045 9 doors and 73 windows replaced
DR1606 Heating System Incentive	\$ 3,000	\$ 1,750	\$ 1,250 7 heating system rebates
DR1607 ENERGY STAR qualified Water Heaters	\$ 900	\$ 220	\$ 680 2 electric water heater with hybrid heat pump
DR1608 Energy Star Lighting fixtures ceiling/ventilation fans	\$ 1,000	\$ 484	\$ 512 6 flush mount fixtures, 4 surface mount fixtures and 1 ventilation fans
DR1609 Home Office Equipment/Home Electronics	\$ 2,500	\$ 494	\$ 2,006 10 rebates-5 printers, 8 televisions, 2 laptop and 1 DVD player
DR1610 Geothermal System	\$ 1,000	\$ -	\$ 1,000 No activity
DR1611 Central Air Conditioning	\$ 1,500	\$ -	\$ 1,500 No activity
DR1612 Change a Light Campaign	\$ 1,000	\$ 1,600	\$ (600) 7 central air conditioner rebates
DR1613 Smart Power Strips	\$ 200	\$ 273	\$ 77 165 LED lightbulbs
DR1614 ENERGY STAR Pool Pumps	\$ 500	\$ -	\$ 500 No activity
DR1615 Desk Calendars - with DSM rebate information	\$ 900	\$ 912	\$ (12) 500 desk calendars with DSM information
DR1617 Committed for 2015 Programs	\$ 2,000	\$ 565	\$ 1,435 8 rebates-25 windows, 2 air conditioner units, 1 refrigerator, 1 dishwasher and 1 door
Net Residential	\$ 34,605	\$ 16,179	\$ 18,426
Industrial/Commercial			
DI1601 Energy Star Incentive - Office Equipment	\$ 500	\$ 112	\$ 388 3 rebates-2 printer and 1 battery backup
DI1602 Burnsville School Department & EE Projects	\$ 25,000	\$ 3,260	\$ 21,740 Occupancy sensors and LED/retailers-project should be complete in Nov/Dec 2016
DI1603 Energy Star Commercial Appliances	\$ 12,000	\$ 617	\$ 11,383 No activity
DI1604 LED Street Light Incentive	\$ 700	\$ -	\$ 700 No activity
DI1605 Community Baptist Church	\$ 10,000	\$ -	\$ 10,000 The fixtures were installed and the project rebated
DI1607	\$ 8,045	\$ 8,045	\$ - Project complete-ramp with LED streetlights
Net Industrial/Commercial	\$ 56,465	\$ 12,034	\$ 44,461
Administrative/Ad/Education			
DA1601 Administrative	\$ 21,000	\$ 19,073	\$ 1,927 Administrative labor, mileage and supplies
DA1602 Funds for Follow-up to Successful Programs	\$ 1,155	\$ 1,070	\$ 85 4 Central AC Rebates
DA1603 Outreach/Education	\$ 8,200	\$ 5,616	\$ 2,584 Billing inserts, conservation items, and the DEED membership
DA1604 Jesse Smith Library Partnership	\$ 3,700	\$ 481	\$ 3,219 Supplies, prizes for event and labor
DA1605 Community Events	\$ 8,442	\$ 7,669	\$ 773 Supplies and labor for events
DA1606 Energy Efficiency Management continuing education	\$ 2,500	\$ 169	\$ 2,331 Mileage and conference fees
DA1607 Program Research and Development	\$ 500	\$ 121	\$ 379 Attended Boston Green Festival to continue developing our Green Festival
Unassigned Money from Actual Carryover	\$ 18,130	\$ -	\$ 18,130
Net Administrative/Education	\$ 63,827	\$ 34,177	\$ 29,650
Estimated DSM 2016 Budget/ Expenses/ Balance	\$ 154,727	\$ 62,391	\$ 92,336

Pascoag Utility District
Demand Side Management Programs - 2016 Projected Expenses and Balances

Actual carry over from 2015	\$ 42,075
Estimated sales for 2016	\$ 112,652
Net 2016 budget	\$ 154,727

	2016 Approved Budget	Projected Expenses	Projected Balance
<u>Residential Program</u>			
DR1601 ENE Residential Conservation (ECHO)	\$ 2,580	\$ 2,580	\$ -
DR1602 Home Energy Audits with Incentives	\$ 4,875	\$ 2,925	\$ 1,950
DR1603 Energy Star Appliance Rebates	\$ 9,000	\$ 4,492	\$ 4,508
DR1604 Refrigerators/Freezer Buy Back	\$ 1,050	\$ 405	\$ 645
DR1605 Energy Efficient Windows/Doors	\$ 2,500	\$ 1,755	\$ 745
DR1606 Heating System Incentive	\$ 3,000	\$ 2,000	\$ 1,000
DR1607 ENERGY STAR qualified Water Heaters	\$ 900	\$ 220	\$ 680
DR1608 Energy Star Lighting fixtures & ceiling/ventilation fans	\$ 1,000	\$ 288	\$ 712
DR1609 Home Office Equipment/Home Electronics	\$ 2,500	\$ 594	\$ 1,906
DR1610 Geothermal System	\$ 100	\$ -	\$ 100
DR1611 New Construction	\$ 1,000	\$ 520	\$ 480
DR1612 Central Air Conditioning	\$ 1,500	\$ 1,700	\$ (200)
DR1613 Change a Light Campaign	\$ 1,000	\$ 273	\$ 727
DR1614 Smart Power Strips	\$ 200	\$ -	\$ 200
DR1615 ENERGY STAR Pool Pumps	\$ 500	\$ -	\$ 500
DR1616 Desk Calendars- with DSM rebate information	\$ 900	\$ 912	\$ (12)
DR1617 Committed for 2015 Programs	\$ 2,000	\$ 565	\$ 1,435
Net Residential	\$ 34,605	\$ 19,229	\$ 15,376
<u>Industrial/Commercial</u>			
DI1601 Energy Star Incentive - Office Equipment	\$ 500	\$ 112	\$ 388
DI1602 Burrillville School Department	\$ 25,000	\$ 25,000	\$ -
DI1603 Committed Funds- Lighting & EE Projects	\$ 12,000	\$ 12,000	\$ (0)
DI1604 Consultation Fees	\$ 250	\$ -	\$ 250
DI1605 Energy Star Commercial Appliance	\$ 700	\$ -	\$ 700
DI1606 LED Street Light Incentive	\$ 10,000	\$ 10,000	\$ -
DI1607 Community Baptist Church	\$ 8,045	\$ 8,045	\$ -
Net Industrial/Commercial	\$ 56,495	\$ 55,157	\$ 1,338
<u>Administrative/Ad/Education</u>			
DA1601 Administrative	\$ 21,000	\$ 21,000	\$ 0
DA1602 Funds for Follow-up to Successful Programs	\$ 1,155	\$ 1,070	\$ 85
DA1603 Outreach/Education	\$ 8,200	\$ 6,616	\$ 1,584
DA1604 Jesse Smith Library Partnership	\$ 3,700	\$ 3,700	\$ (0)
DA1605 Community Events	\$ 8,442	\$ 7,669	\$ 773
DA1606 Energy Efficiency Management continuing education	\$ 2,500	\$ 849	\$ 1,651
DA1607 Program Research and Development	\$ 500	\$ 121	\$ 379
Unassigned Money from Actual Carryover	\$ 18,130	\$ -	\$ 18,130
Net Administrative/Ad/Education	\$ 63,627	\$ 41,023	\$ 4,474
Estimated DSM 2016 Budget/ Expenses/ Balance	\$ 154,727	\$ 115,410	\$ 39,317

Schedule E

Pascoag Utility District Savings Associated with Completed Conservation Projects January-June 2016

<i>Project</i>	<i>kWh Savings</i>	<i>Dollars (0.134/kwhr)</i>
Appliance Rebates 2016	11084.00	\$ 1,482.98
Appliance Rebates Committed 2015	724.00	\$ 97.02
Refrigerator/Freezer Buyback	4856.00	\$ 650.70
Home Office Equipment	102.00	\$ 13.67
Home Office Equipment Committed 2015	0.00	\$ -
Commercial Office Equipment	0.00	\$ -
Central Air Conditioning	1495.00	\$ 200.33
Central Air Conditioning Committed 2015	0.00	\$ -
Lightbulb Rebates CFL & LED Bulbs	6364.00	\$ 852.78
Total:	24625.00	\$ 3,299.75

Additional Projects:

Notes:

Residential Boiler Replacements

Energy Cost Saved $\$54 \times 3 = \162
 Energy Consumption Saved (MMBTU) $4 \times 3 = 12$
 Energy Consumption (Gallons) $30 \times 2 = 60$

Residential Boiler Replacements Committed 2015

Energy Cost Saved - N/A
 Energy Consumption Saved (MMBTU) N/A
 Energy Consumption (Gallons) N/A

Windows and Doors

7 Homes replaced 1 door and 29 windows

Replacing single pane windows would be a savings of \$3,400.00 annually
 Replacing double pane windows would be a savings of \$1,080.00 annually

Pascoag Utility District Savings Associated with Completed Conservation Projects July-October 2016

<i>Project</i>	<i>kWh Savings</i>	<i>Dollars (0.134/kwhr)</i>
Appliance Rebates 2015	12458.00	\$ 1,482.98
Appliance Rebates Committed 2014	0.00	\$ -
Refrigerator/Freezer Buyback	2652.00	\$ 355.37
Home Office Equipment	134.00	\$ 17.96
Home Office Equipment Committed 2014	0.00	\$ -
Commercial Office Equipment	31.00	\$ 4.15
Central Air Conditioning	6728.00	\$ 901.55
Central Air Conditioning Committed 2014	0.00	\$ -
Lightbulb Rebates CFL & LED Bulbs	2694.00	\$ 361.00
Total:	24697.00	\$ 3,309.40

Additional Projects:

Notes:

Residential Boiler Replacements

Energy Cost Saved $\$142 \times 7 = \994
 Energy Consumption Saved (MMBTU) $6 \times 7 = 42$
 Energy Consumption (Gallons) $41 \times 7 = 287$

Residential Boiler Replacements Committed 2014 N/A

Windows and Doors

23 Homes repaced 73 windows and 9 doors

Replacing single pane windows would be a savings of \$3,400.00 annually
 Replacing double pane windows would be a savings of \$1,080.00 annually

Committed Funds:

Pascoag Utility District

1,622 kWhrs saved annually

Pascoag Utility District- Electric Department (“Department”)

Demand Side Management Charge

The following provisions will be apply to reflect charges collected under the Demand Side Management Program, pursuant to “An Act Relating to the Utility Restructuring Act of 1996”, #96-H 8124 Substitute B, Section 39-2-1.2(b).

The District proposes to include a charge of 2.3 mills per kilowatt-hour delivered to fund a demand side management program and renewable energy resources. The allocation of this revenue between demand side management programs and renewable energy resources shall be determined by the Commission.

The District will submit semi-annual reports to the Commission documenting funds collected and expended. In the event that revenue collected over or under anticipated revenue, the Department shall apply to the Commission for an annual “true-up”.

Approval Issued:

Requested Effective Date: January 1, 1998

Approval Date: March 20, 1998

Estimate for Family Fair			
Expenses			
		Estimate	Actual
Total Expenses		\$2,121.40	

		Estimate	Actual
Labor			
AS	\$268.29		
PC	\$268.11		
Totals	\$536.40		\$0.00

		Estimate	Actual
Refreshments			
Food Drinks for the PUD Staff	\$25.00		
Candy for the kids	\$50.00		
Totals	\$75.00		

		Estimate	Actual
Misc. Items/ Handouts			
Culver Items	\$1,500.00		
Totals	\$1,500.00		\$0.00

		Estimate	Actual
Program			
Vendor Fee	\$10.00		\$0.00
Totals	\$10.00		\$0.00

		Estimate	Actual
Advertisements			
Totals	\$0.00		\$0.00

		Estimate	Actual
Totals	\$2,036.40		\$0.00

Estimate for Summer Workshop			
Expenses			
		Estimate	Actual
Total Expenses		\$702.60	
		Estimate	Actual
Labor			
AS	\$178.86		
PC	\$178.74		
Totals	\$357.60		\$0.00
Refreshments			
Food Drinks for the PUD Staff	\$25.00		
Candy for the kids	\$20.00		
Totals	\$45.00		
Misc. Items/ Handouts			
Misc. Items	\$300.00		
Totals	\$300.00		\$0.00
Program			
Vendor Fee			
Totals	\$0.00		\$0.00
Advertisements			
Totals	\$0.00		\$0.00
Totals			
		\$45.00	\$0.00
Totals			
	\$657.60		\$0.00

Estimate for Green Festival Expenses

Expenses

	Estimate	Actual
Total Expenses	\$7,925.00	

	Estimate	Actual
Labor		
Pre-event Labor	\$2,500.00	
Staff Labor-day of event	\$2,500.00	
Totals	\$5,000.00	\$0.00

	Estimate	Actual
Refreshments		
Food Drinks for the PUD Staff	\$125.00	
Candy for the kids	\$60.00	
Totals	\$185.00	

	Estimate	Actual
Misc. Items/ Handouts		
Culver Items	\$2,000.00	
Totals	\$2,000.00	\$0.00

	Estimate	Actual
Program		
Misc. Items/Games/Supplies	\$300.00	\$0.00
Totals	\$300.00	\$0.00

	Estimate	Actual
Advertisements		
Bargain Buyer Ad	\$325.00	
Photocopying/Printing	\$75.00	
Change Banner Dates	\$40.00	
Totals	\$440.00	\$0.00

	Estimate	Actual
Totals	\$485.00	\$0.00

	Estimate	Actual
Totals	\$7,440.00	\$0.00

Summary for all Estimated Events

Expenses

	Estimate	Actual		Estimate	Actual
Total Expenses				\$21,498.00	
Total Expenses					
Family Fair	\$2,121.40				
Summer Workshop	\$702.60				
Green Festival	\$7,925.00				
Totals	\$10,749.00	\$0.00			





10th Annual Green Festival
September 10, 2016 at 10AM-2PM

2016 Green Festival Vendors

1. Burrillville Parks and Recreation/Recycling
2. Pascoag Utility District
3. Face Painters
4. Jesse Smith Library
5. Betty's Bee Farm
6. Burrillville Historical Society
7. Ace Solar Store
8. Burrillville Land Trust
9. Save the Lakes
10. Pascoag Public Library
11. Northeast Solar and Wind
12. Maloney Properties
13. Klinkmann Solar/Toxics Info Project
14. Yoga and Yoga Therapy with Anita Bevans
15. Munroe Dairy
16. Pure Haven Essentials
17. The Attic Project
18. Claude's Cycles
19. URI Energy Fellows
20. USDA
21. Northwest Supporters of Open Space
22. Blackstone Heritage Corridor
23. Rhode Island College-Environmental Sciences Program
24. Celadon Road
25. Healthy Homes
26. Energy New England
27. Sunwatt Solar
28. PowScience

PASCOAG UTILITY DISTRICT
BURRILLVILLE PARKS & RECREATION
BEMA
JESSE SMITH MEMORIAL LIBRARY

10TH ANNUAL **GREEN FESTIVAL** SEPTEMBER 10, 2016 10-2PM

Pascoag Utility District and the Town of Burrillville's Parks and Recreation Department are teaming up to hold the 10th Annual Green Festival on Saturday, September 10, 2016 from 10:00-2:00 PM at the Stillwater Mill Center -100 Tinkham Lane, Harrisville RI 02830. The event is free to the public!

The Festival has something for everyone! Learn about local products and ideas that will help you conserve energy and create a more sustainable lifestyle. There will be free crafts, face painting and bucket truck rides for children.

This year Pow Science will be running a special children's electricity workshop in the Jesse Smith community room. Lights light, buzzers buzz and stuff literally starts flying around during this engaging, electrical extravaganza! They'll even use one of the best electrical conductors around-the human body-to complete a circuit the whole group will be a part of!

There will be a session at 11AM for grades 3 and up. Pre-registration is required. Space is limited. Please contact the Children's Department at the Jesse Smith Library (710-7800 x 2) to sign up.

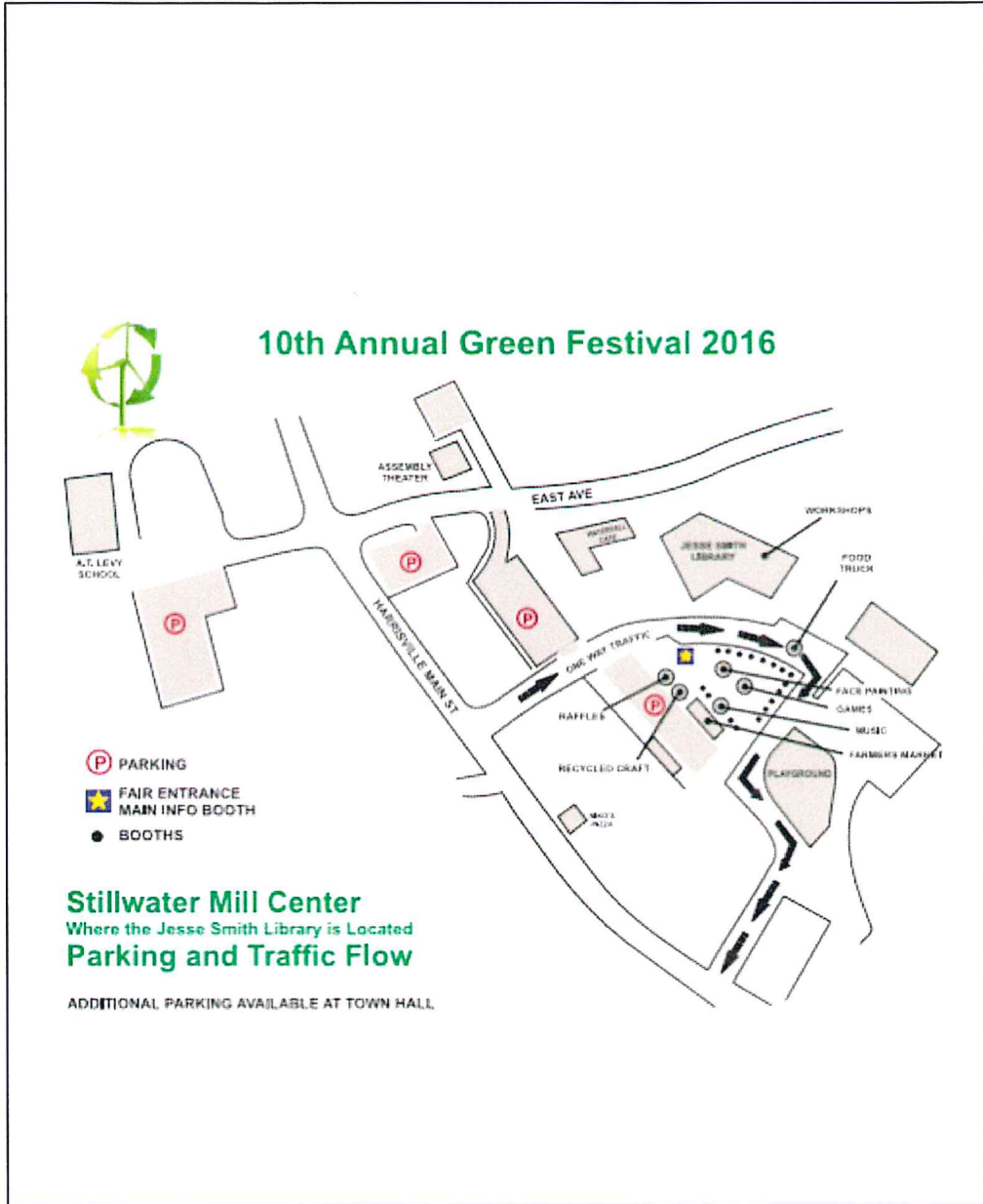
The Burrillville Farmers Market will be under the Pavilion selling their amazing vegetables, baked goods and other fine products. Stop by and see all the great things they have to offer! Kids can make a free craft!

Souffull Fried Chicken and Elwood's Dog House will be on site offering lunch and snacks to purchase! Musician, Dave Laprise of Accordion Cool will be performing music from big band, old standards, fifties, country, rock n' roll, and light jazz.

And in honor of it being our 10th anniversary, which we think is a pretty big deal-we're going BIG!!! Giant yard size Checkers, Twister, Connect 4 and many other fun games to play!!! Best of all, it's free!

First 500 attendees get free bags packed with information and goodies!

Save the Date!



Schedule I –Customer Information



Halloween is almost here, and a band of spooky energy vampires could be lurking around your home. Unfortunately, these energy-slurping electronics are not interested in candy, but rather sucking your electrical outlets bone dry while raising your energy bills every month.

These so-called “energy vampires” are appliances that continue to draw power from electrical outlets, even when turned off or idle. While these vampires won’t suck your blood, some of these appliances can cause substantial increases to your energy usage, costing you and your family hundreds of dollars per year.

According to the U.S. Department of Energy’s [Lawrence Berkeley National Laboratory](#), an appliance constantly taking in 1 watt of electrical current is equivalent to 9kWh per year, adding up to \$1 in annual costs (basically \$1/watt/annual). Considering how many appliances are used in an average household, costs can quickly add up to \$100-200 a year.

To prep you for the colder and more expensive energy months, we’ve prepared a list of cleverly ghoulish (and practical) actions to take care of energy vampires in your home for good:

IN THE BATHROOM—UNPLUG THAT HAIR DRYER



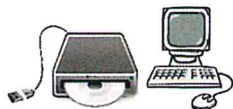
No, unfortunately hanging garlic is not step one. But your morning shave and blowout could be a cause for concern if you’re leaving devices like hair dryers, curling irons, or electric shavers plugged into the wall. Even when turned off, these devices can idly sip electricity from your outlet costing you money. Outsmart those pesky energy vampires and tug the plug.

If not, timed power switches are a great way to turn the lights on before you get home or even make sure you didn’t burn the house down with your curling iron. Consider one of these handy devices in your bathroom if you’re forgetful or busy in the morning (and who isn’t?). Peace of mind can be just as valuable as energy savings.



IN THE KITCHEN

You’re primed and ready to head to work, but you have yet to finish that pot of coffee. Before you leave for the day, make a habit of turning off all unnecessary kitchen appliances, especially that new espresso machine. Granted, coffee makers only use 1-3 watts when off, but add that to your microwave, small kitchen television, toaster oven, and other unused appliances and you could save \$10-20 per year.



IN THE LIVING ROOM

Older set-top cable boxes and DVRs in your living room are some of the most frightening of energy vampires, as they’re less efficient than newer models. Some of these devices are constantly draining 25-45 watts of energy when off. To

mitigate this energy waste, hook up your entertainment center and other living room appliances to power strips or an outlet with a wall switch. Then you can easily switch the whole system off when you need to. But remember if you are planning to record a show, your cable box will need to be turned on. It also takes time for your program guide to load, so it may be best to only shut your cable box off if you are not going to use it for extended periods.

If you're still concerned about the energy usage of your home set-top boxes, be aware that, in December 2013, industry, environmental, and consumer groups reached a **non-regulatory agreement** that is expected to improve the efficiency of new set-top boxes by 10 to 45 percent (depending on box type) by 2017. So, if you want to save energy and money, consider calling your cable provider about these new, more efficient set-top boxes.



IN THE HOME OFFICE

You may have finished working, but your laptops and PCs in the home office are contributing to your electric bill. Be sure to keep your computers on sleep mode if not in use. Of course, a desktop or laptop computer can still suck 15-21 watts when idle. Turn it off instead and that could be up to \$20 in savings from one device alone. Inkjet printers and fax machines, as well as other computers, can easily add to these costs, so be sure to use power strips and flip them off when not in use.



IN THE BEDROOM

Space heaters are a great way to keep a basement bedroom warm. Unfortunately, they're also a great way to start a house fire and drive up energy bills. If some rooms are colder in your house, consider fixing leaks and or adding insulation instead of using pricey space heaters. You can find ways to fix leaks in your home with a simple **home energy audit**. Read more tips on **heating and cooling** in our blog on **Saving on Home Heating Costs**.

As always, be sure to consider purchasing ENERGY STAR-rated appliances as they can save you more money up front and for years into the future. Check for the ENERGY STAR logo on all products. Also, be sure to look for **rebates on these appliances**.





PASCOAG UTILITY DISTRICT

Pascoag Electric • Pascoag Water

253 Pascoag Main Street
P.O. Box 107
Pascoag, RI 02859
Phone: 401-568-6222
Fax: 401-568-0066
www.pud-ri.org

Are you a Pascoag Utility District electric customer?

Do you know you could be getting a rebate for the Energy Star products you buy?

It's easy! Fill out an Energy Star rebate form by picking one up at the office or downloading it from our website. Mail or drop off the form with proof of purchase and proof of the Energy Star label. The rebate then gets credited to your electric account.

We offer rebates on the following Energy Star rated products:

- Pool Pumps
- Appliances
- Central Air
- Commercial Appliances
- Commercial Office Equipment
- Electric Heat Pump Hot Water Heaters and Solar Water Heaters used in combination with an Electric Tank Water Heater
- Heating System or Burner Replacement
- Home Office Equipment and Electronics
- Light Bulbs
- Lighting Fixtures, Ceiling and Ventilation Fans
- Geothermal Heat Pumps or Ground Source Heat Pumps
- New Construction
- Smart Power Strips
- Windows and Doors

We also provide:

- Free home and business energy audits with rebates available for follow up audit measures.
- Rebates when you get rid of an old running refrigerator or freezer.

For more information on how to qualify for an Energy Star rebate, please visit us on the web at:

<http://www.pud-ri.org/conservation/download-rebate-forms>

This offer is for a limited time only, subject to availability of funding.

Energy Star Products Help You Save

Do you know you could be getting a rebate for the Energy Star products you buy?

It's easy! Fill out an Energy Star rebate form by picking one up at the office or downloading it from our website. Mail or drop off the form with proof of purchase and proof of the Energy Star label. The rebate then gets credited to your electric account.

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Schedule J- 2016 Lighting Project Information

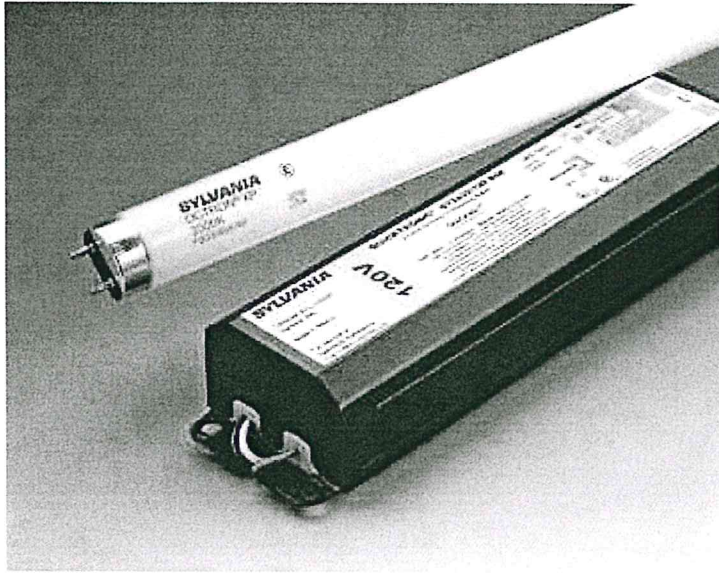
Pascoag Utility District Office Lighting Project

Existing

Run time 8x5x52
2080 hrs

[Return to search](#)

[Print Page](#)



Product Number: 21999
Order Abbreviation: FO32/741/ECO
General Description: 32W, 48" MOL, T8 OCTRON fluorescent lamp, 4100K color temperature, rare earth phosphor, 75 CRI, suitable for IS or RS operation, ECOLOGIC

Product Information

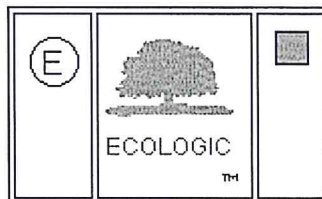
Abbrev. With Packaging Info.	FO32741ECO 30/CS 1/SKU
Actual Length (in)	47.78
Actual Length (mm)	1213.6
Average Rated Life (hr)	25000
Base	Medium Bipin
Bulb	T8
Color Rendering Index (CRI)	78
Color Temperature/CCT (K)	4100
Diameter (in)	1.10
Diameter (mm)	27.9
Family Brand Name	Octron® 700, Ecologic
Industry Standards	ANSI C78.81 - 2001
Initial Lumens at 25C	2800
Mean Lumens at 25C	2520
Nominal Length (in)	48
Nominal Wattage (W)	32.00

Additional Product Information

Product Documents, Graphs, and Images

Compatible Ballast

Packaging Information

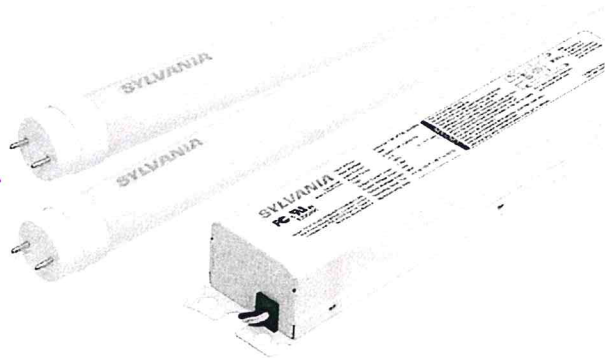


Footnotes

- The life rating of FO32/700/ECO OCTRON® lamps operated on rapid start ballasts is 25,000 hours. The life rating of FO32/700/ECO OCTRON lamps operated on instant start ballasts is 24,000 hours.
- Approximate initial lumens after 100 hours operation.
- The life ratings of fluorescent lamps are based on 3 hr. burning cycles under specified conditions and with ballast meeting ANSI specifications. If burning cycle is increased, there will be a corresponding increase in the average hours life.
- Minimum starting temperature is a function of the ballast; consult the ballast manufacturer.
- OCTRON lamps should be operated only with magnetic rapid start ballasts designed to operate 265 mA, T-8 lamps or high frequency (electronic) ballasts that are either instant start, or rapid start, or programmed rapid start specifically designed to operate T8 lamps. OCTRON lamps may be operated on instant start ballasts with ballast factors ranging from a minimum of 0.71 to a maximum of 1.20 at the nominal ballast input voltage. When OCTRON lamps are operated in the instant start mode, the two wires or two contacts of each socket should be connected to each other. They should then be connected to the appropriate ballast lead wire using National Electric Code techniques.
- SYLVANIA ECOLOGIC fluorescent lamps are designed to pass the Federal Toxic Characteristic Leaching Procedure (TCLP) criteria for classification as non-hazardous waste in most states. TCLP test results are available upon request. Lamp disposal regulations may vary, check your local & state regulations. For more information, please visit www.lamprecycle.org

{ Print Page }

ULTRA HE LED T8 Retrofit Kits



Key Features & Benefits

- Lumen package:
 - Up to 1150 lumens @ 10W
 - Up to 2450 lumens @ 19W
 - Up to 2450 lumens @ 22W
- CCT: 3000K, 3500K, 4100K, 5000K
- Beam angle: 150°
- Universal input 120-277V; 50/60Hz (external driver) & 347V; 50/60Hz (external driver)
- THD <20%, power factor >0.90
- G13 medium bi-pin base
- Long life: 60,000 hour life (L₇₀)
- Installation of the retrofit kit does not void the existing luminaire UL listing
- 8 year warranty (12 hour burn cycle), 7 year warranty (16 hour burn cycle), 5 year warranty (24 hour burn cycle)
- Reduces energy consumption up to 35%
- No warm-up time, instant-on with full light output and stable lamp to lamp color
- Glass free, vibration and impact resistant
- No UV emission
- Suitable for dry and damp locations (cannot come in direct contact with water)
- DesignLights Consortium® (DLC) qualified

The SYLVANIA ULTRA HE LED T8 retrofit kits are an energy saving and longer-life alternative to replace traditional fluorescent T12 or T8 lamps. Compared to traditional fluorescent lamps, ULTRA HE LED T8 lamps offer higher efficacy and equivalent light output.

Lamp requires dedicated external driver and non-shunted G13 medium bi-pin lamp holders which are included in the retrofit kit.

For retrofit application, lamps and drivers are offered together as 1-lamp, 2-lamp, 3-lamp and 4-lamp retrofit kits.

Product Offering

Length	Lumen Output	Wattage	Color Temperature	CRI
24in.	Up to 1150	10	3000K, 3500K, 4100K, 5000K	>82
48in.	Up to 2450	19	3000K, 3500K, 4100K, 5000K	>82
48in.	Up to 2450	22	3500K, 4100K, 5000K	>82

Application Information

Applications

- Cooler/freezer case
- Cove lighting
- Display case
- General illumination
- High bay
- Parking garage
- Tunnels

Application Notes

1. The ULTRA HE T8 LED lamp is designed to use a dedicated external driver and G13 medium bi-pin non-shunted lamp holders.
2. Operating temperature range between -4°F and 122°F (-20°C and 50°C).
3. Suitable for use in dry and damp environments.
4. The ULTRA HE 1-lamp kit is compatible with the Bodine emergency inverter model ELI-S-20 and the 2-lamp, 3-lamp and 4-lamp kits are compatible with the Bodine model ELI-S-100.
5. Maximum mounting distance between tube and driver is 10 feet.
6. For detailed warranty information, please see www.sylvania.com
7. NSF certified Food Zone (Non-Contact), Splash Zone and Non-Food Zone.

Specifications and Certifications



Specification Data

Catalog #	Type
Project	
Comments	
Prepared by	

Specifications

Energy Data

Ambient Operating Temperature: -4°F to 122°F (-20°C to 50°C)

EMI/RFI: FCC Title 47 CFR, Part 15, Class B

Input Voltage: 120-277V

Input Frequency: 50/60Hz

Input Power: 10W (2ft), 19W (4ft) & 22W (4ft)

Input Current @ 120V_{AC}: 0.09A (2ft) & 0.18A (4ft)

Input Current @ 277V_{AC}: 0.04A (2ft) & 0.08A (4ft)

Power Factor: >0.90

THD: <20%

Lighting Data

Lumen Output: Up to 1150lm (2ft) & 2450lm (4ft)

Lumens per Watt: Up to 129

Correlated Color Temperature (CCT): 3000K, 3500K, 4100K, 5000K

Color Rendering Index (CRI): >82

R9: Up to 21

Ordering Information

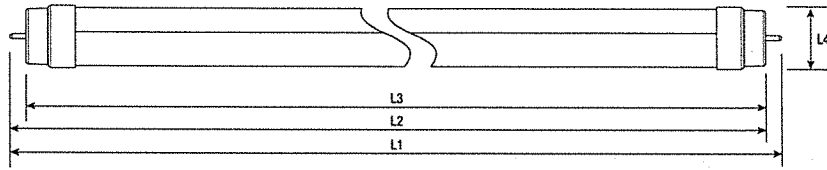
Item Number	Ordering Abbreviation	Input Voltage (V)	Length (in.)	Lamp Power (W)	System Power (W)	Lumens per Lamp	LPW	Color Temp.	CRI	Beam Angle	No. of Lamps	No. of Drivers	No. of Lamp Holders	DLC (Y/N)
73113*	LED10T8/L24/F/1x2HE/830/UNV	120-277	24	10	20	1100	110	3000K	82	150	2	1 Non-Dimmable Driver	4	Y
73099	LED10T8/L24/F/1x2HE/835/UNV	120-277	24	10	20	1100	110	3500K	83	150	2	1 Non-Dimmable Driver	4	Y
73100	LED10T8/L24/F/1x2HE/841/UNV	120-277	24	10	20	1100	110	4100K	85	150	2	1 Non-Dimmable Driver	4	Y
73101*	LED10T8/L24/F/1x2HE/850/UNV	120-277	24	10	20	1150	115	5000K	83	150	2	1 Non-Dimmable Driver	4	Y
73119*	LED19T8/L48/F/1x2HE/830/UNV	120-277	48	19	38	2350	124	3000K	82	150	2	1 Non-Dimmable Driver	4	Y
73106	LED19T8/L48/F/1x2HE/835/UNV	120-277	48	19	38	2350	124	3500K	83	150	2	1 Non-Dimmable Driver	4	Y
73107	LED19T8/L48/F/1x2HE/841/UNV	120-277	48	19	38	2350	124	4100K	85	150	2	1 Non-Dimmable Driver	4	Y
73108	LED19T8/L48/F/1x2HE/850/UNV	120-277	48	19	38	2450	129	5000K	83	150	2	1 Non-Dimmable Driver	4	Y
73112*	LED10T8/L24/F/1x1HE/830/UNV	120-277	24	10	10	1100	110	3000K	82	150	1	1 Non-Dimmable Driver	2	Y
73096	LED10T8/L24/F/1x1HE/835/UNV	120-277	24	10	10	1100	110	3500K	83	150	1	1 Non-Dimmable Driver	2	Y
73097	LED10T8/L24/F/1x1HE/841/UNV	120-277	24	10	10	1100	110	4100K	85	150	1	1 Non-Dimmable Driver	2	Y
73098*	LED10T8/L24/F/1x1HE/850/UNV	120-277	24	10	10	1150	115	5000K	83	150	1	1 Non-Dimmable Driver	2	Y
73118	LED19T8/L48/F/1x1HE/830/UNV	120-277	48	19	19	2350	124	3000K	82	150	1	1 Non-Dimmable Driver	2	Y
73102	LED19T8/L48/F/1x1HE/835/UNV	120-277	48	19	19	2350	124	3500K	83	150	1	1 Non-Dimmable Driver	2	Y
73103	LED19T8/L48/F/1x1HE/841/UNV	120-277	48	19	19	2350	124	4100K	85	150	1	1 Non-Dimmable Driver	2	Y
73104	LED19T8/L48/F/1x1HE/850/UNV	120-277	48	19	19	2450	129	5000K	83	150	1	1 Non-Dimmable Driver	2	Y
73114*	LED10T8/L24/F/1x3HE/830/UNV	120-277	24	10	30	1100	110	3000K	82	150	3	1 Non-Dimmable Driver	6	Y
73115	LED10T8/L24/F/1x3HE/835/UNV	120-277	24	10	30	1100	110	3500K	83	150	3	1 Non-Dimmable Driver	6	Y
73116	LED10T8/L24/F/1x3HE/841/UNV	120-277	24	10	30	1100	110	4100K	85	150	3	1 Non-Dimmable Driver	6	Y
73117*	LED10T8/L24/F/1x3HE/850/UNV	120-277	24	10	30	1100	110	5000K	83	150	3	1 Non-Dimmable Driver	6	Y
73142	LED22T8/L48/F/DIM1x2HE/835/UNV	120-277	48	22	44	2350	107	3500K	83	150	2	1 (0-10V) Dimmable Driver	4	N
73143	LED22T8/L48/F/DIM1x2HE/841/UNV	120-277	48	22	44	2350	107	4100K	85	150	2	1 (0-10V) Dimmable Driver	4	N
73144	LED22T8/L48/F/DIM1x2HE/850/UNV	120-277	48	22	44	2450	111	5000K	83	150	2	1 (0-10V) Dimmable Driver	4	N
73122*	LED19T8/L48/F/1x2HE/835/347V	347	48	19	38	2150	113	3500K	90	150	2	1 Non-Dimmable Driver	4	Y
73123*	LED19T8/L48/F/1x2HE/841/347V	347	48	19	38	2150	113	4100K	88	150	2	1 Non-Dimmable Driver	4	Y
73124*	LED19T8/L48/F/1x2HE/850/347V	347	48	19	38	2150	113	5000K	88	150	2	1 Non-Dimmable Driver	4	Y
73369*	LED19T8/L48/F/1x3HE/830/UNV	120-277	48	19	58	2350	122	3000K	82	150	3	1 Non-Dimmable Driver	6	Y
73370	LED19T8/L48/F/1x3HE/835/UNV	120-277	48	19	58	2350	122	3500K	83	150	3	1 Non-Dimmable Driver	6	Y
73371	LED19T8/L48/F/1x3HE/841/UNV	120-277	48	19	58	2350	122	4100K	85	150	3	1 Non-Dimmable Driver	6	Y
73372	LED19T8/L48/F/1x3HE/850/UNV	120-277	48	19	58	2450	127	5000K	83	150	3	1 Non-Dimmable Driver	6	Y
73365*	LED19T8/L48/F/1x4HE/830/UNV	120-277	48	19	78	2350	121	3000K	82	150	4	1 Non-Dimmable Driver	8	Y
73366	LED19T8/L48/F/1x4HE/835/UNV	120-277	48	19	78	2350	121	3500K	83	150	4	1 Non-Dimmable Driver	8	Y
73367	LED19T8/L48/F/1x4HE/841/UNV	120-277	48	19	78	2350	121	4100K	85	150	4	1 Non-Dimmable Driver	8	Y
73368	LED19T8/L48/F/1x4HE/850/UNV	120-277	48	19	78	2450	126	5000K	83	150	4	1 Non-Dimmable Driver	8	Y

*Products are being discontinued. Please contact your SYLVANIA sales representative for availability.

Ordering Guide

LED	10	T8	/	L	24	/	F	/	1	X	2	HE	/	8	35	/	UNV
LED	Wattage	Lamp Type		Length	24 Inches Overall Length		Frosted Lens		1 Driver/Kit		2 Lamps/Kit	High Efficiency		CRI 83	Color Temperature 35 = 3500K		Universal Voltage

Assembly Diagram



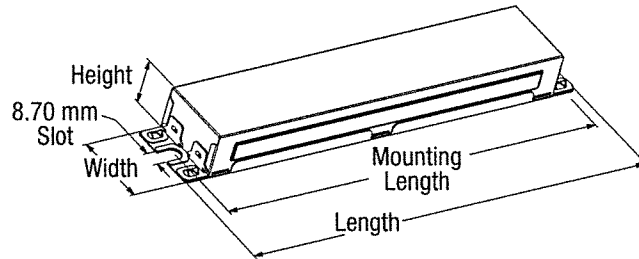
Product Description	L1 End of Base Pin to End of Opposite Pin End	L2 Base Face to End of Opposite Base Pin	L3 Base Face to Base Face	L4 Bulb Outside Diameter
LED10T8L24 (2ft)	23.725" ± 0.055" (602.6mm ± 1.4mm)	23.45" ± 0.05" (595.65mm ± 1.25mm)	max 23.22" (589.8mm)	1.02" ± 0.08" (25.9mm ± 2.0mm)
LED19T8L48 (4ft)	47.725" ± 0.055" (1212.2mm ± 1.4mm)	47.45" ± 0.05" (1205.25mm ± 1.25mm)	max 47.22" (1199.4mm)	1.02" ± 0.08" (25.9mm ± 2.0mm)
LED22T8L48 (4ft)	47.725" ± 0.055" (1212.2mm ± 1.4mm)	47.45" ± 0.05" (1205.25mm ± 1.25mm)	max 47.22" (1199.4mm)	1.02" ± 0.08" (25.9mm ± 2.0mm)

Dimensions:

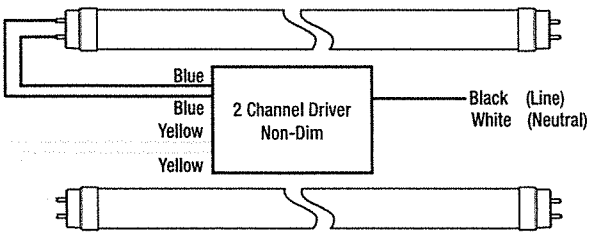
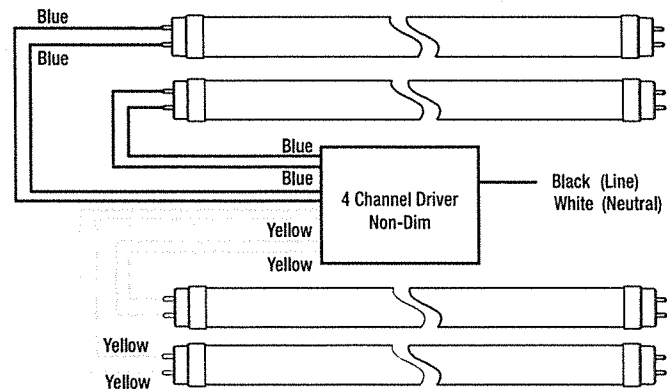
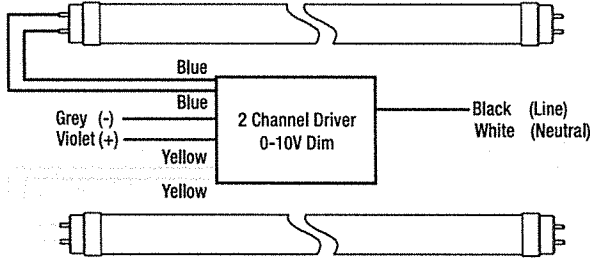
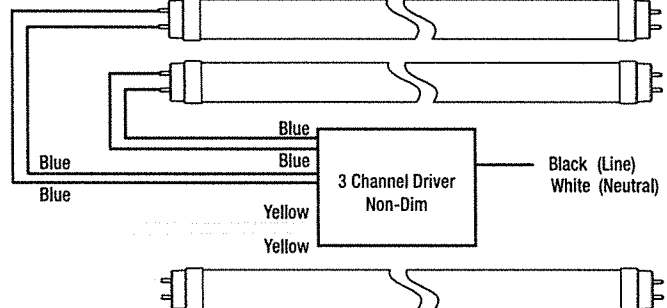
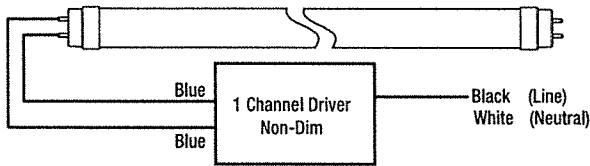
Overall: 9.4" L x 1.8" W x 1.2" H
Mounting: 8.90"

Wiring:

Input lead length 29.5" (750mm), 18 AWG
Output lead length 11.0" (280mm), 20 AWG



Wiring Diagram



Note:

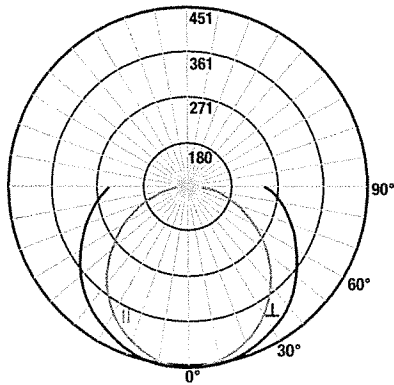
1. Driver output is polarity neutral.
2. Electrical connection can be made through either end of the lamp.
3. For 1 lamp operation, cap off unused leads.

Photometric Information

Illuminance at a Distance

	Center Beam Illuminance	Beam Width	
		Along II	Across ⊥
6.5 ft	10.4 fc	17.1 ft	106.6 ft
13 ft	2.6 fc	34.4 ft	212.9 ft
20 ft	1.1 fc	51.5 ft	319.6 ft

Polar Chart



Maximum Intensity: 451 cd
 — Across ⊥
 - - - - - Along II

Total Lumen Distribution

Zone	Lumens	% Lamp
0-30	352	17
0-40	583	28
0-60	1082	53
0-90	1647	80
60-90	565	27
0-80	2062	100

Photometric information for LED19T8L48/F/1x1HE/830/UNV; 1 lamp operation

Warranty

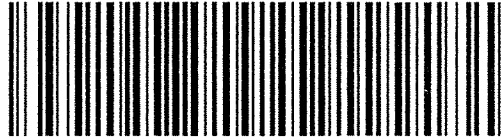
ULTRA HE LED T8 Retrofit Kits are covered by the LED T8 System Limited Warranty, a comprehensive system warranty. For additional details, please visit www.sylvania.com/warranty

OSRAM SYLVANIA Inc.
 200 Ballardvale Street
 Wilmington, MA 01887 USA
 Phone 1-800-LIGHTBULB (1-800-544-4828)
www.sylvania.com

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gary.paris@needco.com

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CUSTOMER NUMBER		CUSTOMER ORDER NUMBER		JOB NAME		ORDERED BY		
77375		VERBAL				JOHN		
WRITER			SALES ORDER#		SHIP BRANCH		SHIP DATE	
GARY PARIS			S025752857.001		NWO0		06/16/16	
ORDER QTY	SHIP QTY	UM	DESCRIPTION			UNIT PRICE	U	EXT PRICE
20	20	ea	SYL LED12T8/L48/F/841/SUB/G5 (75086) 4FT SUBSTITUBE LED T8 TUBE WITH FROSTED LENS			17.140	e	342.80
						Subtotal		342.80
						S&H CHGS		0.00
						Sales Tax		0.00
						Amount Due		342.80

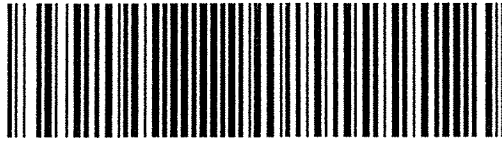
6/16/2016 11:35:06 AM S025752857.001

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John Paris



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ken.mcgee@needco.com

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 401-568-6222 Fax: 401-568-0066

CUSTOMER NUMBER		CUSTOMER ORDER NUMBER		JOB NAME		ORDERED BY		
77375		OFFICE				JOHN		
WRITER			SALES ORDER#		SHIP BRANCH		SHIP DATE	
KENNETH MCGEE			S025777394.001		NWO0		06/20/16	
ORDER QTY	SHIP QTY	UM	DESCRIPTION			UNIT PRICE	U	EXT PRICE
20	20	ea	SYL LED12T8/L48/F/841/SUB/G5 (75086) 4FT SUBSTITUBE LED T8 TUBE WITH FROSTED LENS			17.140	e	342.80
2	2	ea	3M 1700C-RED 3/4X66FT VIN CODE TAPE			1.310	e	2.62
2	2	ea	3M 1700C-BLUE 3/4X66FT VIN CODE TPE			1.310	e	2.62
2	2	ea	3M 1700C-WHITE 3/4X66FT VIN CDE TPE			1.310	e	2.62
1	1	ea	SEPCO SS52 3/4 SNAP-IN KO BLAN			46.190	c	0.46
1	1	ea	SEPCO SS54 1-IN SNAP-IN KO BLA			61.990	c	0.62
						Subtotal		351.74
						S&H CHGS		0.00
						Sales Tax		0.00
						Amount Due		351.74

6/20/2016 11:24:22 AM S025777394.001

Stage Loc: _____
 Totals: CTNS _____ COIL _____ BUND _____ REEL _____

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John

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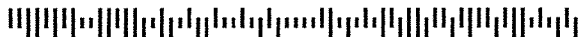
06/20/16

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836 1 AT 0.399 E0131 I0241 D1772877174 S2 P3334367 0002:0002

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 PASCOAG RI 02859-0107

ACCOUNT NUMBER	CUSTOMER PO NUMBER	RELEASE NUMBER	ORDERED BY			
77375	OFFICE		JOHN			
SALESMAN	INVOICE NUMBER	SHIPPING BRANCH	SHIP DATE	SHIP VIA		
Dorothy Mcgee	S025777394.001	NWOO	06/20/2016	PK PICK UP		
SKU	DESCRIPTION	ORDER QTY	SHIP QTY	UNIT PRICE	UOM	EXT PRICE
04613575086	SYL LED12T8/L48/F/841/SUB/G5 (75086) 4FT SUBSTITUBE LED T8 TUBE WITH FROSTED LENS	20	20	17.14	ea	342.80
05400750653	3M 1700C-RED 3/4X66FT VIN CODE TAPE	2	2	1.31	ea	2.62
05400750648	3M 1700C-BLUE 3/4X66FT VIN CODE TPE	2	2	1.31	ea	2.62
05400750655	3M 1700C-WHITE 3/4X66FT VIN CDE TPE	2	2	1.31	ea	2.62
78599422527	SEPCO SS52 3/4 SNAP-IN KO BLAN	1	1	46.19	c	0.46
78599422547	SEPCO SS54 1-IN SNAP-IN KO BLA	1	1	61.99	c	0.62

Received: _____ JUN 23 2016

Approved: _____

GL Account: _____

Vendor #: _____

Invoice #: _____

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SUBTOTAL	351.74
S & H CHARGES	0.00
SALES TAX	0.00
TOTAL DUE	351.74

JOHN *[Signature]*

Payment Mailing Address:
 NORTHEAST ELECTRICAL DISTRIBUTORS
 PO BOX 415931
 BOSTON MA 02241-5931



SOLD TO:
 374 1 AB 0.399 E0093X I0170 D1775590841 S2 P3338311 0001:0001

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 PO BOX 107
 PASCOAG RI 02859-0107

ACCOUNT NUMBER	CUSTOMER PO NUMBER	RELEASE NUMBER	ORDERED BY			
77375	OFFICE		JOHN			
SALESMAN	INVOICE NUMBER	SHIPPING BRANCH	SHIP DATE	SHIP VIA		
KENNETH MCGEE	S025804332.001	NWOO	06/22/2016	PK PICK UP		
SKU	DESCRIPTION	ORDER QTY	SHIP QTY	UNIT PRICE	UOM	EXT PRICE
03448106106	CARLON E940J 2IN PVC COUPLING	12	12	58.93	c	7.07
04613575086	SYL LED12T8/L48/F/841/SUB/G5 (75086) 4FT SUBSTITUBE LED T8 TUBE WITH FROSTED LENS	20	20	17.14	ea	342.80

Received: JUN 27 2016

Approved: _____

GL Account: _____

Vendor #: _____

Invoice #: _____

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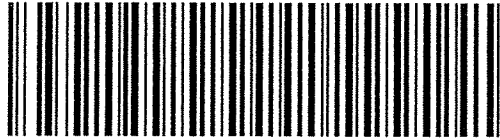
John Dedeo
 JOHN

SUBTOTAL	349.87
S & H CHARGES	0.00
SALES TAX	0.00
TOTAL DUE	349.87

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CUSTOMER NUMBER		CUSTOMER ORDER NUMBER		JOB NAME		ORDERED BY		
77375		OFFICE				JOHN		
WRITER			SALES ORDER#		SHIP BRANCH		SHIP DATE	
KENNETH MCGEE			S025804332.001		NWO0		06/22/16	
ORDER QTY	SHIP QTY	UM	DESCRIPTION			UNIT PRICE	U	EXT PRICE
12	12	ea	CARLON E940J 2IN PVC COUPLING			58.930	c	7.07
20	20	ea	SYL LED12T8/L48/F/841/SUB/G5 (75086) 4FT SUBSTITUBE LED T8 TUBE WITH FROSTED LENS			17.140	e	342.80
						Subtotal		349.87
						S&H CHGS		0.00
						Sales Tax		0.00
						Amount Due		349.87
						6/22/2016 11:17:53 AM		S025804332.001

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Pascoag Utility District Street Lighting Project

LED STREET LIGHT 2015 GRANT MONEY II

RIGGI Grant Money \$ 150,000.00
 Pascoag Utility District Capital Funds Balance for 2015 & 2016 (\$7000 & \$20,000) \$ 27,000.00
 2015 DSM Rebate Funds for LED Street Lights 2015 \$ 35,997.00
 Street Light Maintenance Account (GL# 585) \$ 20,991.00
\$ 233,988.00

ATBS B MVOLT R-3 PCL1 (24 Watt Input 2309 Lumens) with photo eye
 Brackets 427 147.00 \$ 62,769.00
 Misc. Materials 338 \$ 42.00 \$ 14,196.00
 427 \$ 15.00 \$ 6,405.00
\$ 83,370.00

ATBS F MVOLT R-3 PCL1 (49 Watt Input, 4477 Lumens) with photo eye
 Brackets 88 \$ 170.00 \$ 14,960.00
 Misc. Materials 0 \$ -
 88 15 \$ 1,320.00
\$ 16,280.00

ATBO 20 B LED-E70 R-3 700 MA 49 watt Input with photo eye
 Brackets 20 \$ 263.00 \$ 5,260.00
 Misc. Materials 0 \$ -
 20 \$ 15.00 \$ 300.00
\$ 5,560.00

ACPILLED 310A MVOLT 65 4K YK GY 0663 PCL1 with Photo eye 120 Watts(Equivalent to a 250Watt HPS Flood)
 Brackets 51 \$ 629.00 \$ 32,079.00
 Misc. Materials 51 \$ 51.00 \$ 2,601.00
 51 \$ 15.00 \$ 765.00
\$ 35,445.00

LED Decorative Series 247L 20 LEDE10 Mvolt 4K R3 AY 72 Watts (Replacing 150 Watt HPS).
 MISC MATERIALS 24 \$ 374.00 \$ 8,976.00
 24 \$ 15.00 \$ 360.00
\$ 9,336.00

TOTAL MATERIALS 610 \$ 149,991.00

Total Labor/Transportation 610 137.7 \$ 83,997.00

TOTAL PROJECT \$ 233,988.00

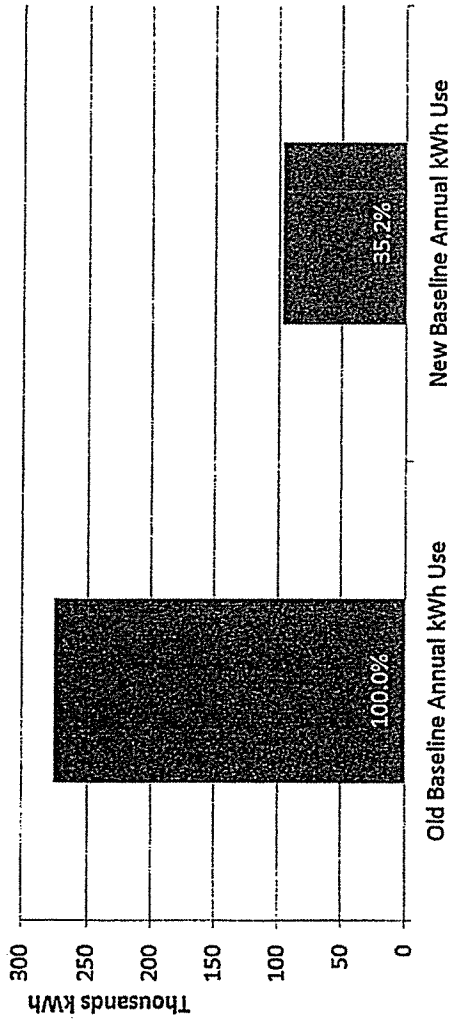
Retrofit - financial - Analysis Tool - V1.1.01 Grant II money - Street Lights + Flood Lights

Results Summary

Pre-Finance Results Summary

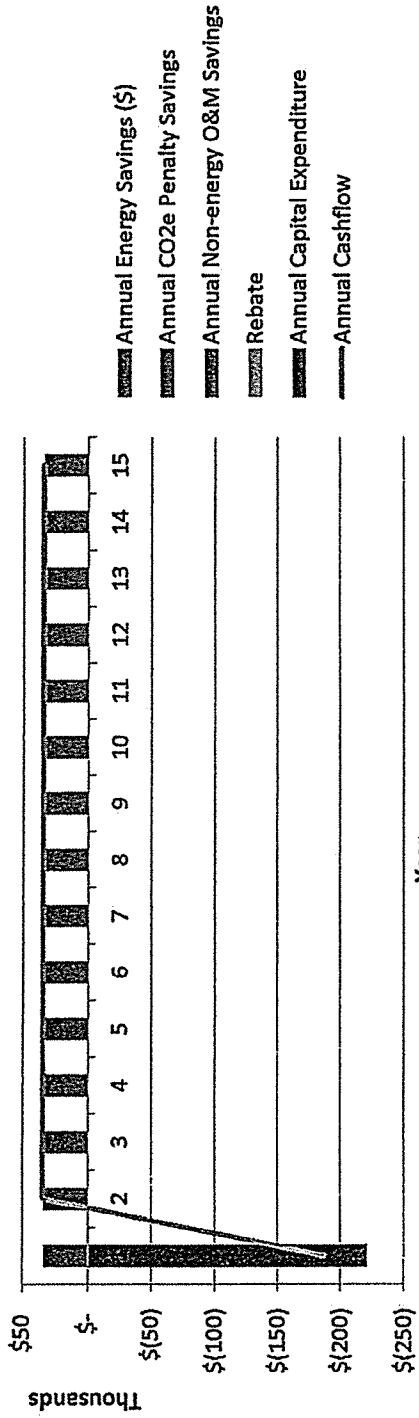
# of Fixtures Installed	586
Implementation Period (years)	1
Analysis Period	15
Simple Payback (years)	6.4
15-Year Unlevered IRR	16.22%
15-Year Capital Expenditure (\$)	\$ 296,331
15-Year Cap. Ex. \$/kWh Saved	\$ 221,347
15-Year Cap. Ex. \$/ton CO2e Saved	\$ 0.0826
15-Year Cap. Ex. \$/ton CO2e Saved	\$ 149,8326
Annual kWh Savings	178,547
Annual Energy Cost Savings (\$)	\$ 16,367
Annual GHG Savings (tCO2e)	98
Old Baseline Annual kWh Use	275,711
Old Baseline Annual Energy Cost (\$)	\$ 25,274
Old Baseline Annual GHGs (tCO2e)	152
New Baseline Annual kWh Use	97,164
New Baseline Annual Energy Cost (\$)	\$ 8,907
New Baseline Annual GHGs (tCO2e)	54
First-Year Avg. Capital Expend. per Unit (\$)	\$ 378
First-Year Avg. Material Cost per Unit (\$)	\$ 240
First-Year Avg. Labor Cost per Unit (\$)	\$ 98
First-Year Avg. Vehicle Cost per Unit (\$)	\$ 40
First-Year Avg. Disposal Cost per Unit (\$)	\$ -
First-Year Avg. Overhead Cost per Unit (\$)	\$ -

Energy Impacts



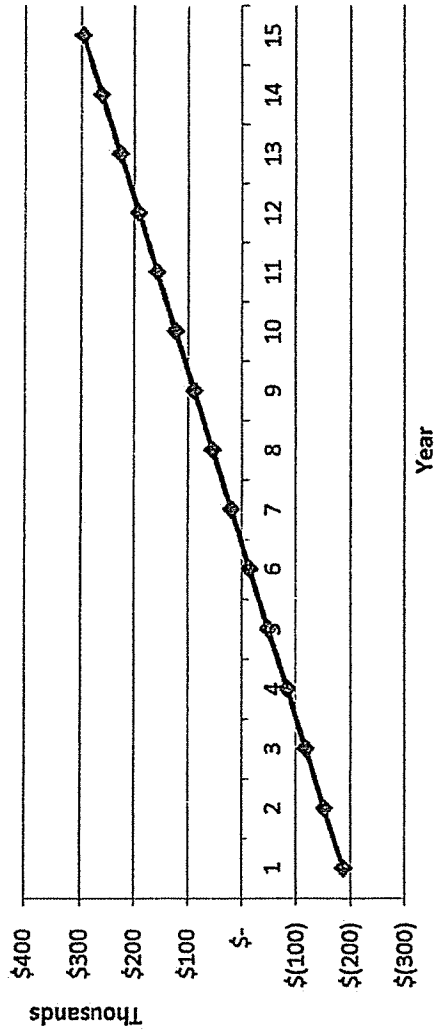
Thousands

Annual Cashflow with Components



Use

Simple Cumulative Cashflow



Simple Cashflows										Environmental Savings Summary		
Year	Annual Capital Expenditure	Rebate	Annual O&M Savings (incl. energy)	Annual Non-energy O&M Savings	Annual CO ₂ e Penalty Savings	Annual Cashflow	Cumulative Cashflow	Annual Energy Savings (\$)	Annual Energy Savings (kWh)	Annual CO ₂ e Avoided (Tonnes/Yr)		
1	\$ 221,347	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ (186,835)	\$ (186,835)	\$ 16,367	178,547	98		
2	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ (152,323)	\$ 16,367	178,547	98		
3	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ (117,811)	\$ 16,367	178,547	98		
4	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ (83,300)	\$ 16,367	178,547	98		
5	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ (48,788)	\$ 16,367	178,547	98		
6	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ (14,276)	\$ 16,367	178,547	98		
7	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ 20,236	\$ 16,367	178,547	98		
8	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ 54,748	\$ 16,367	178,547	98		
9	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ 89,260	\$ 16,367	178,547	98		
10	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ 123,772	\$ 16,367	178,547	98		
11	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ 158,284	\$ 16,367	178,547	98		
12	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ 192,796	\$ 16,367	178,547	98		
13	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ 227,308	\$ 16,367	178,547	98		
14	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ 261,820	\$ 16,367	178,547	98		
15	\$ -	\$ -	\$ 34,512	\$ 18,145	\$ -	\$ 34,512	\$ 296,331	\$ 16,367	178,547	98		

Key

White Cell, Bold Text: Value Title	Orange Cell: Input Value
White Cell: Calculation or Constant	Grey Cell: Input Formula

Project Inputs

Scenario Description (optional)	
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Tax, Electricity, and Labor Costs	
Sales Tax (%)	0.00%
Electricity Rate (\$/kWh)	0.082
Annual Change in Electricity Cost (%)	
Installation Vehicle Rate (\$/hr)	40.00
Annual Change in Vehicle Rate (%)	0.0%
Installation Labor Rate (\$/hr)	97.70
Annual Change in Labor Rate (%)	3.0%
Finance Nominal Discount Rate (%)	0.0%

Greenhouse Gas Emissions	
Emissions Factor (kg CO ₂ e/kWh)	0.552

Project Overhead and Implementation	
Project Overhead Labor (persons)	0.0
Project Overhead Labor Rate (\$/hr)	0.00
Project Overhead Work Year (hrs/person/yr)	0
First Year of Implementation	1
Last Year of Implementation	1

Technology Types	
150 W HPS/SL	
150 W LED	Decomitive

In section one, enter data for all fixtures/technologies, both old/existing and new.
 In section two, further below, enter data for impacted fixtures only.

Section One

Specific Technology Names	Technology Names	Additional Description (optional)	Power Demand & Dimming			Installation		
			Lamp Watts (per unit)	System Watts (per unit)	Dimmed Output Level (% of Full Output)	Annual Operating Hours - 100% Output (hrs)	Annual Operating Hours - Dimmed Output (hrs)	Net Annual Operating Hours - 100% Output (hrs)
25 W LED SL: 24W	25 W LED SL		24	24	0.0%	4,323	4,323	204.00
50 W LED SL: 48W	50 W LED SL		48	48	0.0%	4,323	4,323	225.70
50 W HPS SL: 50W	50 W HPS SL		50	68	0.0%	4,323	4,323	85.00
70 W HPS SL: 70W	70 W HPS SL		70	88	0.0%	4,323	4,323	85.00
100 W HPS SL: 100W	100 W HPS SL		100	130	0.0%	4,323	4,323	85.00
150 W HPS SL: 150W	150 W HPS SL		150	193	0.0%	4,323	4,323	85.00
175 Watt Mercury	175 Watt Mercury		175	209	0.0%	4,323	4,323	85.00
250 HPS Flood: 250W	250 HPS Flood		250	230	0.0%	4,323	4,323	248.00
120 W LED Flood: 120W	120 W LED Flood		120	120	0.0%	4,323	4,323	85.00

Simple Cashflows									
Year	Annual Capital Expenditure	Rebate	Annual O&M Savings (incl. energy)	Annual Non-energy O&M Savings	Annual CO ₂ e Penalty Savings	Annual Cashflow	Annual Cashflow	Cumulative Cashflow	
1	\$ 12,641	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ (10,445)	\$ (10,445)	\$ (10,445)	
2	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ (8,250)	
3	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ (6,055)	
4	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ (3,859)	
5	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ (1,664)	
6	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ 532	
7	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ 2,727	
8	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ 4,923	
9	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ 7,118	
10	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ 9,313	
11	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ 11,509	
12	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ 13,704	
13	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ 15,900	
14	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ 18,095	
15	\$ -	\$ -	\$ 2,195	\$ 1,048	\$ -	\$ 2,195	\$ 2,195	\$ 20,290	

ENVIRONMENTAL IMPACT

Year 1

Total Environmental Impact

Electricity Savings

Electricity Consumption - Business As Usual

Business As Usual kWh Consumption 19,983

Total kWh Saved 12,512

CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

Total CO2e from Electricity (kgs) 6,902

CO2e from Vehicle (kgs)

Total CO2e from Vehicle (kgs) 0

Total CO2e Emissions Avoided (tonnes) 7

CO2e Savings (\$)

Total CO2e Savings (\$) 0

100 W HPS SL: 100W

CO2e Savings

CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

kWh Saved

Pre-Project Baseline Contribution kWh	19,108
Removed Technology kWh During Project	0
Installed Technology kWh During Project	0
Total kWh Saved	19,108

Emissions Factor 0.55

Total CO2e from Electricity (kgs) 10,540

CO2e from Vehicle (kgs)

Minutes In Use

Pre-Project Baseline Maintenance Min.	588
Removed Technology Maintenance Min.	0
Installed Technology Maintenance Min.	0
Installation Vehicle Min.	0
Total Minutes Used	588

Vehicle Fuel Consumption Per Minute 0.00

Emissions Factor Per Unit of Fuel 0.00

Total CO2e from Vehicles (kgs) 0

Total CO2e Emissions Avoided (tonnes) 11

CO2e Penalty (\$/ton) 0.00

Total CO2e Savings (\$) 0

Total CO2e Savings 100 W HPS SL: 100W 0

0 W HPS SL: 150W

CO2e Savings

CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

kWh Saved

Pre-Project Baseline Contribution kWh	21,648
Removed Technology kWh During Project	0
Installed Technology kWh During Project	0

Total kWh Saved 21,648

Emissions Factor 0.55

Total CO2e from Electricity (kgs) 11,941

CO2e from Vehicle (kgs)

Minutes In Use

Pre-Project Baseline Maintenance Min.	450
Removed Technology Maintenance Min.	0
Installed Technology Maintenance Min.	0
Installation Vehicle Min.	0

Total Minutes Used 450

Vehicle Fuel Consumption Per Minute 0.00

Emissions Factor Per Unit of Fuel 0.00

Total CO2e from Vehicles (kgs) 0

Total CO2e Emissions Avoided (tonnes) 12

CO2e Penalty (\$/ton) 0.00

Total CO2e Savings (\$) 0

Total CO2e Savings 150 W HPS SL: 150W 0

150 W HPS SL: 150W

CO2e Savings

CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

kWh Saved

Pre-Project Baseline Contribution kWh	19,983
Removed Technology kWh During Project	0
Installed Technology kWh During Project	0
Total kWh Saved	19,983

Emissions Factor 0.55

Total CO2e from Electricity (kgs) 11,022

CO2e from Vehicle (kgs)

Minutes In Use

Pre-Project Baseline Maintenance Min.	415
Removed Technology Maintenance Min.	0
Installed Technology Maintenance Min.	0
Installation Vehicle Min.	0
Total Minutes Used	415

Vehicle Fuel Consumption Per Minute 0.00

Emissions Factor Per Unit of Fuel 0.00

Total CO2e from Vehicles (kgs) 0

Total CO2e Emissions Avoided (tonnes) 11

CO2e Penalty (\$/ton) 0.00

Total CO2e Savings (\$) 0

Total CO2e Savings 150 W HPS SL: 150W 0

175 Watt Mercury: 175W

CO2e Savings

CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

kWh Saved

Pre-Project Baseline Contribution kWh	42,538
Removed Technology kWh During Project	0
Installed Technology kWh During Project	0
Total kWh Saved	42,538

Emissions Factor 0.55

Total CO2e from Electricity (kgs) 23,464

CO2e from Vehicle (kgs)

Minutes In Use

Pre-Project Baseline Maintenance Min.	0
Removed Technology Maintenance Min.	0
Installed Technology Maintenance Min.	0
Installation Vehicle Min.	0
Total Minutes Used	0

Vehicle Fuel Consumption Per Minute 0.00

Emissions Factor Per Unit of Fuel 0.00

Total CO2e from Vehicles (kgs) 0

Total CO2e Emissions Avoided (tonnes) 23

CO2e Penalty (\$/ton) 0.00

Total CO2e Savings (\$) 0

Total CO2e Savings 175 Watt Mercury: 175W 0

150 W LED Decorative: 72W

CO2e Savings

CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

kWh Saved

Pre-Project Baseline Contribution kWh	0
Removed Technology kWh During Project	0
Installed Technology kWh During Project	7,470
Total kWh Saved	-7,470

Emissions Factor 0.55

Total CO2e from Electricity (kgs) -4,121

CO2e from Vehicle (kgs)

Minutes In Use

Pre-Project Baseline Maintenance Min.	0
Removed Technology Maintenance Min.	0
Installed Technology Maintenance Min.	0
Installation Vehicle Min.	1,440
Total Minutes Used	-1,440

Vehicle Fuel Consumption Per Minute 0.00

Emissions Factor Per Unit of Fuel 0.00

Total CO2e from Vehicles (kgs) 0

Total CO2e Emissions Avoided (tonnes) -4

CO2e Penalty (\$/ton) 0.00

Total CO2e Savings (\$) 0

Total CO2e Savings 150 W LED Decorative: 72W 0

70 W HPS SL: 70W

CO2e Savings

CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

kWh Saved

Pre-Project Baseline Contribution kWh	79,509
Removed Technology kWh During Project	0
Installed Technology kWh During Project	0
Total kWh Saved	79,509

Emissions Factor 0.55

Total CO2e from Electricity (kgs) 43,857

CO2e from Vehicle (kgs)

Minutes In Use

Pre-Project Baseline Maintenance Min.	3,616
Removed Technology Maintenance Min.	0
Installed Technology Maintenance Min.	0
Installation Vehicle Min.	0
Total Minutes Used	3,616

Vehicle Fuel Consumption Per Minute 0.00

Emissions Factor Per Unit of Fuel 0.00

Total CO2e from Vehicles (kgs) 0

Total CO2e Emissions Avoided (tonnes) 44

CO2e Penalty (\$/ton) 0.00

Total CO2e Savings (\$) 0

Total CO2e Savings 70 W HPS SL: 70W 0

50 W HPS SL: 50W

CO2e Savings

CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

kWh Saved

Pre-Project Baseline Contribution kWh	62,199
Removed Technology kWh During Project	0
Installed Technology kWh During Project	13,695
Total kWh Saved	48,504

Emissions Factor 0.55

Total CO2e from Electricity (kgs) 26,755

CO2e from Vehicle (kgs)

Minutes In Use

Pre-Project Baseline Maintenance Min.	3,772
Removed Technology Maintenance Min.	0
Installed Technology Maintenance Min.	831
Installation Vehicle Min.	2,880
Total Minutes Used	62

Vehicle Fuel Consumption Per Minute 0.00

Emissions Factor Per Unit of Fuel 0.00

Total CO2e from Vehicles (kgs) 0

Total CO2e Emissions Avoided (tonnes) 27

CO2e Penalty (\$/ton) 0.00

Total CO2e Savings (\$) 0

Total CO2e Savings 50 W HPS SL: 50W 0

50 W LED SL: 49W

CO2e Savings

CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

kWh Saved

Pre-Project Baseline Contribution kWh	0
Removed Technology kWh During Project	0
Installed Technology kWh During Project	12,710
Total kWh Saved	-12,710

Emissions Factor 0.55

Total CO2e from Electricity (kgs) -7,011

CO2e from Vehicle (kgs)

Minutes In Use

Pre-Project Baseline Maintenance Min.	0
Removed Technology Maintenance Min.	0
Installed Technology Maintenance Min.	0
Installation Vehicle Min.	3,600
Total Minutes Used	-3,600

Vehicle Fuel Consumption Per Minute 0.00

Emissions Factor Per Unit of Fuel 0.00

Total CO2e from Vehicles (kgs) 0

Total CO2e Emissions Avoided (tonnes) -7

CO2e Penalty (\$/ton) 0.00

Total CO2e Savings (\$) 0

Total CO2e Savings 50 W LED SL: 49W 0

Environmental Impact By Technology

W LED SL: 24W

CO2e Savings

CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

kWh Saved

Pre-Project Baseline Contribution kWh	0
Removed Technology kWh During Project	0
Installed Technology kWh During Project	44,302
Total kWh Saved	-44,302

Emissions Factor 0.55

Total CO2e from Electricity (kgs) -24,437

CO2e from Vehicle (kgs)

Minutes In Use

Pre-Project Baseline Maintenance Min.	0
Removed Technology Maintenance Min.	0
Installed Technology Maintenance Min.	0
Installation Vehicle Min.	25,620
Total Minutes Used	-25,620

Vehicle Fuel Consumption Per Minute 0.00

Emissions Factor Per Unit of Fuel 0.00

Total CO2e from Vehicles (kgs) 0

Total CO2e Emissions Avoided (tonnes) -24

CO2e Penalty (\$/ton) 0.00

Total CO2e Savings (\$) 0

Total CO2e Savings 25 W LED SL: 24W 0

ENVIRONMENTAL IMPACT

Year 1

Total Environmental Impact

Electricity Savings

Electricity Consumption - Business As Usual

Business As Usual kWh Consumption	275,711
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Total kWh Saved	178,547
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CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

Total CO2e from Electricity (kgs)	98,486
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CO2e from Vehicle (kgs)

Total CO2e from Vehicle (kgs)	0
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Total CO2e Emissions Avoided (tonnes)	98
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CO2e Savings (\$)

Total CO2e Savings (\$)	0
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250 HPS Flood: 250W

CO2e Savings

CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

kWh Saved

Pre-Project Baseline Contribution kWh	50,709
Removed Technology kWh During Project	0
Installed Technology kWh During Project	0
Total kWh Saved	50,709

Emissions Factor 0.55

Total CO2e from Electricity (kgs) 27,971

CO2e from Vehicle (kgs)

Minutes In Use

Pre-Project Baseline Maintenance Min.	0
Removed Technology Maintenance Min.	0
Installed Technology Maintenance Min.	0
Installation Vehicle Min.	0
Total Minutes Used	0

Vehicle Fuel Consumption Per Minute 0.00

Emissions Factor Per Unit of Fuel 0.00

Total CO2e from Vehicles (kgs) 0

Total CO2e Emissions Avoided (tonnes) 28

CO2e Penalty (\$/ton) 0.00

Total CO2e Savings (\$) 0

Total CO2e Savings 250 HPS Flood: 250W 0

120 W LED Flood: 120W

CO2e Savings

CO2e Emissions Avoided (tonnes)

CO2e from Electricity (kgs)

kWh Saved

Pre-Project Baseline Contribution kWh	0
Removed Technology kWh During Project	0
Installed Technology kWh During Project	26,457
Total kWh Saved	-26,457

Emissions Factor 0.55

Total CO2e from Electricity (kgs) -14,594

CO2e from Vehicle (kgs)

Minutes In Use

Pre-Project Baseline Maintenance Min.	0
Removed Technology Maintenance Min.	0
Installed Technology Maintenance Min.	0
Installation Vehicle Min.	3,060
Total Minutes Used	-3,060

Vehicle Fuel Consumption Per Minute 0.00

Emissions Factor Per Unit of Fuel 0.00

Total CO2e from Vehicles (kgs) 0

Total CO2e Emissions Avoided (tonnes) -15

CO2e Penalty (\$/ton) 0.00

Total CO2e Savings (\$) 0

PROJECT INSTALLATION COSTS

Year

1

Total Project Installation Costs

Capital Expenditure	
Installation Cost	
Installation Material Cost	
Total Installation Material Cost	\$140,655
Installation Labor Cost	
Total Installation Labor Cost	\$57,252
Installation Vehicle Cost	
Total Installation Vehicle Cost	\$23,440
Installation Disposal Cost	
Total Installation Disposal Cost	\$0
Total Installation Cost	\$221,347
Fixture Rebate	
Total Fixture Rebate	\$0
Installation Project Overhead	
Total Installation Project Overhead	\$0
Total Capital Expenditure (WITH REBATE)	\$221,347
Total Capital Expenditure (WITHOUT REBATE)	\$221,347
Total Project Installation Costs (WITH REBATE)	\$221,347
Total Project Installation Costs (WITHOUT REBATE)	\$221,347