

PHPS LED Lighting Project

Why Energy Conservation?

- Energy efficiency is the most cost effective way to decrease energy consumption, reduce emissions into our environment and at the same time lower operating costs.
- On January 1, 2017, the Alberta Government implemented the Alberta Carbon Tax Levy as a way to provide incentive for families, businesses and communities to become more energy efficient and move away from higher-emission fuels.

Why Energy Conservation?

- At the same time, Energy Efficiency Alberta was introduced which is a government agency dedicated to helping the province save energy and lower its carbon footprint.
- This new program offers incentives to encourage participants to purchase and install energy efficient products that are eligible for various rebates, for example:

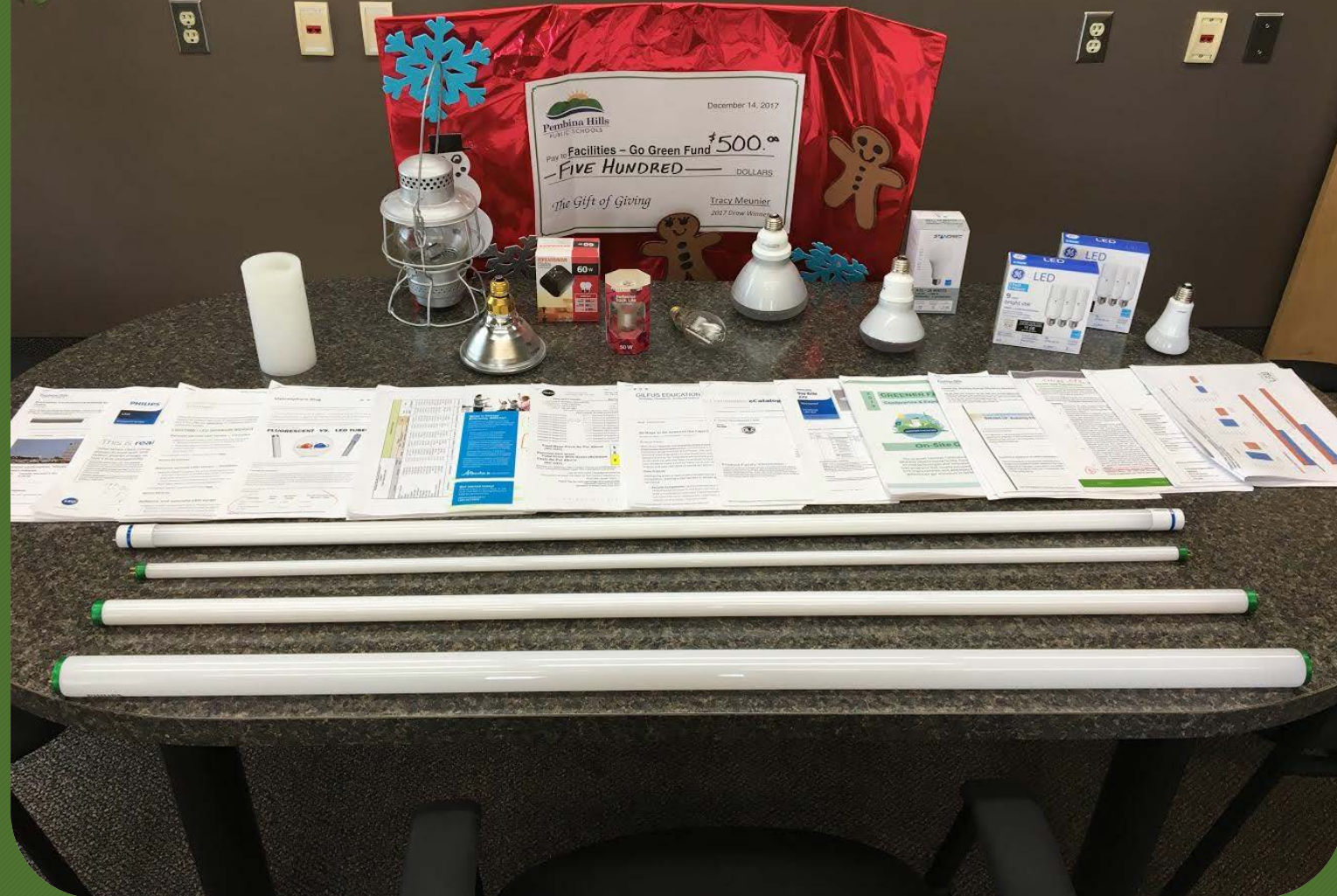
Why Energy Conservation?

- Business, Non-Profit and Institutional Energy Savings Program
 - The Business, Non-Profit and Institutional Energy Saving Program offers incentives to encourage Eligible Participants to purchase and install eligible energy efficient products. Once post-installation approval is complete, the Eligible Participant will receive a cheque that will help cover the cost of the equipment.
 - Total incentives are limited to \$100,000 per site ID per year.

Why Energy Conservation?

- Business, Non-Profit and Institutional Energy Savings Program
 - Once completed, the following proof of purchase information must be completed:
 - An itemized invoice(s) submitted detailing the new equipment purchased and installed
 - Invoice must indicate the date of purchase, project location address, full model numbers of equipment, third party product identification for DLC and ENERGY STAR equipment, quantity of each piece of equipment and unit price.
 - Proof of payment submitted post-completion of installation matching amount of invoice
 - The invoice(s) and proof of payment must be uploaded through the Energy Efficiency Alberta website upon project completion.
 - Examples of rebates that PHPS would be eligible for:
 - Troffer fixtures & retrofit kits - rebate of \$30/fixture
 - LED lamps fluorescent tube light replacement \$7/tube

And the journey begins...



GO GREEN

PHPS LED Lighting Proposal – The Journey Begins



- November, 2017 - Attended a “Greener Facilities” conference in Edmonton with the following agenda:
 - Existing Building can go green
 - How Solar Works in Alberta
 - Energy Efficiency provincial funding opportunities
 - Alternative Energy Solutions
 - Guide to Green Management
 - Energy Performance contracts
 - The Future of Buildings and Alberta’s role
 - How to Improve Infrastructure in a Low Carbon Economy
 - Innovative Design Elements for Greener Buildings and Outdoor Spaces

PHPS LED Lighting Proposal – The Journey Begins



- January, 2018 - Conducted a lighting audit assessment report for Barrhead Elementary from Alta Pro Electric and LSW lighting from Edmonton
 - Audit calculated energy, materials and labour savings based on a replacement of all fixtures throughout BES with LED fixtures and the long term payback
- February, 2018 - Attended a Building Energy Efficiency information conference in Edmonton which discussed funding relating to eligible energy efficient products and existing guidelines

PHPS LED Lighting Proposal – The Journey Begins



- March, 2018 – Applied for eligible provincial rebates through Energy Efficiency Alberta for new LED light tubes and fixtures throughout the Division
 - Met with Phillips rep to discuss optional lighting fixtures, LED light tubes and ballasts along with estimated costs
- May 1, 2018 – Received notification from Energy Efficiency Alberta that PHPS application for all sites has been approved except for two sites requiring more information

PHPS LED Lighting Proposal



- Over the years, PHPS has instituted many energy efficient products such as:
 - DDC's (direct digital controls)
 - Various energy efficient boilers
 - HVAC systems
 - Motion sensor hot water faucets
 - Timed car plugins
- Given provincial grant funding availability and the introduction of new technology in lighting and equipment, the opportunity exists for the next step toward a more efficient and sustainable path.

PHPS LED Lighting Proposal



- Proposal to be completed in two phases over a 2 year period:
 - 2017- 2018 Phase I
 - Replace all of our existing T-8 fluorescent lighting with LED lighting
 - 2018 - 2019 Phase II
 - Replace all of our exterior lighting with LED lighting

PHPS LED Lighting Proposal



- There are many high efficiency products available such as energy efficient condensing boilers, ventilation units, tank less water systems, etc.
- But the payback of the LED lighting is almost immediate with an energy savings of 40% over fluorescent lighting and average life rating of 70,000 hours versus 30,000 hours for T-8 fluorescent tubes.
- LED brightness is maintained for their duration whereas fluorescent lose 25% output during their life expectancy.
- Based on the hours of operation per site, the new LED light tubes could last up to 24 years versus 10 years for fluorescent tubes.

PHPS LED Lighting Proposal - Summary



2017-2018 Phase I Total - labour & material \$363,949

2018-2019 Phase II Total (Projected) \$ 84,000

Phase I & Phase II Total (after rebate) \$447,949

Projected Annual Payback

Potential Energy Labour & Materials Savings \$150,000

Payback approx. with rebate 3 years
Phase I & II

Funding Sources

IMR \$215,544

ALARIE
(distribution of assets) \$232,405

\$447,949

PHPS LED Lighting Proposal – Schools, Regional Services & Support Services



Phase I Project Scope:

NEW LED Fixtures – 2,598 total	\$ 324,750	
Less: Rebate of \$30/fixture	<u>\$ (77,940)</u>	
Total cost after rebate		\$ 246,810
LED Replacement lamps & ballasts		
Light tubes – 11,698 total	\$ 199,018	
Less: Rebate of \$7/tube	<u>\$ (81,879)</u>	
Total cost after rebate		<u>\$ 117,139</u>
Total Cost – Phase I		\$ 363,949
Total Estimated Cost – Phase II (with rebate of \$36,000)		<u>\$ 84,000</u>
PHPS LED Light Project		\$ 447,949

PHPS LED Lighting Proposal – The Future



- Solar Panels

- At the present time, there is 15 million in grant funding that will be available through the Renewable Energy for Schools program.
- Over the next 6 years, new curriculum is being developed by Alberta Education for environmental changes and will be instituted into the sciences program. Solar panels will be a big part of the learning pieces of those programs.
- The cost of solar panels has declined significantly over the years along with the technology and longevity.
- PHPS will continue to monitor the use of solar panels and look for opportunities in this area.

PHPS LED Lighting Proposal

- Questions?



IMR Project Update for May – Sept 2018

- Busby – Barrier Free access upgrade
- All sites – Fire Alarm verification upgrades
- Swan Hills – Skylight & framework replacement
- Eleanor Hall – Parking lot expansion
- BCHS – Roof replacement & 2 gym floor refurbishing
- Fort Assiniboine – Gym Roof replacement
- Dunstable – Gym Floor refurbishing
- BES – School intercom replacement