

**City of Red Lodge Energy Projects
Council Update, 5/23/17**

Katelynn Essig, Montana Energy Corps Member, City Sustainability Coordinator

LED Building Retrofit

- Completed retrofit analysis for City Hall, Police Station, and Public Works Shop
- Monthly costs will decrease from \$411.25 to \$267.32; an average yearly savings of \$1,727.16
- Recommended the Council to budget \$17,500 for the project
- Maintenance savings was not factored into these calculations but given the lifespan of LED's, those costs are expected to decline
- Increased lighting at the Public Works Shop and Police Garage will increase safety

Full Fixture Replacement:	\$14,948.19	Pre Avg kWh:	3,567.10	Pre Avg Cost:	\$411.25
Installation Estimate:	\$8,500.00	Post Avg kWh:	1,062.98	Post Avg Cost:	\$267.32
NorthWestern Rebate:	-\$5,629.00	Avg kWh Save:	2,504.12	Avg \$ Savings:	\$143.93
Project Cost Total:	\$17,819.19			Avg Yearly Savings:	\$1,727.16
					Pay Back Estimate:
					10.32 Years

Cost Savings

Estimated kWh Savings

Monthly	kWh for current lighting -	3,567.10
	kWh for new lighting -	<u>1062.98</u>
	Savings -	2,504.12
Yearly	kWh for current lighting -	42,805.20
	kWh for new lighting -	<u>12,755.76</u>
	Savings -	30,049.44

Estimated Cost Savings

Monthly	\$ for current lighting -	\$411.21
	\$ for new lighting -	<u>\$267.25</u>
	Savings -	\$143.96
Yearly	\$ for current lighting -	\$4,934.52
	\$ for new lighting -	<u>\$3,207.00</u>
	Savings -	\$1,727.52

CO2 estimated yearly savings: **21.1 CO2 Metric Tons**

Average Lifespan: **12.32 years**

Average Lifespan savings: **\$21,283.05**

Year 3 Tasks

- Continue monitoring cost savings on a monthly basis

Recycling

- Advising City Recycling Board:
- Community surveyed almost 500 individuals
 - 83% of individuals recycle and 90% of individuals would recycle more if they knew more about it
 - 49% of folks said they would recycle more if 24 hour recycling were available
 - 57% of folks said they would recycle glass; 72% said they would drop yard waste if there was a place to do it

- Educating the public is the next priority along with getting proper signage for travelers

Year 3 Tasks

- Remain on Recycling Board – help with tasks as needed

Electric Vehicle Charging Stations

- Management Plan completed
 - Binder with plan, manuals, receipts, and monitoring is compiled and in possession of City Hall
- Monitoring process using Google Sheets will track the usage of the charging stations - nearly complete
- On Chamber website and got the word out to Tesla owners
- Yellowstone Teton Clean Cities – not getting a counter because our charging stations are on their own meter

Cost Savings

- April 2017 Update
 - Charging Cost since June 2016: \$165.16
 - Total kWh charged since June 2016: 501kWh
 - With the average EV having a 34kWh/100Miles
 - Total Miles charged: 1,513.35miles
 - Total CO2 saved: 21,210.81lbs

Year 3 Tasks

- Continue monitoring usage
- Determine projected usage over the next 10 years
- Work with Chamber and other groups to research marketing opportunities to increase electric car visitors

Solar Panel Analysis for City Buildings

- Written analysis in the works
- Areas of focus are: Total potential electricity generation - size of system; project costs; project savings; return on investment; greenhouse gas savings
 - Tax incentives, grant opportunities, current policies, and setbacks for fire safety are also included

Year 3 Tasks

- Research funding opportunities and complete solar installations across City buildings
 - First one at the public restroom to charge the electric vehicle charging stations

LED Streetlights – 8th to 3rd Street Completion

- Currently on track with savings of around \$100 a month and \$1,200 a year
- Management plan completed and will be printed
- Monitoring process using Google Sheets will track the usage of the streetlights - nearly complete

Cost Savings

- True Savings December 2016 to April 2017 - \$508
- True kWh Savings Dec 2016 – April 2017 – 5,028

- Yearly average savings - \$1,200/year
- 30 year \$ savings - \$36,000
- Greenhouse Gases
 - CO2 Savings – 57,343lbs
 - N2O Savings – 76lbs
 - SO2 Savings – 40lbs
- 36.3 Metric Tons of Carbon Dioxide Equivalent

Year 3 Tasks

- Continue managing streetlight savings
- Look into purchase of additional streetlights from 8th to 14th St.

Greenhouse Gas Inventory

- Data compiled – Wastewater data, gasoline and diesel purchase, kWh used, etc.
- Complete City operations full written document analysis

Year 3 Tasks

- Obtain community energy data from Northwestern Energy to complete community greenhouse gas analysis using ClearPath Pro software from ICLEI – Sustainable Cities Network
- Complete written document analysis

Energy Conservation

- Rebates available to install Variable Frequency Drivers on motors at Wastewater Treatment Plant from NorthWestern Energy
 - Jim is gong to budget this for the next fiscal year; could save over 50% of energy usage at the Wastewater Treatment Plant

Year 3 Tasks

- Monitor savings of variable frequency drivers
- Calculate energy savings across all energy projects
- Research other energy conservation projects the City could complete

High School Green Team co-advisor

- Spoke on behalf of the Green Team at the Missoula People’s Climate March
- Green Team won the SMART Schools Challenge on recycling and got a \$1,000 check from the governor

Year 3 Tasks

- Work on energy efficiency in the school district

Earth Day events

- Earth Day 2017 – A BIG success – over 10 organizations participated, 2 electric vehicles, 250 community members showed up

Year 3 Tasks

- Work with local organizations to celebrate Earth Day

Impacts Across the State

- Presented at the Alternative Energy Resource Organization (AERO) annual meeting of the projects I've completed here in Red Lodge
- Had an actively involved City in the 2017 legislature related to energy efficiency
 - Martha testified on behalf of Property Assessed Clean Energy
 - Mayor advocated actively for energy related legislation
- Presented energy efficiency presentation at the Carbon County Resource Council Annual Meeting and a Lame Deer adult education course
- Had conversations in Livingston and Glendive about getting an EnergyCorps member because they are motivated by the work completed here in Red Lodge; that a small town can accomplish energy related projects
- Conducted light weatherization with EnergyCorps cohort
 - 30 homes in Billings
 - 10 homes in Red Lodge
 - 30 homes on the Northern Cheyenne Reservation
- Conducted an LED building retrofit for a retirement community in Butte
- Chamber stuff

Year 3 NEW Projects

Continue Managing Energy Savings of projects

- LED streetlights
- LED buildings

Earth Day

- Manage Earth Day 2018 celebration

Energy Conservation

- Research other energy savings opportunities
 - e.g. Purchasing hybrid fleet vehicles

Electric Vehicle Charging Stations

- Research additional tourism outreach opportunities
- Determine projected use over the next ten years

Greenhouse Gas Analysis

- Complete Community Greenhouse Gas Analysis

High School Green Team

- Work on energy efficiency across school system

Solar on Municipal Buildings

- Research funding opportunities and complete solar array projects

Streetlights

- Look into purchasing additional decorative streetlights from NorthWestern Energy

Bike Rental Program for Tourist use

- Reduce car traffic in town and provide active transportation options for visitors
- Research Bike Sharing/rental programs
 - Research potential grants for Bike Sharing infrastructure
- Work with BRTA and Spoke Wrench to address feasibility

Climate Change Action

- Address climate change goals outlined in City Growth Policy and update appropriately
- Research and Develop realistic reduction goals for energy usage and carbon savings
- Address potential ordinance changes related to energy, including cutting edge technology like solar and wind

Composting

- Attend meetings and assist with decision-making process