

City of Red Lodge Energy Projects

Council Update, 8/11/17

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EnergyCorps Website - cityofredlodge.net/energycorps

- Website under City Government to show what projects have been completed and also provide energy resources to the community

Solar Panel Analysis for City Buildings

- Written analysis completed
 - 2 parts – solar system size to cover electricity costs and full capacity to show how much solar potential we have
 - Overall, we have over 16,000 square feet in potential rooftop space for solar and need about 8,000 square feet to cover our electricity costs at buildings

Solar Array Analysis for City Hall and Police Station:

Size needed to offset electricity costs

1. Solar System -
 - City Hall: Flush mount
 - Police Station: Flat roof ballasted system
2. Square Feet: 1,700
3. Number of Panels: 100
4. Combined system size: 28kW
5. Install Cost at \$3/kW: \$84,000
6. Projected Energy output: 38,197 kWh/year
7. Projected Electricity Savings: \$4,220/year
8. Projected Return on Investment: 20 years
9. Projected Greenhouse Gas Savings Per Year:
 - Carbon Dioxide – 36,302lbs
 - Nitrogen Oxide – 48lbs
 - Sulfur Dioxide – 25lbs



Total Solar Capacity

1. Solar System -
 - City Hall: Flush mount
 - Police Station: Flat roof ballasted system
2. Square Feet: 5,000
3. Number of Panels: 346
4. Combined System Size: 97kW
5. Install cost at \$3/kW: \$291,000
6. Projected Energy Output: 132,326kWh/year
7. Projected Electricity Savings: \$14,555/year
8. Estimated Return on Investment: 20 years
9. Projected Greenhouse Gas Savings Per Year:
 - Carbon Dioxide – 125,761lbs
 - Nitrogen Oxide – 166lbs
 - Sulfur Dioxide – 87lbs

LED Building Retrofit

- May to July savings
 - City Hall and Police Station - \$141.00
 - Savings at Public Works - \$323.06
 - NorthWestern Energy Rebate Total: \$5,436

Full Fixture Replacement:	\$13,647.87	Pre Avg kWh:	3,567.10	Pre Avg Cost:	\$411.25
Installation:	\$8,500.00	Post Avg kWh:	1,062.98	Post Avg Cost:	\$267.32
NorthWestern Rebate:	(\$5,436.00)	Avg kWh Save:	2,504.12	Avg \$ Savings:	\$143.93
Project Cost Total:	\$16,711.87	Avg Yearly Savings:		\$1,727.16	
				Pay Back Estimate:	9.6 Years

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

Average Lifespan for fixtures: **12.32 years**

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

Electric Vehicle Charging Stations

- Total Miles Charged: 3,132 since installation; 1,900 April through July 2017
- Total Cost: \$302 since installation
- Kiosk okayed by Jim to order and will be installed in front of the charging stations

Recycling

- Educating the public is the next priority along with getting proper signage for travelers
- Composting conversations are still happening

Energy Conservation

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

Greenhouse Gas Inventory

- Data compiled – Wastewater data, gasoline and diesel purchase, kWh used, etc.
- Complete City operations full written document analysis
- Waiting on community energy data from Northwestern Energy

2017-2018 EnergyCorps

- New Sustainability Coordinator, Kathryn Eklund from Wyoming, has been hired for the 2017-2018 EnergyCorps term
- Corey Thompson will be new EnergyCorps supervisor

