

# ENERGY EFFICIENCY GRANT SCOPE OF WORK

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## EEM 1: Upgrade All Jail Lighting to LED

LED lighting uses less than 50% of the energy compared to equivalent fluorescent fixtures while also producing better light quality. Also critically important, there is significantly less maintenance (replacing lights and ballasts) due to LEDs lasting 3-5x more lifetime hours than fluorescent lighting. This is a significant benefit at the Jail because of the maintenance staff time and effort required to change lamps in the inmate areas. The inmate pods have double height ceilings, requiring facilities staff to both move inmates and bring in a lift to access the fixtures. The full benefit of an LED upgrade will be best realized by implementing Type B retrofits, which will eliminate the ballasts within each fixture.

### Scope of Work

- Update nearly 1,500 lamps throughout the interior and exterior of the Jail to new LED lamps, utilizing existing fixtures.
- Replace fixture sockets in all LED tube upgrades.
- Coordinate installation with Jail and County leadership.
- Omit occupancy sensors and advanced lighting controls due to security, tampering, and centralized controls requirements in the Jail.

### Energy Savings Estimate

A full room-by-room lighting audit was conducted which documented every fixture location and the current wattage of every fixture in the Jail building. The hours of operation of the lighting fixtures in each area of the Jail was documented during the audit and confirmed through correspondence and discussion with Jail staff. The baseline fixture, wattage, and operational information was inputted into a spreadsheet. Fixture upgrades were identified with appropriate wattages and were then multiplied by the same hours of operation to identify the proposed energy use. The difference between the baseline and proposed energy use of the lighting systems is the energy savings of this measure.

### Actions Taken to Assure Estimated Energy Savings will be Realized

This project will be executed as a Energy Savings Performance Contract through the Department of Enterprise Services Energy Program. It will include a guarantee of energy savings and a minimum of one year of Measurement and Verification. Measurement and verification will be conducted under the IPMVP Option A.

## Method Used to Estimate the Cost

In order to generate the Guaranteed Maximum Price, an actual hard bid was obtained by Millig from a lighting contractor who is capable, competent, and prepared to install this project. This project is fully shovel-ready and Millig is prepared to enter into a contract to implement this project immediately.

## Total Cost of Implementing the Project

| Energy Conservation Measure | Total Energy Saved, kWh | Total Energy Cost Savings, \$ | Project Costs | Simple Payback, years | Baseline Energy Consumption <sup>1</sup> , kWh | Peak Demand Savings, kW |
|-----------------------------|-------------------------|-------------------------------|---------------|-----------------------|------------------------------------------------|-------------------------|
| Jail LED                    | 342,799                 | \$36,439                      | \$672,383     | 18.5                  | 562,549                                        | 38.33                   |

<sup>1</sup>Total Baseline consumption is from the Room by Room lighting audit.

## Budget

| Activity                        | Description                                                     | Cost             |
|---------------------------------|-----------------------------------------------------------------|------------------|
| Project Design/Engineering      | Lighting Design                                                 | \$28,895         |
| Project Materials               | Lighting Materials                                              | \$200,000        |
| Cost of Construction            | Installation, General Conditions, Bond, Construction Management | \$361,293        |
| Taxes and DES Fee               | 8.2% taxes & DES ESPC Fee                                       | \$82,195         |
| <b>Project Cost</b>             | Total Cost to Owner                                             | \$672,383        |
| Grantee Match (source of funds) | County General Fund                                             | (\$100,857)      |
| Utility Incentives              | Lewis County PUD Incentive Rates                                | (\$15,540)       |
| <b>This Grant Request</b>       |                                                                 | <b>\$571,200</b> |

## EEM 2: Install Solar PV Array on Health Department Building

This EEM proposes to install a solar photovoltaic system on the roof of the building. This 58.8 kW DC system will provide enough electrical power to offset much of the building's current annual usage.

This project is intended to be the first in a larger effort to modernize and electrify the Health Dept. building. This building currently has a natural gas-fired boiler which heats the building through perimeter baseboard heaters. The County is looking to apply for an Electrification Grant next spring to help fund a project to upgrade the HVAC system to a high efficiency, all electric VRF system and also replace the natural gas fired domestic hot water heater. After that project is complete, this building will operate with an extremely low EUI and all on site fossil fuel consumption will be eliminated.

### Scope of Work

- Furnish and install a 58.8 kW DC, 50kW AC Array
  - Solar Panels (120): SilFab Solar SIL-490HN
  - Inverter (1): SolarEdge 50 KW 3-phase 208v inverter
  - (60) SolarEdge P960 DC Optimizers
  - Racking System
- Manage interconnection to Utility

### Energy Savings Estimate

A full solar photovoltaic analysis was conducted which modeled the maximum size of the array and its potential energy output. The baseline system is no solar PV. The proposed system generates negative kWh consumption. The difference between the baseline and proposed is the energy savings of this measure.

### Actions Taken to Assure Estimated Energy Savings will be Realized

This project will be executed as a Energy Savings Performance Contract through the Department of Enterprise Services Energy Program. It will include a guarantee of energy savings and a minimum of one year of Measurement and Verification. Measurement and verification will be conducted under the IPMVP Option A.

## Method Used to Estimate the Cost

In order to generate the Guaranteed Maximum Price, an actual hard bid was obtained by Millig from a solar contractor who is capable, competent, and prepared to install this project. This project is fully shovel-ready and Millig is prepared to enter into a contract to implement this project immediately.

## Total Cost of Implementing the Project

| Energy Conservation Measure | Total Energy Saved, kWh | Total Energy Cost Savings, \$ | Project Costs | Simple Payback, years | Baseline Energy Consumption, kWh | Peak Demand Savings, kW |
|-----------------------------|-------------------------|-------------------------------|---------------|-----------------------|----------------------------------|-------------------------|
| Health Solar PV             | 50,749                  | \$5,395                       | \$188,000     | 34.8                  | 0                                | 0                       |

## Budget

| Activity                         | Description                                                     | Cost             |
|----------------------------------|-----------------------------------------------------------------|------------------|
| Project Design/Engineering       | Solar Design                                                    | \$12,000         |
| Project Materials                | Solar Panels & Inverters                                        | \$70,000         |
| Cost of Construction             | Installation, General Conditions, Bond, Construction Management | \$91,105         |
| Taxes and DES Fee                | 8.2% taxes & DES ESPC Fee                                       | \$14,895         |
| <b>Project Cost</b>              | Total Cost to Owner                                             | \$188,000        |
| Grantee Match (source of funds)  | County General Fund                                             | (\$28,200)       |
| Utility Incentives & Tax Credits | Federal Tax Incentive                                           | (\$56,400)       |
| <b>This Grant Request</b>        |                                                                 | <b>\$159,800</b> |