State Project Improvement Grant

PART OF THE ENERGY EFFICIENCY AND SOLAR PROGRAM

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GRANT MANAGER

8/14/2019
Presenting Partners

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SEEP Director

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Grant Manager
We strengthen communities

HOUSING / HOMELESSNESS
INFRASTRUCTURE
BUSINESS ASSISTANCE
ENERGY
PLANNING
COMMUNITY FACILITIES
CRIME VICTIMS / SAFETY
COMMUNITY SERVICE
Agenda

Part 1
Introduction to SEEP
EE&S Program Overview
About this Grant
Eligible Projects
Alternative Projects
Process and Timeline
How to Prepare
Project Examples
Phase 2 Preview
Questions

Part 2
Preparing a Project
The Life Cycle Cost Tool
Questions
State Efficiency & Environmental Performance

Electrified • Zero GHG • Clean Energy • Toxic-free

Transforming Transportation, Facilities, & Purchasing
Energy Efficiency and Solar Program

Solar
$3,465,810 Early 2021

Energy Efficiency
$1,731,450 Spring 2020
$1,731,450 Summer 2021

Available to Washington Public Entities:

- K-12 Public Schools
- Public Colleges and Universities
- Local Governments
- Municipalities, Districts, and Special Districts
- Tribal Governments
- Washington State Agencies and Institutions
NEW FUNDING: SECTION 1039

(3) $5,357,000 is provided solely for the state efficiency and environmental performance improvements to minor works and stand-alone projects at state-owned facilities that repair or replace existing building systems including, but not limited to, HVAC, lighting, insulation, windows, and other mechanical systems. Eligibility for this funding is dependent on an analysis using the office of financial management’s life-cycle cost tool that compares project design alternatives for initial and long-term cost-effectiveness. Assuming a reasonable return on investment, the department shall provide grants in the amount required to improve the project’s energy efficiency compared to the original project request. Prior to awarding funds, the department shall submit to the office of financial management a list of all proposed awards for review and approval.

RE-APPROPRIATION FUNDING: SECTION 6007

(3) $1,400,000 is provided solely for energy efficiency improvements to minor works and stand-alone projects at state-owned facilities that repair or replace existing building systems including, but not limited to, HVAC, lighting, insulation, windows, and other mechanical systems. Eligibility for this funding is dependent on an analysis using the office of financial management’s life-cycle cost tool that compares project design alternatives for initial and long-term cost-effectiveness. Assuming a reasonable return on investment, the department shall provide grants in the amount required to improve the project’s energy efficiency compared to the original project request. Prior to awarding funds, the department shall submit to the office of financial management a list of all proposed awards for review and approval.
State Project Improvement (SPI) Grant

Previously known as the “Minor Works” Grant

✓ State Owned Facilities
✓ Repair or Replacing
✓ Capital Funds

$ + $ =

Efficiency

CO2
SPI Overview

Funding from 2017-2019 and 2019.

2nd time this has been offered.

$6,554,290 available for grants.

Grant will provide up to 100% of the baseline project cost.

If there is over subscription of the funds, grants will be ranked based on reductions in carbon emissions compared to baseline.

If any funding is left over, the intent is to award remaining funds on a first come first served basis.
Project Eligibility

Baseline or Base case

The Baseline Project Must:

- State Owned Facility
- Existing Capital Funding
- Be Fully Funded
- Repair or Replace an Existing System
- Meet Applicable Code Requirements

A baseline is not the existing Building

What is your baseline project?
Alternative Projects

What SPI will fund

- Expansion of Existing Scope
- Same Location
- Improves the Efficiency
- Energy Savings must Pay for additional cost over lifetime

Reduces CO2 emissions
Process and Timeline

8/26 - Notice of Funding Opportunity
- Phase 1 Application

9/25 - Eligible applicants will be notified
- Phase 2 application available
- Commerce will provide detailed instructions

Successful Applicants Notified in February 2020!
Preparing to Apply

Phase 1

Tell us about your baseline project and what you want to do to improve it.

- Identify an eligible baseline project (baseline)
- Research ways to increase the energy efficiency (alternative)
- Estimate the additional cost of the alternative
- Verify the utility incentives available
- Keep it simple – the application will be a couple of pages
Project Examples
Preparing to Apply

Phase 2
✓ Eligible Phase 1 Applications will be informed
✓ Commerce will provide detailed instructions
✓ More research and development will be required
Questions?

Next: Part 2
Preparing a Project
The Life Cycle Cost Tool
Part 2

Preparing for the Phase 2 Application

Preparing a Project

The Life Cycle Cost Tool
The Mandatory Tool

• **Life Cycle Cost Tool (Excel) | Instructions**
  - Introduction to the life cycle cost tool webinars
  - Life cycle cost tool training webinars

• **Evaluation Life Cycle Cost Analysis Tool (Excel) | HVAC example**

• [https://www.ofm.wa.gov/budget/budget-instructions/budget-forms](https://www.ofm.wa.gov/budget/budget-instructions/budget-forms)
Life cycle cost inputs

- Applies to the base case project and the SPI project
- Efficiency Measure
  - First cost
  - energy impact +/- (includes demand (KW) and energy (KWH, therms)
  - expected service life
  - First year service cost (repeated every year)
- Project Cost
  - One time upfront cost
  - Reoccurring annual cost
Energy Use Estimate – Existing Building

- Billing History
- Some idea how the existing building uses energy to assure final savings estimates are realistic
Energy Use Estimates

• **Simple**
  - Utility Efficiency Program Estimate
  - Prescriptive results such as DEEMED measure savings or Prescriptive Worksheets

• **Custom**
  - Engineering Estimates
  - For example: Utility Custom Program, ESCO program or ASHRAE Level 2 audit protocols.
Energy Use Estimates for Custom Projects

• **Existing Building**
  • Utility billing data
    • energy consumption and demand
    • Cost of energy, demand and base fees

• **Base Capital Project**
  • Analysis of energy savings compared to the existing building
  • Savings are anticipated from meeting code and other project objectives

• **SPI Project**
  • Analysis of energy savings compared to the existing building
Base Case Energy Code Reminders

• For retrofits or equipment replacements, all the elements of the base case project are required to meet code. Basically any element of the building that is changed by the retrofit must meet code requirements.

• Code may require additional equipment and controls to be installed. For example, if the project replaces HVAC equipment that does not have an economizer, the replacement of equipment may require the addition of an economizer to meet code.

• Code includes scheduling, testing, balancing and commissioning activates. This work is part of the base case.

• A major renovation or change in occupancy type may trigger full code compliance for the building. It may not. Confirm with the local building official.

• The energy code will be updated shortly. Projects applying for permits after July 1, 2020 will be required to meet the 2018 edition of the energy code.
Measure Life

- Life cycle cost assessment must consider useful life
- This suggests a good level of detail in completing the life cycle cost tool
- BOMA Preventive Maintenance Guidebook
  - [https://icap.sustainability.illinois.edu/files/projectupdate/2289/Project%20Lifespan%20Estimates.pdf](https://icap.sustainability.illinois.edu/files/projectupdate/2289/Project%20Lifespan%20Estimates.pdf)
**Baseline Input Page**

**Unisomat II Elemental Classification for Buildings (Building Component List)**

<table>
<thead>
<tr>
<th>REF</th>
<th># of Units</th>
<th>Useful Life (Yrs.)</th>
<th>Installed Cost ($/Unit)</th>
<th>1st Year Maintenance Cost ($/Unit)</th>
<th>Total Component Installed Cost ($'s)</th>
<th>Annual Water (CCF/Unit)</th>
<th>Annual Electricity (KWH/Unit)</th>
<th>Annual Natural Gas (Therm/Unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Substructure</td>
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<td>Special Construction &amp; Demolition</td>
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<td>Other Project Costs</td>
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<td>Z10 One Time - Upfront Costs</td>
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<td>Z30 Re-Occurring Annual Cost (Track Inflation)</td>
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</table>

Entries Below for Component Specific Utility Analysis:
- $84,000
- $14,000.00
- $14,600.00
- $84,000
- $1,500
- $1,600
- $90
- $120
### Uniformat II Elemental Classification for Buildings (Building Component List)

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Note: No Units Assigned to a Component with Entries

- **Primary Filter (Requires Level 1)**
- **Office of Financial Management**
- **Life Cycle Cost Analysis Tool**

Alternative 1 Input Page
### Existing Building Energy Use

- **Total Building Annual Utility Analysis**
  - Annual Utility Bill [S]: $42,832
  - Water (CCF): $37,059
  - Electricity (KWH): $7,216
  - Natural Gas (Therms): $5,773

### Base Case or SPI Building Energy Use

- **Uniformat II Elemental Classification for Buildings (Building Component List)**

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<th>REF</th>
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<th># of Units</th>
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<td>HVAC</td>
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<tr>
<td>D300198</td>
<td>Base Case Package Rooftop Unit</td>
<td>6, 20</td>
<td>$14,000.00</td>
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<td>$84,000</td>
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<tr>
<td>D300197</td>
<td>SPI Package Rooftop Unit</td>
<td>20</td>
<td>$14,600.00</td>
<td>$400.00</td>
<td>-1,500</td>
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<tr>
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<td>One Time - Upfront Costs</td>
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<tr>
<td>Z130</td>
<td>Recurring Annual Cost (Track Inflation)</td>
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</tbody>
</table>
### Key Analysis Variables

<table>
<thead>
<tr>
<th>Study Period (years)</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Discount Rate</td>
<td>3.46%</td>
</tr>
<tr>
<td>Maintenance Escalation</td>
<td>1.00%</td>
</tr>
<tr>
<td>Zero Year (Current Year)</td>
<td>2020</td>
</tr>
<tr>
<td>Construction Years</td>
<td>0</td>
</tr>
</tbody>
</table>

### Building Characteristics

<table>
<thead>
<tr>
<th>Gross (Sq.Ft)</th>
<th>42,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useable (Sq.Ft)</td>
<td>42,000</td>
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<tr>
<td>Space Efficiency</td>
<td>100.0%</td>
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<tr>
<td>Project Phase</td>
<td>0</td>
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</tbody>
</table>

### Life Cycle Cost Analysis

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Baseline</th>
<th>Alt. 1</th>
<th>Alt. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Use Intensity (kBtu/sq.ft)</td>
<td>48.6</td>
<td>48.1</td>
<td>48.1</td>
</tr>
<tr>
<td>1st Construction Costs</td>
<td>$106,000</td>
<td>$109,600</td>
<td>$109,600</td>
</tr>
<tr>
<td>PV of Capital Costs</td>
<td>$219,667</td>
<td>$228,139</td>
<td>$228,139</td>
</tr>
<tr>
<td>PV of Maintenance Costs</td>
<td>$117,113</td>
<td>$117,113</td>
<td>$117,113</td>
</tr>
<tr>
<td>PV of Utility Costs</td>
<td>$2,086,837</td>
<td>$2,074,652</td>
<td>$2,086,837</td>
</tr>
<tr>
<td>Total Life Cycle Cost (LCC)</td>
<td>$2,423,617</td>
<td>$2,419,903</td>
<td>$2,432,089</td>
</tr>
<tr>
<td>Net Present Savings (NPS)</td>
<td>N/A</td>
<td>$3,714</td>
<td>$(8,471)</td>
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</tbody>
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### (GHG) Social Life Cycle Cost

<table>
<thead>
<tr>
<th>GHG Impact from Utility Consumption</th>
<th>Baseline</th>
<th>Alt. 1</th>
<th>Alt. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tons of CO2e over Study Period</td>
<td>10,067</td>
<td>10,007</td>
<td>10,007</td>
</tr>
<tr>
<td>% CO2e Reduction vs. Baseline</td>
<td>N/A</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Present Social Cost of Carbon (SCC)</td>
<td>$930,662</td>
<td>$925,100</td>
<td>$925,100</td>
</tr>
<tr>
<td>Total LCC with SCC</td>
<td>$3,354,279</td>
<td>$3,345,004</td>
<td>$3,357,189</td>
</tr>
<tr>
<td>NPS with SCC</td>
<td>N/A</td>
<td>$9,276</td>
<td>$(2,910)</td>
</tr>
</tbody>
</table>

Societal LCC takes into consideration the social cost of carbon dioxide emissions caused by operational energy consumption.
### Key Analysis Variables

<table>
<thead>
<tr>
<th>Study Period (years)</th>
<th>50</th>
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<tr>
<td>Nominal Discount Rate</td>
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<tr>
<td>Zero Year (Current Year)</td>
<td>2020</td>
</tr>
<tr>
<td>Construction Years</td>
<td>0</td>
</tr>
</tbody>
</table>

### Building Characteristics

| Gross (Sq.Ft) | 42,000 |
| Useable (Sq.Ft) | 42,000 |
| Space Efficiency | 100.0% |
| Project Phase | 0 |
| Building Type | 0 |

### Life Cycle Cost Analysis

#### Energy Use Intensity (kBtu/sq.ft)
- Baseline: 48.6
- Alt. 1: 48.1
- Alt. 2: 48.1

#### 1st Construction Costs
- Baseline: $106,000
- Alt. 1: $109,600
- Alt. 2: $109,600

#### PV of Capital Costs
- Baseline: $219,667
- Alt. 1: $228,139
- Alt. 2: $228,139

#### PV of Maintenance Costs
- Baseline: $117,113
- Alt. 1: $117,113
- Alt. 2: $117,113

#### PV of Utility Costs
- Baseline: $2,086,837
- Alt. 1: $2,074,652
- Alt. 2: $2,086,837

#### Total Life Cycle Cost (LCC)
- Baseline: $2,423,617
- Alt. 1: $2,419,903
- Alt. 2: $2,432,089

#### Net Present Savings (NPS)
- Baseline: N/A
- Alt. 1: $3,714
- Alt. 2: ($8,471)

#### GHG Impact from Utility Consumption

<table>
<thead>
<tr>
<th>Tons of CO2e over Study Period</th>
<th>Baseline</th>
<th>Alt. 1</th>
<th>Alt. 2</th>
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<tbody>
<tr>
<td>10,067</td>
<td>10,007</td>
<td>10,007</td>
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</tr>
</tbody>
</table>

% CO2e Reduction vs. Baseline

- Baseline: N/A
- Alt. 1: 1%
- Alt. 2: 1%

Present Social Cost of Carbon (SCC)

- Baseline: $930,662
- Alt. 1: $925,100
- Alt. 2: $925,100

Total LCC with SCC

- Baseline: $3,354,279
- Alt. 1: $3,345,004
- Alt. 2: $3,357,189

NPS with SCC

- Baseline: N/A
- Alt. 1: $9,276
- Alt. 2: ($2,910)

Societal LCC takes into consideration the social cost of carbon dioxide emissions caused by operational energy consumption.

NPS for the alternate is positive

CO2e reduction vs baseline is 1%
Questions?
Thank you!

Program/Grant Questions:
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Phone: 360-522-3610

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Phone: (360) 764-0015

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Phone: (360) 902-0579