
Prepared by:
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Elvin Vindel
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Science Building Bathroom Motion Sensor Project

The Science Building bathroom motion sensor project has been accumulating energy and financial savings since July 2011. This past quarter, 1,350 kWh of energy and $89.58 were saved. The project reached its breakeven point in June 2014 and will add funds to CERF for five additional years. Monitoring for this project was switched to a base average in February 2017 due consistent results and to improve use of CERF intern hours.

North Hall Lighting Project

The North Hall lighting project continues to accumulate significant energy savings for Calvin. This past quarter, the North Hall lighting project saved 28,019 kWh and $2,696.17. The project has reached payback in December of 2016 and will add fund for an additional five years through the fall of 2021.
Meeter Center Lighting Project

The Hekman Library’s Meeter Center project continues to produce consistent savings. Last quarter, 1075 kWh and $107.86 were saved. In February 2017, the monitoring plan for the Meeter Center was changed to a numerical average due to consistent results.

Dormitory & Apartment Low-Flow Showerhead Project

In August 2013, 139 low-flow showerheads were installed in dormitory suites by Physical Plant. These showerheads have reduced flows by 0.72 gal/min on average. The low-flow showerhead project achieved financial payback in only 3 months. During summer 2014, 169 showerheads were installed in the dorms. During summer 2015, 62 showerheads were installed in the KE Apartments. Last quarter, the low-flow showerhead project saved an estimated 462,233 gallons of water, 323 MMBtu of natural gas, and $4,714.69.
Huizenga Track and Tennis Center Project

LED fixtures were installed in the Track and Tennis Center during Spring Break 2014. The project replaced 142 1,000-W metal halide lamps with 210-W and 160-W LED fixtures. CERF is grateful to donors who supported the T&T project with gifts to CERF. This past quarter, 84,009 kWh of electricity and $6,895.42 were saved. A slight drop in savings occurred this quarter due to manufacturer defects in some of the lights which will be addressed over the summer with warranty replacement lights being installed.

Fish House Lighting Project

The Fish House is an area for students to drink coffee and study, but it is also a great opportunity to reduce energy consumption and costs. During January 2015, the CERF interns replaced 80 57-W incandescent lamps with 8.5-W LEDs. This past quarter, 6,928 kWh of energy and $496.24 were saved. The project reached payback in December of 2016 and will continue to bring savings to CERF for five more years.
Hoogenboom Lighting Project

The Physical Plant with CERF support replaced 51 400-W metal halide fixtures with energy efficient LEDs in the Hoogenboom gymnasium during Spring Break 2015. CERF is grateful to donors who have been supporting the Hoogenboom projects. This past quarter, 34,366 kWh of energy and $2,639.94 were saved.

Dorm Hallway Lighting Project

The Physical Plant with CERF support replaced fluorescent lamps with energy efficient LEDs in the Dorm Hallways during July 2015. This past quarter, 38,379 kWh of energy and $2,733.50 were saved. As of December, of 2016, the project successfully reached payback allowing CERF to monitor and collect savings for five years.
**Lifetime CERF Savings (as of March 2017)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Savings (kWh)</td>
<td>2,422,248</td>
</tr>
<tr>
<td>Water Savings (gal)</td>
<td>4,643,196</td>
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<tr>
<td>Natural Gas Savings (MMBtu)</td>
<td>3,228</td>
</tr>
<tr>
<td>CO₂ Savings (metric tons)</td>
<td>1,842</td>
</tr>
<tr>
<td>Cost Savings</td>
<td>$239,810.62</td>
</tr>
</tbody>
</table>

**CERF Project Status**

Projects awaiting installation (orange), active projects (blue) and mature projects (purple) are shown on the project flowchart below.

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**Actions**

- Project Proposal
- Proposal Analysis
- Proposal Approval/Rejection
- Project Launch
- Payback & Auditing Active Period
- Project Hand-off

**Project Types**

- Proposed Project
- Pending Proposal
- Pending Proposal (Inactive Proposal)
- Active Project
- Mature Project

**Active Participants**

- Project Proposer
- CERF Intern
- CERF Manager
- Environmental Stewardship Committee
- Project Implementer
- Project Auditor
- Calvin Colleges

**CERF Cash Flow**

- (-) Intern wage
- (-) Installation
- (-) Maintenance
- (+) Audited Savings

**Calvin Budget Cash Flow**

- (-) Maintenance
- (+) Savings

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**Actions**

- KE Low-Flow Showerhead Extension
- Dorm Hallway Lighting
- Low-Flow Showerhead Extension
- T&T Lighting
- Meeter Center
- North Hall Lighting
- SB Bathroom Lighting
- Fish House Lighting
- Hoogenboom Lighting

**Computer Shutdown**
# Summary of Project Activity for January-March 2017

## Active Projects

<table>
<thead>
<tr>
<th>Project #</th>
<th>Start Date</th>
<th>Title</th>
<th>Energy Cost Savings</th>
<th>Electricity Savings</th>
<th>CO₂ Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010F0023</td>
<td>Jun 2011</td>
<td>SB Bathroom Motion Sensors</td>
<td>$ 89.58</td>
<td>1,350 kWh</td>
<td>0.93 tonnes</td>
</tr>
<tr>
<td>2011S0038</td>
<td>Mar 2012</td>
<td>North Hall Lighting</td>
<td>$ 2,696.17</td>
<td>28,019 kWh</td>
<td>19.33 tonnes</td>
</tr>
<tr>
<td>2011S0037</td>
<td>Aug 2012</td>
<td>Meeter Center Lighting</td>
<td>$ 107.86</td>
<td>1,075 kWh</td>
<td>0.74 tonnes</td>
</tr>
<tr>
<td>2012S0052</td>
<td>Mar 2014</td>
<td>Track and Tennis Center Metal Halide Replacement</td>
<td>$ 6,895.42</td>
<td>84,009 kWh</td>
<td>57.97 tonnes</td>
</tr>
<tr>
<td>2014F0084</td>
<td>Jan 2015</td>
<td>Fish House Lighting</td>
<td>$ 496.24</td>
<td>6,928 kWh</td>
<td>4.78 tonnes</td>
</tr>
<tr>
<td>2014S0082</td>
<td>Mar 2015</td>
<td>Hoogenboom Lighting</td>
<td>$ 2,639.94</td>
<td>34,366 kWh</td>
<td>23.71 tonnes</td>
</tr>
<tr>
<td>2013F0069</td>
<td>Aug 2015</td>
<td>Dorm Hallway Lighting</td>
<td>$ 2,733.51</td>
<td>38,379 kWh</td>
<td>26.48 tonnes</td>
</tr>
</tbody>
</table>

## Mature Projects

<table>
<thead>
<tr>
<th>Project #</th>
<th>Dates</th>
<th>Title</th>
<th>Total Energy Cost Savings</th>
<th>Total Energy Savings</th>
<th>Total CO₂ Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010S0001</td>
<td>Aug 2010–Jun 2012</td>
<td>CIT Computer Power Management</td>
<td>$ 25,547.87</td>
<td>435,975 kWh</td>
<td>300.82 tonnes</td>
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About CERF

The Calvin Energy Recovery Fund (CERF) is a Green Revolving Fund that improves energy efficiency and reduces carbon dioxide emissions on campus. The energy savings from CERF projects are routed back into the fund for five years after project payoff, thereby growing the fund to support future projects.

Calvin provided initial seed funding for the student-proposed fund in September 2009, and the college’s Environmental and Energy Sustainability Committee (EESC) approved policies governing CERF in March 2010.

Students are involved in project proposal, analysis, implementation, monitoring, and reporting, providing opportunities for curricular and extracurricular learning on environmental and energy stewardship and fiscal responsibility.

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Financial Summary for January - March 2017

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Gifts</td>
<td>$9,326.19</td>
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<tr>
<td>Energy Cost Savings</td>
<td>$20,373.41</td>
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<tr>
<td>Expenses</td>
<td>($979.80)</td>
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<td>Net for Jan - Mar 2017 Quarter</td>
<td>$28,719.80</td>
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CERF Information:
EESC Chair: Gail Heffner
CERF Manager: Matthew Heun
Physical Plant Liaison: Jack Phillips
Senior CERF Intern: Elvin Vindel
Junior CERF Intern: Michael Hansen

To learn more about CERF or submit a project idea:
www.calvin.edu/support/energy

To make a financial investment in CERF:
www.calvin.edu/go/energy