**Energy Conservation Initiative (ECI) Project Summary**

**Langmuir Lab Chiller Replacement, Facility 4204**

**What We Did:** We replaced the “heart” of the air conditioning system in the building; an air cooled chiller. The new chiller was selected and installed in the same location as the original chiller to minimize project costs. The new chiller includes capacity controls and integration with the existing closed loop chilled water system in the building.

**Benefits:** The old chiller was nearing the end of its service life and was not efficient. The new chiller is fully automated for seasonal and daily on/off, is quieter, eliminates a deferred maintenance issue, and will use less electricity to provide building cooling.

**What It Cost:** $256,000

**How Long It Took:** 6 months. Completed December 2013.

**What We Saved:** $6,000 and 23 tons per year carbon equivalent annually.

**Tom LiVigne**

Director, Real Estate

---

**Langmuir Lab Chiller Replacement: ECI Savings Table**

<table>
<thead>
<tr>
<th>Utility</th>
<th>Historical Energy Use (MMBtu)</th>
<th>FY 2013 Energy Use (MMBtu)</th>
<th>Energy Savings (MMBtu)</th>
<th>% REDUCTION</th>
<th>Historical Cost (billed rates)</th>
<th>FY 2013 Cost (billed)</th>
<th>Annual Savings $</th>
<th>Equivalent # Homes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric</td>
<td>3,100</td>
<td>3,000</td>
<td>100</td>
<td>3%</td>
<td>$110,000</td>
<td>$104,000</td>
<td>$6,000</td>
<td>2.5</td>
</tr>
<tr>
<td>Steam</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chilled Water</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>3,100</td>
<td>3,000</td>
<td>100</td>
<td>3%</td>
<td>$110,000</td>
<td>$104,000</td>
<td>$6,000</td>
<td>2.5</td>
</tr>
</tbody>
</table>

We were really happy to have the ECI team help us plan and execute the chiller replacement project. Customer reliability is key at this innovation hub, and we were able to tackle both deferred maintenance and significant energy reduction at the same time.

---

**Map**

Utilities Costs and Use

---

**Langmuir Lab Chiller Replacement: Total Energy Use - Pre & Post ECI**

- **Electric**
  - Historical: 3,150 MMBtu
  - FY 2013: 3,100 MMBtu

- **Steam**
  - Historical: 3,050 MMBtu
  - FY 2013: 2,950 MMBtu

- **Chilled Water**

**Totals**

- **Historical:** 3,100 MMBtu
- **FY 2013:** 3,000 MMBtu
- **Energy Savings:** 100 MMBtu
- **% REDUCTION:** 3%
- **Historical Cost (billed rates):** $110,000
- **FY 2013 Cost (billed):** $104,000
- **Annual Savings $:** $6,000
- **Equivalent # Homes:** 2.5

**Energy use based on project scope**

**Equivalent # Homes Savings** based on average home use: 40 MMBtu Electric • 90 MMBtu Heat • 50 MMBtu Cooling