Our new lighting uses at most 25.5% of our original lighting wattage. The separate lighting zones allowed us to light specific areas, offering the potential for further savings of 10 - 30%. Our predicted monetary payback period is 6.55 years. Daylight sensors decrease energy usage automatically.

### Average Monthly Savings and Offsets

- **Monthly kWh Savings:** 2,149 kWh
- **Monthly CO₂ Savings:** 4,470 lbs / 2.03 Metric Tons
- **Monthly $ Savings:** 241.82 $

### Predicted Yearly Savings and Offsets

- **Yearly kWh Savings:** 25,789 kWh Saved
- **Yearly CO₂ Savings:** 24.33 Metric Tons CO₂
- **Yearly $ Savings:** 2,901.84 $
- **Yearly Car Offset:** $2,901.84
- **Yearly Student Offset:** 5.4 Metric Tons CO₂

### Electricity Consumption 2014 vs. 2013

- **2014 (kWh)**
- **2013 (kWh)**

### Other Fun Facts
- Our new lighting uses at most 25.5% of our original lighting wattage.
- The separate lighting zones allowed us to light specific areas, offering the potential for further savings of 10 - 30%.
- Daylight sensors decrease energy usage automatically.
- Our predicted monetary payback period is 6.55 years.

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1 Assumes bituminous coal use, one of the cleanest coals with the lowest CO₂ / kWh, but less commonly used than most coals in electricity generation. This factor does not include transmission losses, which would add a significant portion of emissions per kWh. Source: [http://www.eia.gov/tools/faqs/faq.cfm?id=74&t=11](http://www.eia.gov/tools/faqs/faq.cfm?id=74&t=11)

2 This assumes the average fuel efficiency of an American car of 21 mpg and also assumes the average 12,000 miles traveled annually. Source: Greenhouse Gas Emissions from a Typical Passenger Vehicle, US EPA, Dec. 2011

3 From WMU's 2011 Clean Air Cool Planet greenhouse gas inventory
## Rooftop Solar Case Study

### Sunpower T5 Solar Roof Tile

#### Reasons for Choosing the T5 Solar Roof Tile

**All Inclusive Unit**
- Ballasted, no holes in the roof needed
- Mounts included, no additional framing
- Complies with the American Recovery and Reinvestment Act of 2009
- Low weight / m² means our roof can support more
- High wind, snow, and hail tolerances
- Slope warranty outperforms step warranties
- More closely matches real world conditions

#### Rooftop Solar Potential at OfS

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Yearly kWh Usage</td>
<td>21,048 kWh</td>
</tr>
<tr>
<td>Average Yearly CO₂ Production</td>
<td>43,779.8 lbs</td>
</tr>
<tr>
<td>Average Monthly Electricity Bill</td>
<td>256.44 $</td>
</tr>
<tr>
<td>OfS Building Floor Print</td>
<td>662.4 m²</td>
</tr>
<tr>
<td>kW per Meter Squared</td>
<td>0.08 kW / m²</td>
</tr>
<tr>
<td>Rooftop Potential @ 50% Fill</td>
<td>15.87 kW</td>
</tr>
<tr>
<td>Kilograms per Meter Squared</td>
<td>5.86 kg / m²</td>
</tr>
<tr>
<td>Predicted Annual kWh</td>
<td>20,273 kWh</td>
</tr>
</tbody>
</table>

#### Rooftop Solar Potential University Wide

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMU Campus Floor Print</td>
<td>324,847 m²</td>
</tr>
<tr>
<td>Rooftop Potential @ 10% Fill</td>
<td>2,775.59 kW</td>
</tr>
<tr>
<td>Predicted Annual kWh</td>
<td>3,544 MWh</td>
</tr>
</tbody>
</table>

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1. Assumes bituminous coal use, one of the cleanest coals with the lowest CO₂ / kWh, but less commonly used than most coals in electricity generation. This factor does not include transmission losses, which would add a significant portion of emissions per kWh. Source: [EIA](http://www.eia.gov/tools/faqs/faq.cfm?id=74&t=11)

2. This assumes the average fuel efficiency of an American car of 21 mpg and also assumes the average 12,000 miles traveled annually. Source: [EPA](http://www.epa.gov/energy/greenpower/index.html)

3. From WMU's 2011 Clean Air Cool Planet greenhouse gas inventory