FEDERAL UTILITY PARTNERSHIP WORKING GROUP SEMINAR
November 15-16, 2017
Ontario, California

Southern California Edison Case Study (FAA)
FAA ZLA Facility Palmdale, CA SCE UESC Project

Hosted by:

FEMP
Federal Energy Management Program

SOUTHERN CALIFORNIA EDISON®
FAA ZLA Facility Palmdale, CA SCE UESC Project

Performance Assurance Summary Report

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November 15-16, 2017  Ontario, CA
**Energy Efficiency Measures (EEM’s) Implemented under UESC Project:**

<table>
<thead>
<tr>
<th>EEM #1</th>
<th>Interior Lighting Retrofit- Campus/ LED option</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEM #1E</td>
<td>Exterior Lighting Retrofit- Campus/ LED option</td>
</tr>
<tr>
<td>EEM#2</td>
<td>Photovoltaic System implementation w/ string inverters</td>
</tr>
<tr>
<td>EEM#3</td>
<td>Re-Commissioning</td>
</tr>
<tr>
<td>EEM #4</td>
<td>RTU replacement</td>
</tr>
<tr>
<td>EEM #5</td>
<td>Thermal Energy Storage (TES) Ice Storage with JCI controls</td>
</tr>
<tr>
<td>EEM#6</td>
<td>Water Conservation Measures (landscape and Irrigation System Study)</td>
</tr>
</tbody>
</table>
Energy Efficiency Measures Savings

<table>
<thead>
<tr>
<th>EEM List</th>
<th>Estimated Savings kWh</th>
<th>Realized Savings kWh</th>
<th>Annual Savings $</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEM 1 (LED Interior lighting)</td>
<td>435,437</td>
<td>431,588</td>
<td>61,767</td>
</tr>
<tr>
<td>EEM 1 (LED Exterior Lighting)</td>
<td>123,459</td>
<td>172,890</td>
<td>25,013</td>
</tr>
<tr>
<td>EEM 4 (HVAC Upgrade)</td>
<td>27,651</td>
<td>27,640</td>
<td>4,205</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>586,547</strong></td>
<td><strong>632,118</strong></td>
<td><strong>90,985</strong></td>
</tr>
</tbody>
</table>
Energy Efficiency Measures Savings (cont’d)

EEM 1-LED Interior Lighting Retrofit

EEM 1(LEO Exterior Lighting)

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Energy Efficiency Measures Savings (cont’d)

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Total Billed Amount Comparison

- 08/04/2014-08/04/2015: $1,115,538.09
- 08/04/2015-08/03/2016: $958,768.28
- 09/01/2016-09/01/2017: $808,426.15

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# FEDERAL AVIATION ADMINISTRATION, PALMDALE BUILDING RCx / SUMMARY OF OPPORTUNITIES

## LIST OF RECOMMENDED MEASURES

<table>
<thead>
<tr>
<th>Tag</th>
<th>Major System</th>
<th>Measure Description</th>
<th>Electric Demand Savings (kW)</th>
<th>Electric Savings (MWh/yr)</th>
<th>Chilled Water Savings (Tonnes-CO2/yr)</th>
<th>Carbon Savings (Tonnes-CO2/yr)</th>
<th>Energy Cost Savings ($/yr)</th>
<th>Implementation Cost ($)</th>
<th>Simple Payback</th>
<th>Problem Type</th>
<th>Operation (O)</th>
<th>Maintenance (M)</th>
<th>Design (D)</th>
<th>Indoor Environmental Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Airstide HVAC</td>
<td>Implement Unoccupied Zone Temp Set Back w/ Minimum Flow Set Back</td>
<td>4</td>
<td>6,455</td>
<td>4</td>
<td>$813</td>
<td>$4,800</td>
<td>5.9</td>
<td>O</td>
<td>Maintained</td>
<td></td>
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<tr>
<td>2</td>
<td>Waterside HVAC</td>
<td>Condenser Water Reset</td>
<td>26</td>
<td>398,653</td>
<td>222</td>
<td>$50,240</td>
<td>$104,460</td>
<td>2.1</td>
<td>D</td>
<td>Maintained</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Waterside HVAC</td>
<td>Add VFD to Chilled Water Pumps and Optimize Flow</td>
<td>(2)</td>
<td>8,175</td>
<td>5</td>
<td>$1,030</td>
<td>$49,080</td>
<td>47.6</td>
<td>D</td>
<td>Maintained</td>
<td></td>
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<tr>
<td>4</td>
<td>Waterside HVAC</td>
<td>Add VFD to Cooling Tower Fans</td>
<td>24</td>
<td>149,215</td>
<td>83</td>
<td>$20,563</td>
<td>$74,500</td>
<td>3.6</td>
<td>D</td>
<td>Maintained</td>
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</tr>
<tr>
<td>5</td>
<td>Waterside HVAC</td>
<td>Add VFD to Condenser water pumps and Optimize Flow</td>
<td>2</td>
<td>10,261</td>
<td>6</td>
<td>$1,414</td>
<td>$20,200</td>
<td>14.3</td>
<td>D</td>
<td>Maintained</td>
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</tbody>
</table>

**Total Annual Usage**: 56, 641, 060, 357, 82,754, 255,040, 3.1
Conclusion

HVAC Upgrade; LED Lighting Retrofit

- Project Cost: $886,318.00
- Project Energy Savings: $90,985.00
- Simple Payback: 6.9 years

Photovoltaic Carport System

- Project Cost: $3,412,145.00
- Project Energy Savings: $312,969.00
- Simple Payback: 10.1 years
Questions?

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