Renaissance
Boston
Waterfront Hotel

Project: VFD Retrofit
Domestic Water Booster

Submitted By:
Richard A. Wallace DOE
Syncro-Flo Water Booster

Basement level Water Main Service Room.
22nd Floor
Mechanical Room

Penthouse hot water storage tanks.
Due Diligence

- Developed scope of work and equipment specification
- Solicited three competitive bids from pre-qualified Contractors
- Applied for incentives from utility
- Compared bids and confirmed all costs such as tax and freight are included
- Project vetted out by MI Energy Group
Equipment Solution:
Mitsubishi FR – A700 VFD’s
Before Variable Drives

VS.

After Variable Drives

Current
Total System KWh: 195,844

Proposed
Total System KWh: 117,227

KWh Savings
Total System KWh Annually: 78,617
### Up front costs

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total System Upgrade</td>
<td>$19,325.00</td>
</tr>
<tr>
<td>NSTAR Rebate</td>
<td>$8,944.00</td>
</tr>
</tbody>
</table>

**Total Out of pocket expense** $10,381.00

### kWh Consumption and Costs

<table>
<thead>
<tr>
<th>Description</th>
<th>Yearly</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today's system kWh consumption*</td>
<td>195,844</td>
<td>16,320</td>
</tr>
<tr>
<td>Cost per kWh</td>
<td>$0.13</td>
<td>$0.13</td>
</tr>
</tbody>
</table>

**Estimated cost to operate CURRENT system** $25,459.72 $2,121.64

<table>
<thead>
<tr>
<th>Description</th>
<th>Yearly</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed system kWh consumption*</td>
<td>117,227</td>
<td>9,769</td>
</tr>
<tr>
<td>Cost per kWh</td>
<td>$0.13</td>
<td>$0.13</td>
</tr>
</tbody>
</table>

**Estimated cost to operate PROPOSED system** $15,239.51 $1,269.96

### Calculated total Operational Savings

<table>
<thead>
<tr>
<th>Description</th>
<th>Yearly</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Operational Savings ((current kWh cost - proposed kWh cost) + (current maint. - proposed maint.))</td>
<td>$10,220.21</td>
<td>$851.68</td>
</tr>
</tbody>
</table>

**Total Return on Investment in Months** 12.19
Questions