LifeBridge Health

Maryland Hospitals for a Healthy Environment
TrailBlazer Award Presentation
Agenda

• MDH2E Introduction – Molly Englund
• Welcome – Lionel Weeks
• Composting – Bill Griffith
• Energy Saving Initiatives – Lewis Poe and Robert Spielman
• Greening the OR – Janel Parham
• Leadership in Sustainability – Lionel Weeks
• Question and Answer Panel
Welcome to Sinai Hospital of Baltimore

Thank You for attending today’s TrailBlazer presentation.

We hope you can take some of the ideas and practices we discuss today back to your facility, to help make the Baltimore Region a greener, more sustainable place.
LifeBridge Health

As the largest, most comprehensive and highly respected provider of health-related services to the people of northwest Baltimore, LifeBridge Health advocates preventive services, wellness and fitness services as well as programs to educate and support the communities it serves.

LifeBridge Health has been a leader in sustainability for nearly a decade. The System consists of Sinai Hospital of Baltimore, Northwest Hospital, Levindale Hebrew Geriatric Center and Hospital and a number of other subsidiaries.
Sinai Hospital of Baltimore

• 472 Acute-care beds, including 57 Rehab, 21 NICU beds, and 35 bassinet newborn nursery beds
• 1,032-member medical staff, 242 faculty physicians
• 140 residents & fellows; hosts 200 medical students and residents
• 4,561 total employees
Presenter Introductions

Speaking today will be several of the persons responsible for making LifeBridge the sustainable organization it is today:

• Lewis Poe
• Bob Spielman
• Janel Parham
• Bill Griffith, Reduction In Motion
Composting

Bill Griffith, President, Reduction In Motion
Do you compost?

If everyone composted their food waste at home, it would reduce the amount of waste deposited in landfills by over 30 percent annually, or almost 71 million tons per year*. Composting is a worthwhile process for both individuals and large organizations to look into.

*Source: Zero Waste America
Composting at LifeBridge

Since 2005, LifeBridge Health has been composting its cafeteria food waste at Sinai Hospital of Baltimore, Northwest Hospital, and Levindale Hebrew Geriatric Center, and Courtland Gardens Nursing and Rehabilitation Center.

Last year, over 150 tons of material was composted from these four facilities.
Composting Process

The composting process begins with our Kitchen Staff, who separate food waste, both in food preparation and food disposal. The waste is held in compost containers until they are ready to be removed.
Composting Process

Once the compost containers are full, they are placed in our outdoor holding area until they are picked up by Waste Neutral for transport to their compost site.
Once the food waste is picked up, it is delivered to a commercial composting facility, where the contents of our containers are processed and turned into fertile soil.

LifeBridge has reclaimed some of the composted material for various uses throughout the system.
LifeBridge Health is reusing compost in several ways:

- Therapeutic activities for patients at Levindale and Courtland Gardens
- Campus landscaping at Sinai and Northwest
- Giveback event for employees for Earth Day
Five Steps to Compost at Your Facility

Composting at your facility can be done in five steps:

1. Identify the materials and/or locations in your facility that will support a composting program (kitchen, café, coffee shops, etc.).
2. Identify a vendor/hauler to remove the waste and provide collection containers.
3. Educate the staff in the selected areas on what is compostable matter in their waste stream and what the procedure will be to keep this organic material separated.
4. Start the process and continuously monitor its success and address any issues. The earlier these issues are addressed the more successful the program will be because it avoids making the concerns habit forming.
5. Communicate/Publicize the initiative across the facility.
Beginning a composting program at your facility can benefit both you and the surrounding environment. Some examples include:

1. It’s the right thing to do.
2. We can reclaim and reuse millions of pounds of waste that normally would be filling our landfills.
4. Eliminates the need to use non-organic chemical fertilizers.
6. Mixing of compost (in its end product state) with existing soil reduces the toxin levels caused by air and water pollution because clean organic material is being re-introduced into the soil.
7. New program can be implemented with minimal operational modifications.
8. Substantial increase in recycling numbers.
Becoming an Energy-Wise Organization

Lewis Poe, Facilities Director, LifeBridge Health

Robert Spielman, Facilities Director, Levindale Hebrew Geriatric Center
Becoming an Energy-Wise Organization

Lewis Poe, Facilities Director, LifeBridge Health
Becoming an Energy Wise Organization

Energy conservation
  – Strategies to reduce energy consumption and costs
  – Electricity, fuel oil, natural gas, and water & sewer

Sustainable technologies
  – Energy efficient equipment
  – Alternative and renewable technologies, where cost-effective

Sustainable operations & processes
  – Best practices
We saved $825,000 from FY10 to FY11 and an additional reduction of $140,000 for the FY 2012 budget.

Sinai will be adding on the Children’s Hospital with an additional 31,048 sq footage with no increase to the 2012 utility budget.
## Sinai Hospital Energy Savings Worksheet

<table>
<thead>
<tr>
<th>Building</th>
<th>Load Reduction</th>
<th>Lighting KW</th>
<th>Cooling KW</th>
<th>Heating</th>
<th>Unit Cost</th>
<th>Hours</th>
<th>Days</th>
<th>Total Monthly Savings Winter</th>
<th>Total Monthly Savings Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulatory Psychology</td>
<td>12.5 KW/Hour*</td>
<td>12.5000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>9</td>
<td>30</td>
<td>$286.88</td>
<td>$286.88</td>
</tr>
<tr>
<td>Rymland</td>
<td>1.2 KW X 29 Units**</td>
<td>32.20</td>
<td></td>
<td></td>
<td>0.085</td>
<td></td>
<td></td>
<td></td>
<td>$860.95</td>
</tr>
<tr>
<td>Rymland</td>
<td>3.3 KW X 29 Units**</td>
<td>96.00</td>
<td></td>
<td></td>
<td>0.085</td>
<td>9</td>
<td>30</td>
<td>$2,326.58</td>
<td>$0.00</td>
</tr>
<tr>
<td>LED Phase 1</td>
<td>8479 lamps</td>
<td>135.6600</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$8,302.39</td>
<td>$8,302.39</td>
</tr>
<tr>
<td>LED Phase 2</td>
<td>7521 Lamps</td>
<td>120.3400</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$7,364.81</td>
<td>$7,364.81</td>
</tr>
<tr>
<td>Hoffberger 1</td>
<td>17 KW X 4 Units**</td>
<td>1.0000</td>
<td>68.00</td>
<td></td>
<td>0.085</td>
<td>9</td>
<td>30</td>
<td>$517.32</td>
<td>$517.32</td>
</tr>
<tr>
<td>Hoffberger 2</td>
<td>17 KW X 9 Units**</td>
<td>1.5000</td>
<td>153.00</td>
<td></td>
<td>0.085</td>
<td>9</td>
<td>30</td>
<td>$1,100.12</td>
<td>$1,100.12</td>
</tr>
<tr>
<td>Hoffberger 4</td>
<td>17 KW X 5 Units**</td>
<td>1.5000</td>
<td>85.00</td>
<td></td>
<td>0.085</td>
<td>9</td>
<td>30</td>
<td>$631.94</td>
<td>$631.94</td>
</tr>
<tr>
<td>Laundry</td>
<td>2 Units 20 Ton Each</td>
<td>32.00</td>
<td></td>
<td></td>
<td>0.085</td>
<td>12</td>
<td>30</td>
<td>$587.52</td>
<td></td>
</tr>
<tr>
<td>Cylburn Garage Lamp Retrofit</td>
<td>10.22 KW/Hour</td>
<td>10.2000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$624.24</td>
<td>$624.24</td>
</tr>
<tr>
<td>Cylburn Garage Lamp Retrofit</td>
<td>20.2 KW/Hour</td>
<td>20.2000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>16</td>
<td>30</td>
<td>$824.16</td>
<td>$824.16</td>
</tr>
</tbody>
</table>
Bright Ideas - LED Lighting

Phase 1
- Non Patient Service Areas
- 7,600 bulbs installed
- Completed 5/3/10

Phase 2
- Patient Care Public Areas
- 8,400 bulbs to be installed
- Will start 4/19/11

BGE has committed to a 50% incentive for the project.
We replaced F32T8 lamps with 15-watt lamps and drives in non-patient care areas of the campus.

This will reduce the current 259.25 KWH load by more than half (144.38 KWH).

Most of the lamps burn 24/7 with a small percentage in intermittent use.

Estimated life of bulbs is 80,000 hours. We expect to have to change them every 5 – 7 years.
Project Phases

The entire process of planning, approval, deployment, and disposal for Phase 1 only took 6 months!

To date all 6 floors of the General Hospital have been completed.
Temperature of single LED lamp at 48 inches with IR thermometer reads 74.2 F. LED lamp output is 48.8 foot candles.

Temperature of single Fluorescent lamp at 48 inches with IR thermometer reads 83.6F. Fluorescent lamp output is 39.6 foot candles.
## BGE Rebate Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Project No.</th>
<th>Rebate Amount</th>
<th>Completed</th>
<th>Active</th>
<th>Check Turned Over</th>
<th>Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Speed Drives</td>
<td></td>
<td>17,000.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Sinai</td>
</tr>
<tr>
<td>LED Lights Changeout Phase 1 Sinai Hospital</td>
<td>CU-10-0038</td>
<td>291,065.00</td>
<td>X</td>
<td></td>
<td>Sandra McLoughlin</td>
<td>Sinai</td>
</tr>
<tr>
<td>Variable Frequency Drives</td>
<td></td>
<td>12,000.00</td>
<td>X</td>
<td></td>
<td>Michelle</td>
<td>Sinai</td>
</tr>
<tr>
<td>Variable Frequency Drives</td>
<td></td>
<td>31,055.00</td>
<td>X</td>
<td></td>
<td>Michelle</td>
<td>Sinai</td>
</tr>
<tr>
<td>Prescriptive Lighting &amp; Variable Speed Drives</td>
<td></td>
<td>7,010.00</td>
<td>X</td>
<td></td>
<td>Michelle</td>
<td>Sinai</td>
</tr>
<tr>
<td>Variable Frequency Drives</td>
<td></td>
<td>2,300.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Sinai</td>
</tr>
<tr>
<td>New Construction Lighting Application</td>
<td></td>
<td>835.00</td>
<td>X</td>
<td></td>
<td>Sandra McLoughlin</td>
<td>Sinai</td>
</tr>
<tr>
<td>LED Lights Changeout Phase 2 Sinai Hospital</td>
<td>CU-10-0954</td>
<td>329,628.00</td>
<td></td>
<td></td>
<td></td>
<td>Sinai</td>
</tr>
<tr>
<td>Lighting Control for Hoffberger Building</td>
<td>PL-10-1546</td>
<td>16,475.00</td>
<td>X</td>
<td></td>
<td>Michelle</td>
<td>Sinai</td>
</tr>
<tr>
<td>Variable Frequency Drives</td>
<td>VF-10-2014</td>
<td>4,000.00</td>
<td></td>
<td></td>
<td></td>
<td>Sinai</td>
</tr>
<tr>
<td>Variable Frequency Drives</td>
<td>VF-10-2015</td>
<td>9,300.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Sinai</td>
</tr>
<tr>
<td>HAVC Chiller New Construction</td>
<td>HC-09-0198</td>
<td>17,136.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Sinai</td>
</tr>
<tr>
<td>Motor Replace New Construction</td>
<td>MO-09-0199</td>
<td>1,594.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Sinai</td>
</tr>
<tr>
<td>Variable Frequency Drives</td>
<td>VF-10-1435</td>
<td>5,900.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Sinai</td>
</tr>
<tr>
<td>Lighting Upgrade</td>
<td>CU-10-0655</td>
<td>2,871.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Sinai</td>
</tr>
<tr>
<td>Variable F Drives Lanudry AH</td>
<td></td>
<td>3,130.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Sinai</td>
</tr>
<tr>
<td><strong>Total Sinai</strong></td>
<td></td>
<td>783,614.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LED Lights Changeout Levindale Phase 1</td>
<td>CU-10-0669</td>
<td>$ 37,078.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Levindale</td>
</tr>
<tr>
<td>Levindale Adult Day Care</td>
<td>LR-09-0233</td>
<td>$1,005.00</td>
<td></td>
<td></td>
<td></td>
<td>Levindale</td>
</tr>
<tr>
<td>LED Lights Changeout Levindale Phase 2</td>
<td>CU-10-0204</td>
<td>$ 23,438.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Levindale</td>
</tr>
<tr>
<td><strong>Total Levindale</strong></td>
<td></td>
<td>$ 61,521.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LED Lights Changeout Phase 1 Courtland Gardens</td>
<td></td>
<td>8,354.00</td>
<td>X</td>
<td></td>
<td>Sandra McLoughlin</td>
<td>Courtland Gardens</td>
</tr>
<tr>
<td>LED Exit Light Changeout Phase 1</td>
<td></td>
<td>700.00</td>
<td>X</td>
<td></td>
<td>Budget 4040-660000</td>
<td>Courtland Gardens</td>
</tr>
<tr>
<td>LED Light changeout Phase 2 Courtland Gardens</td>
<td></td>
<td>52,116.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Courtland Gardens</td>
</tr>
<tr>
<td><strong>Total Courtland Gardens</strong></td>
<td></td>
<td>61,170.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pampaso</td>
<td>PL-10-2000</td>
<td>1,800.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Fitness Center</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,800.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>38,112.00</td>
<td>X</td>
<td></td>
<td></td>
<td>Northwest</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>946,217.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Turning “Waste” Into Opportunity

Repackaged and stored an allotment of reclaimed bulbs for future reuse opportunities amongst other LifeBridge properties.

**11,700** working bulbs and **1,172** ballasts were donated to The Loading Dock, a local Baltimore 501(c) 3 nonprofit organization.

Recycled any unusable bulbs and ballasts.
### Measuring Success

**LOCATION NO: 4**

**LOCATION DESCRIPTION:** GROUND FLOOR HALLWAY BY FIRE COMMAND

<table>
<thead>
<tr>
<th>LAMP TYPE</th>
<th>WATTS PER FIXT. 2 LAMPS</th>
<th>OPERATING TEMP PER FIXTURE 2 LAMPS</th>
<th>DATE</th>
<th>POWER CONSUMPTION IN WATTS FOR 2 LAMPS FIXT.</th>
<th>LIGHT OUTPUT PER LAMP 48&quot; below fixt. FOR 2 LAMPS FIXT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLUORESCENT</td>
<td>64</td>
<td>83.6 F</td>
<td>11/29/2010</td>
<td>64</td>
<td>39.6</td>
</tr>
<tr>
<td>LED</td>
<td>29.7</td>
<td>74.2 F</td>
<td>12/27/2010</td>
<td>28 watts</td>
<td>48.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1/31/2011</td>
<td>28 watts</td>
<td>49.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2/28/2011</td>
<td>28 watts</td>
<td>49.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3/28/2011</td>
<td>28 watts</td>
<td>47.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4/4/2011</td>
<td>28 watts</td>
<td>46.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4/11/2011</td>
<td>28 watts</td>
<td>46.1</td>
</tr>
</tbody>
</table>

*The Freedom To Be Green*

**LIFE BRIDGE HEALTH**
The energy audit and design should focus on alternative funding strategies:

- Federal stimulus funding
- Federal, state and local grants, loans, and incentives
- Utility incentives
- Demand Response Programs -- PJM for temporary load shed and permanent load shed programs
  - PJM Economic Real time
  - PJM Capacity Market
  - PJM Synchronous Reserve Program
  - PJM Energy Efficiency Load shed Program
  - Baltimore GAP program
The Energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency’s (EPA’s) Energy Performance Scale of 1-100, with 1 being the least energy efficient and 100 the most energy efficient.
Take Home Points

1. The process is easy.
2. Help is out there for organizations to implement sustainable energy programs.
3. The savings are real. You WILL see a reduction in your operating budget.
4. “Low hanging fruit” projects could be operational in as little as six months.
5. I’ve done it, and I’m willing to help you.
Variable Frequency Drives

Robert Spielman, Facilities Director, Levindale Hebrew Geriatric Center
A **variable-frequency drive (VFD)** is a system for controlling the rotational speed of an alternating current (AC) electric motor by controlling the frequency of the electrical power supplied to the motor. A variable frequency drive is a specific type of adjustable-speed drive.

Variable-frequency drives are also known as adjustable-frequency drives (AFD), variable-speed drives (VSD), AC drives, microdrives or inverter drives.
43 VFD’s have been installed to date under BGE’s Energy Conservation program. They are located on pumps in the power plant and air handlers throughout the campus.

With these energy efficient motor drives in place we realize a 20% reduction in energy use as less mechanical energy is wasted.

The monthly savings to the combined energy budgets for both facilities is an average of $7288.00 or $87456.00 annually.
VFD Benefits

• Significant energy savings
• Lower maintenance costs, since lower operating speeds result in longer life for bearings and motors.
• Controlled ramp-up speed in a liquid system can eliminate water hammer problems.
• The ability of a VFD to limit torque to a user-selected level can protect driven equipment that cannot tolerate excessive torque.
<table>
<thead>
<tr>
<th>Building</th>
<th>Load Reduction</th>
<th>Heating/Power</th>
<th>Cooling KW</th>
<th>Heating</th>
<th>Unit Cost</th>
<th>Hours</th>
<th>Days</th>
<th>Total Monthly Savings Winter</th>
<th>Total Monthly Savings Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Plant Primary CW</td>
<td>45 KW/ Hour</td>
<td>45.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$550.80</td>
<td></td>
</tr>
<tr>
<td>Pump #1 VFD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Plant Primary CW</td>
<td>30 KW/ Hour</td>
<td>30.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$367.20</td>
<td></td>
</tr>
<tr>
<td>Pump #2 VFD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Plant Primary CW</td>
<td>30 KW/ Hour</td>
<td>30.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$367.20</td>
<td></td>
</tr>
<tr>
<td>Pump #3 VFD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AHU 1723 Supply Fan A VFD</td>
<td>22 KW/ Hour</td>
<td>22.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$269.28</td>
<td>$269.28</td>
</tr>
<tr>
<td>AHU 1723 Supply Fan B VFD</td>
<td>22 KW/ Hour</td>
<td>22.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$269.28</td>
<td>$269.28</td>
</tr>
<tr>
<td>AHU 1724 Supply Fan VFD</td>
<td>45 KW/ Hour</td>
<td>45.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$50.80</td>
<td>$50.80</td>
</tr>
<tr>
<td>AHU 1723 Return Fan VFD</td>
<td>20.2 KW/ Hour</td>
<td>22.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$269.28</td>
<td>$269.28</td>
</tr>
<tr>
<td>AHU 1724 Return Fan VFD</td>
<td>22 KW/ Hour</td>
<td>22.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$269.28</td>
<td>$269.28</td>
</tr>
<tr>
<td>AHU 2029 Return Fan VFD</td>
<td>22 KW/ Hour</td>
<td>22.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$269.28</td>
<td>$269.28</td>
</tr>
<tr>
<td>AHU 2030 Return Fan VFD</td>
<td>22 KW/ Hour</td>
<td>22.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$269.28</td>
<td>$269.28</td>
</tr>
<tr>
<td>AHU 281 Supply Fan VFD</td>
<td>30 KW/ Hour</td>
<td>30.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$367.20</td>
<td>$367.20</td>
</tr>
<tr>
<td>AHU 1024 Supply Fan A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>AHU 1024 Supply Fan B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>AHU 1024 Return Fan VFD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>AHU 2321 Supply Fan</td>
<td>30 KW/ Hour</td>
<td>30.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$367.20</td>
<td>$367.20</td>
</tr>
<tr>
<td>AHU 2321 Return Fan</td>
<td>7.5 KW/ Hour</td>
<td>7.5000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$91.80</td>
<td>$91.80</td>
</tr>
<tr>
<td>AHU 2323 Supply Fan</td>
<td>22 KW/ Hour</td>
<td>22.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$269.28</td>
<td>$269.28</td>
</tr>
<tr>
<td>AHU 2323 Supply Fan</td>
<td>22 KW/ Hour</td>
<td>22.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$269.28</td>
<td>$269.28</td>
</tr>
<tr>
<td>AHU 2323 Return Fan</td>
<td>11 KW/ Hour</td>
<td>11.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$134.64</td>
<td>$134.64</td>
</tr>
<tr>
<td>AHU 13201 Supply Fan</td>
<td>5.5 KW/ Hour</td>
<td>5.5000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$67.32</td>
<td>$67.32</td>
</tr>
<tr>
<td>AHU 13202 Supply Fan</td>
<td>7.5 KW/ Hour</td>
<td>7.5000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$91.80</td>
<td>$91.80</td>
</tr>
<tr>
<td>AHU 13201 Return Fan</td>
<td>3.7 KW/ Hour</td>
<td>3.7000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$45.29</td>
<td>$45.29</td>
</tr>
<tr>
<td>AHU 13202 Return Fan</td>
<td>3.7 KW/ Hour</td>
<td>3.7000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$45.29</td>
<td>$45.29</td>
</tr>
<tr>
<td>AHU 262</td>
<td>7.5 KW/ Hour</td>
<td>7.5000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$91.80</td>
<td>$91.80</td>
</tr>
<tr>
<td>AHU 621</td>
<td>3.7 KW/ Hour</td>
<td>3.7000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$45.29</td>
<td>$45.29</td>
</tr>
<tr>
<td>AHU 641</td>
<td>5.5 KW/ Hour</td>
<td>5.5000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$67.32</td>
<td>$67.32</td>
</tr>
<tr>
<td>AHU 611</td>
<td>11 KW/ Hour</td>
<td>11.0000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$134.64</td>
<td>$134.64</td>
</tr>
<tr>
<td>AHU 402 Supply</td>
<td>5.5 KW/ Hour</td>
<td>5.5000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$67.32</td>
<td>$67.32</td>
</tr>
<tr>
<td>AHU 403 Supply</td>
<td>7.5 KW/ Hour</td>
<td>7.5000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$91.80</td>
<td>$91.80</td>
</tr>
<tr>
<td>Dual Temp Pump 2025</td>
<td>7.5 KW/ Hour</td>
<td>7.5000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$91.80</td>
<td>$91.80</td>
</tr>
<tr>
<td>Dual Temp Pump 2026</td>
<td>7.5 KW/ Hour</td>
<td>7.5000</td>
<td></td>
<td></td>
<td>0.085</td>
<td>24</td>
<td>30</td>
<td>$91.80</td>
<td>$91.80</td>
</tr>
<tr>
<td>Schoeneman Pool</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaporation Control Cover</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$2,166.48</td>
<td>$3,451.68</td>
</tr>
</tbody>
</table>

*This load is for common areas only. It is assumed that office areas are turned off and therefore are not counted as savings. Does not account for equipment not considered common. Plant pumps summer only.

**Calculated at a 30° duty cycle.

Chilled water production per ton = .8KW/Ton source HPAC Engineering Magazine for conventional code-based system in good condition.

Rosenbloom cooling calculated at .5 ton per unit with chilled water cooling cost .8 KW/Ton

VFD Based on 20% average savings.
Greening the OR

Janel Parham, RN, MS Liaison Nurse, Perioperative Services, LifeBridge Health
Why Did I Get Involved?

Studied environmental health while pursuing Masters degree

Worked with MD H2E at University of Maryland Environmental Health Education Center

Astounded by the massive amount of waste generated with each surgical case

Excited about the changes LifeBridge Health is making to decrease their environmental impact

Assist with implementing initiatives in the OR and report progress to the green committee
Why “Green” the OR?

For most hospitals, the benefits of “going green” in the operating room are considerable: reductions in energy and water use, a reduction in staff exposure to toxic chemicals, increased patient and staff safety, and a much-reduced impact on the environment.

- The OR generates approximately 42% of the hospital’s overall revenue.
- The department also generates 20% to 30% of the hospital’s overall waste volume.
- Much of the waste in the OR is disposed of as regulated medical waste, which costs 10 to 15 times more in disposal fees than regular waste.

Source: www.PracticeGreenHealth.org
Greening Sinai Hospital’s OR

- Waste Separation and Recycling
- Blue Wrap Recycling
- Neptune System
- SRI
The Path to be Green

In our Operating Rooms

• Waste Separation and Recycling
  o Blue Wrap and Plastics
  o Red bag
  o Clear bag
• Separating waste throughout the case

In our staff areas

• Bottle and can recycling
• Non-confidential and confidential paper recycling
The Path to be Green

Since September 2008 we have captured 20,260 lbs of blue wrap.

An average of over 675 lbs a month.
Neptune System Overview

• Operational since early 2007
• Closed system
• Powerful, consistent suction
• 24L of fluid capacity
• Integrated ULPA Smoke Evacuator
• One small, disposable part (manifold)
• Self-cleaning
The Benefits of a Fluid Management System

Utilization of the Neptune system has given us significant reductions in the following areas:

- Labor needed to transport and handle fluids
- Risk to exposure of infectious waste
- Time needed to turn over rooms
- Reduction in use of plastics vs. fluid containers
The Benefits of a Fluid Management System

Reduction in Red Bag waste

• Every full Neptune manifold can replace up to seven full fluid canisters

• Full fluid canisters can weigh up to seven pounds each, compared to less than one pound for a full Neptune manifold

• The Neptune system will reduce red bag waste by roughly 86%
Using SRI Surgical Reusables

Certain areas are using reusable gowns, towels, back table covers, and basins.
Initiating a Cultural Change

Challenges

• Difficulty of any new program, regardless of the overall benefits
• Some people will be less accepting to the change than others

Solutions

• Take one new change at a time
• Initially and annually in-service employees and as needed when concerns arise
• Find project champions and promote best practices
Take Home Points

1. Staff and administrative buy-in are key to the success of the program.

2. Begin with something small and easily attainable to motivate people towards the overall goal.

3. Solicit input from those that will be directly affected by the change.

4. Form a team with interdisciplinary members in order to guide the process.

5. Look at the Big Picture.
Leadership In Sustainability

Lionel Weeks, Vice President, Facilities, LifeBridge Health
Leadership In Sustainability

LifeBridge Health has achieved its successes in sustainability through the tireless efforts of its employees, partners and associates.

We did not get here alone, and we’re here to help out any organization that wants to begin, or further its journey into sustainability.
A Culture of Sustainability

At LifeBridge, we foster a culture of sustainability that is carried through all levels of employee.

We have enacted a comprehensive set of sustainability policies which are carried out system wide.

These policies, along with employee engagement has lead to many great LifeBridge initiatives.
System-Wide Sustainability

LifeBridge Health was one of the first systems in the region to enact the system-wide green policies that we follow today. These policies, like our Environmentally Preferred Purchasing policy, and our Integrated Pest Management policy focus on finding sustainable and environmentally friendly options to our daily operations.
Focus on Compliance

It is one thing to draft green policies and procedures, it is another to monitor and evaluate the buy in of the employees that use the policies.

At LifeBridge Health, we have a dedicated group of employees that monitor the compliance to our green initiatives.

From our executives that attend our Green Team meetings, to employees that monitor energy usage on a daily basis, we have developed a culture of compliance in our sustainable practices that has transformed LifeBridge Health into a cleaner, greener organization.
Our Green Team

• LifeBridge Health’s Green Team encompasses several facilities within the system: Sinai Hospital of Baltimore, Northwest Hospital, Levindale Hebrew Geriatric, Courtland Gardens Nursing and Rehab Center, and LifeBridge Health and Fitness.

• Our Green Team has full support of LifeBridge Executive Leadership, which enables us to carry out our sustainability practices and policies in an efficient and effective manner.

• Many of the sustainable programs and initiatives enacted at LifeBridge are developed through our system-wide Green Team.

• The Team meets monthly in order to assess progress of current programs, and develop new ideas that may be used in the future.
With help from our corporate partners, our sustainability programs have been able to achieve award-winning status.
We Didn’t Do It Alone

All of our successes in sustainability did not come from a sole contributor. We used the expertise and input of our active employee base, our corporate partners, and our piers in the healthcare community to make LifeBridge the sustainable organization it is today.

We didn’t do it alone, and we don’t want you to either. We encourage and welcome all inquiries on how we began this journey, and we want to help you to make your facility, the region, and the planet a cleaner, more sustainable place for our future generations.
For More Information

Lionel Weeks, 410-601-2286,
lweeks@lifebridgehealth.org

Lewis Poe, 410-601-9157,
lpoe@lifebridgehealth.org

Robert Spielman, 410-601-2490,
rspielma@lifebridgehealth.org

Janel Parham, 410-601-5243,
jcparham@lifebridgehealth.org

Bill Griffith, 410-877-1593,
bgriffith@reductioninmotion.com