



## Help for Hospitals Striving to Achieve Sustainability

The American Hospital Association (AHA) is committed to supporting sustainable design and sustainable operations in the health care environment. As part of our vision of a society of healthy communities where all individuals reach their highest potential for health, AHA supports efforts to improve hospital building performance and facility operations in ways that contribute to a healthier environment, a healthier bottom line, and a healthier community.

Three AHA personal membership groups—the American Society for Healthcare Engineering (ASHE), the Association for the Healthcare Environment (AHE), and the Association for Healthcare Resource & Materials Management (AHRMM)—know that goals are best realized when industry groups work together. In an effort to help our members work toward their organizations’ sustainability goals, we have joined together to develop practical, hands-on sustainability information specifically tailored for hospitals, including:

- Lessons learned from organizations with sustainability initiatives under way, including what obstacles were met and how they were overcome
- Tools such as performance improvement measures (PIMs) that have been tried and tested in health care facilities
- A variety of resources that can be used to make the business case for sustainability, such as cost-benefit analysis, benchmarking, and data collection

On the journey to sustainability, there are no “one-size-fits-all” solutions. Therefore, we have worked to put together in-depth information that will be useful for health care facilities no matter where they are on the road to sustainable operations and building performance.

The primary resource ASHE, AHE, and AHRMM are developing is a series of performance improvement measures that provide detailed information to help organizations take these measures and enact them. PIMs have been written at different levels, from basic to advanced. “Green Light” projects are PIMs that are easy to implement and provide proven value, offering quick opportunities for sustainability improvements. For organizations that have already adopted these practices, we provide more complex PIMs that require greater investments of time and money but still offer significant rewards in terms of short- and long-term economic, health, and environmental benefits.

Following this page are sample Green Light projects intended to illustrate how the PIMs we have developed can help your organization along the road to sustainability—beginning today. These PIMs (condensed versions of what is being prepared for publication) are accessible, easy to use, and ready to go. Online, the PIMs will invite user feedback and participation because we know that sharing best practices and lessons learned among facility managers and operators is how we learn best.

A database of PIMs will be published—with a robust search feature—on the Sustainability Roadmap for Hospitals in January 2013. ASHE, AHE, and AHRMM are developing this comprehensive, Web-based resource to help our nation’s hospitals reach their sustainability goals. We support you on your journey and look forward to hearing your success stories.

## **Performance Improvement Measure: Energy Use**

### **Establish baseline for current energy consumption.**

#### **Attributes:**

- Repair or optimize existing systems (fix what you have).
- Optimize operations.

#### **Description:**

Measure whole-building energy performance for a period of at least 12 months. Information collected will establish a baseline that can serve as a starting point for setting goals as well as a comparison point for evaluating future efforts and trending overall performance. (Note: If the facility is submetered, a baseline can be developed for each separately submetered area in addition to the whole-building baseline.)

#### **Talking Points:**

- Understand how energy expenditures contribute to operating costs.
- Identify high-performing facilities for recognition and replicable practices.
- Prioritize poor-performing facilities for immediate improvement.
- Use historical energy use trend as a context for future actions and decisions.
- Categorize current energy use by fuel type, operating division, facility, product line, end use, and other factors.
- Establish action thresholds for initiating retrocommissioning activities and rewarding good performance. Submetering and circuit-level metering can provide specific data about the effects of changes on particular systems and end uses.

#### **Triple Bottom-Line Benefits**

- Reducing costs starts with understanding how energy expenditures contribute to operating costs; many facilities have documented energy consumption reductions in the range of 20 to 30% from baseline.
- The initial direct environmental benefit of benchmarking is zero. However, the ENERGY STAR database allows facilities to track changes in greenhouse gas emissions compared to the benchmarking base year. Therefore, continuing the benchmarking effort documents the environmental impact of your energy management efforts.
- Employee and community engagement in an effort to reduce energy consumption is often improved when data, information, goals, and targets are provided, thus benchmarking is crucial to that process.

#### **How-To:**

- Who's on the team: Building engineer, facility manager, building controls technician, commissioning authority.
- Gather at least 24 months (36 months, if possible) of monthly energy data from utility bills (e.g., electricity, natural gas, etc.). This data should be readily available from the utility. Note whether the facility submeters specific energy systems. For additional guidance, visit [http://www.energystar.gov/index.cfm?c=assess\\_performance.gather\\_data](http://www.energystar.gov/index.cfm?c=assess_performance.gather_data).

- Analyze monthly utility bills to identify overall trends, seasonal fluctuations, and unexplained changes in energy use.
  - An easy way to analyze trends and discover unexplained changes in utility consumption is to use a spreadsheet to track a rolling 12-month average of monthly utility consumption and demand. This method helps screen out seasonal variation and identify underlying energy consumption or demand increases. Conversion to units per square foot also helps you recognize disparities caused by changes in building square footage. Use the ENERGY STAR methodology for calculating square footage to ensure that data entered in the system is comparable, a necessity for achieving accurate benchmark rating comparisons.
- Create an account with [EPA ENERGY STAR Portfolio Manager](#).
- Establish a baseline year (or average of several years).
- Enter utility data into EPA ENERGY STAR Portfolio Manager to benchmark energy consumption with comparable facilities. Facilities with complex energy systems may choose to use the [hospital import template](#) provided by ENERGY STAR.
- Note your facility's baseline ENERGY STAR score. If it is greater than 50, your facility's energy systems are currently more efficient than half the similar facilities in the United States. If the score is 75 or higher, your facility falls into the top 25 percent of energy-efficient hospitals in the U.S. and is eligible to receive an ENERGY STAR label. The label is valid for one year and requires third party validation of performance. This process can be performed every year if a facility qualifies, and the program covers hospitals, laundries, garages, data centers, health care campuses, and medical office buildings. For additional information about how to apply for the ENERGY STAR, visit: [http://www.energystar.gov/index.cfm?c=evaluate\\_performance.bus\\_portfoliomanager\\_intro](http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_intro)
- Trend and track ENERGY STAR scores and energy usage overtime to demonstrate improvements.
- Use the Roadmap's target-setting [Energy Reduction Tool](#) to help set goals based on your baseline and benchmark data.
- Consider the use of submetering and circuit-level metering to identify and track specific end uses and reductions.

**Note:** Further information appears in the PIMs posted at [www.sustainabilityroadmap.org](http://www.sustainabilityroadmap.org), such as commissioning information when relevant, contracting language when applicable, LEED and GGHC connections, online tools, applicable codes and standards, case studies, and a resource list. The PIM database will be updated in January 2013.

## Performance Improvement Measure: Waste Operations

### Maximize waste container utilization and hauling efficiencies.

#### Attributes:

- Repair or optimize existing systems (fix what you have).
- Optimize operations.

#### Description:

Evaluate waste container utilization and hauling efficiencies to maximize loads, reduce costs, and reduce environmental impacts from transportation. This is a very simple way to reduce costs with no impact on operations or service.

#### Talking Points:

- Pull or haul charges can be significant and can range from \$90 to \$180 per pull. Hauling half-empty containers means spending twice as much as you need to.
- Vendors often pass on fuel surcharges to the customer. Reducing pickups and transportation miles will reduce these costs.
- Compactors and containers come in different sizes. Increasing the size of your container can result in fewer pulls per week, often with no change in pull fees.
- A government and CA EPA report from April 2012 concluded that diesel exhaust poses a major risk to humans because it contains more than 40 compounds linked to cancer. EPA's [Smartway](#) is dedicated to helping reduce transportation-related environmental impacts.
- The objective is to maximize container efficiencies, minimize the number of pulls, and ensure waste collection operations are unaffected (no backups).
- Maximizing equipment utilization efficiency can yield significant financial savings with minimal or no labor and financial investment. This is a "green light strategy!"
- Use the knowledge, resources, and tools of waste vendors. They are typically supportive in identifying and increasing efficiency in this area.

#### Triple Bottom-Line Benefits:

- Cost savings: Provides potentially significant opportunities to reduce waste costs associated with hauling without requiring additional cost, financial, or labor input.
- Environmental improvements: Reduces transportation miles and energy use and air emissions from transportation.
- Satisfaction: Ensures labor resources are used efficiently for both vendor and hospital.

#### How-To:

1. Identify a representative from the environmental services and/or facility departments to lead this initiative. The hospital representative should partner with waste stream vendors.
2. Inventory all outside waste containers: compactors, open tops and dumpsters, noting location, size, and condition.
3. Identify the maximum capacity of each container by asking your waste hauler.

4. Gather six months of invoices to analyze the weights of each haul, container utilization, and average cost per haul. Leverage waste vendors to help gather and analyze this data.
5. Use the “Equipment Utilization Right-Sizing Tool” on the Sustainability Roadmap for Hospitals to help you identify potential costs savings from simply changing the size of the container and/or the container pull schedules.
6. Identify opportunities to reduce pulls, increase container use, and achieve cost savings.
7. Develop a strategy with your waste hauler to implement identified opportunities. Common strategies include:
  - a. Changing from scheduled to on-call pickups. However, this does require someone at the hospital be accountable for monitoring the fullness of the container. With compactors, this can be monitored by installing a near-full light system.
  - b. Installing compactor monitor systems, where applicable.
  - c. Obtaining the right waste-hauling equipment for the right waste stream. For example, if you use an open top container for cardboard, you are hauling air. Consider using a compactor or baler to compact the cardboard for transportation.
  - d. Schedule regular maintenance for waste collecting and compacting equipment. If you use a compactor, has it been checked lately? Is the ram getting maximum compaction? If not, you could be hauling containers that are not at capacity.
8. Compactor monitoring systems come in different types and models. For example, a simple pressure gauge can measure pressure against the ram. The gauge must be monitored, however. For example, consider recording the weight of the compactor and the reading on the gauge when the compactor is pulled. One hospital knows when its gauge needs maintenance from the amount of material it can pack into the box.

Remote monitoring of compactors is another good option. Essentially, when the compactor is “near full,” your hauler will get a message to pick up. This can be a very effective tool, but work with your hauler to discuss their ability to respond quickly to reduce the risk of waste backups.
9. Partner with waste stream vendors to develop a monthly reporting system that breaks down all waste stream costs, pull efficiencies, etc., and identifies improvement opportunities.
10. Track improvements and cost savings. Remember to report on successes in your annual sustainability report.
11. The approach described in this PIM is typically applied to solid waste and recycling streams. However, strategies to address container fullness and utilization efficiencies can also be applied to HIPAA paper management, regulated medical waste, sharp, and pharmaceutical waste streams. For these, ensure inside containers are full and packaged to maximize container space (especially for pharmaceutical waste).

### **Tools (calculators, spreadsheets, and other useful resources)**

- Equipment utilization right-sizing tool: This Roadmap tool allows you to determine what combination of different size and weight containers will help you maximize your options.

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## Performance Improvement Measure: Sustainable Supply Chain

### Reprocess approved single-use devices.

#### Attributes:

- Optimize operations.
- Reduce supply chain costs.
- Reduce waste and waste disposal costs.

#### Description:

Saving costs and reducing waste through single-use medical device (SUD) reprocessing and remanufacturing can be a cornerstone of your environmental initiative. FDA-approved third-party manufacturers can provide advanced services that allow hospitals to more responsibly use resources, deliver supply cost savings, and lessen their impact on the environment.

#### Talking Points:

- Health care organizations increasingly recognize that third-party reprocessing of medical devices labeled “single-use device” or SUD is a safe and effective process that can help redirect valuable financial resources back into patient care.
- Most original equipment manufacturer (OEM)-designated single-use devices are disposed of as biohazardous waste, further increasing the cost of disposal and using more resources for processing.
- Reprocessing SUDs is a strategy that saves money and significantly reduces the volume of regulated medical waste generated by the facility, and is now common practice in many operating rooms and healthcare institutions.
- The Joint Commission states that third parties should reprocess SUDs rather than hospitals. Joint Commission standards state it is not acceptable for hospitals to reprocess SUDs.

#### Triple Bottom-Line Benefits:

- **Cost savings:** It is much less expensive to reprocess SUDs than to buy new ones and dispose of them after one use. Depending on the size of a hospital/system, organizations can save up to millions of dollars per year by reprocessing SUDs. Reprocessing can reduce medical device costs by 50% annually compared with buying new equipment and disposing of equipment after one use. One reprocessing company [reports](#) saving its hospital customers approximately \$138,142,000 in 2008. In addition, that company reports rescuing landfills from 4,300,000 pounds of medical waste in the process.
- **Environmental benefits:** Reprocessing saves energy, material resources, and landfill space.
- **Health and safety benefits (satisfaction and quality):** Hospitals can redirect resources saved by reprocessing SUDs to initiatives that impact patient care directly, such as hiring more nurses, investing in new technology, or serving more patients.

#### How-To:

- Assess and select FDA-approved single-use device reprocessors in the marketplace.
- Use the [Association of Medical Device Reprocessors](#) (AMDR) to guide the selection process. AMDR is a trade association for third-party reprocessors whose members account for approximately 95 percent of the third-party reprocessing done in the United States.

- Introduce devices to be reprocessed, phase in the program, and then broaden its scope as success is achieved. Start with non-invasive items. Your preferred vendor can help you decide where to start and what to phase in at various points. A wide range of SUDs is commonly reprocessed, from cardiovascular and orthopedic devices to general surgery accessories. The following list provides a sampling of SUDs that may safely be reprocessed; a complete list is available at <http://www.amdr.org/>.

Arthroscopic shavers	Orthopedic drill bits and burrs
Biopsy forceps	Phaco tips
Blood pressure cuffs	Pneumatic tourniquet cuffs
Clamps and dissectors	Pulse oximeter sensors
Compression sleeves (DVT)	Scissors and staplers
External fixation devices	Soft tissue ablaters
Electrophysiology catheters	Tracers
Harmonic scalpel	Trocars
Laparoscopic scissors and forceps	Unused items

- Establish a stakeholder group to ensure contracting, implementation, ongoing field support, and accountability throughout the life of the program, including:
  - Value analysis/purchasing team to phase in the program over time working from a written implementation plan.
  - All affected clinical groups (especially in the OR areas)
  - Central sterile reprocessing
- Continuously assess and be aware of changes made in single-use devices by the OEMs. The supply chain contracting process provides a good opportunity to better manage your relationship with the OEMs and emphasize your environmental preference to reprocess.
- Prepare an FAQ sheet and coach the team with answers to barriers that might arise to implementation of reprocessing. Clinicians and staff members may have concerns over quality and safety, compliance, and reporting in addition to having a preference for and strong opinions about certain items. The key to addressing these concerns is to provide administrative support and education about the environmental and cost-saving benefits as well as the program's strict adherence to FDA regulations.
- Plan a stakeholder group visit to the reprocessor plant and a facility that has successfully implemented reprocessing programs.
- Searching for success or failure rate data will provide information about outcomes and case studies, but the practice is trending to best practices. [AMDR](http://www.amdr.org/) is a good initial source, but *your* experience will also help others, so publicize wins and challenges associated with implementation such as environmental performance (reducing waste to landfill) and staff satisfaction and cost performance (savings). Be sure to measure and record savings associated with the program for reporting purposes.

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