



SUSTAINABILITY Roadmap for Hospitals

A guide to achieving your sustainability goals

www.sustainabilityroadmap.org

Laura Brannen

BLUE Environmental Performance Consulting
A division of Mazzetti Nash Lipsey Burch

Introductions

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(aka Trash Diva, Dumpster Diver)

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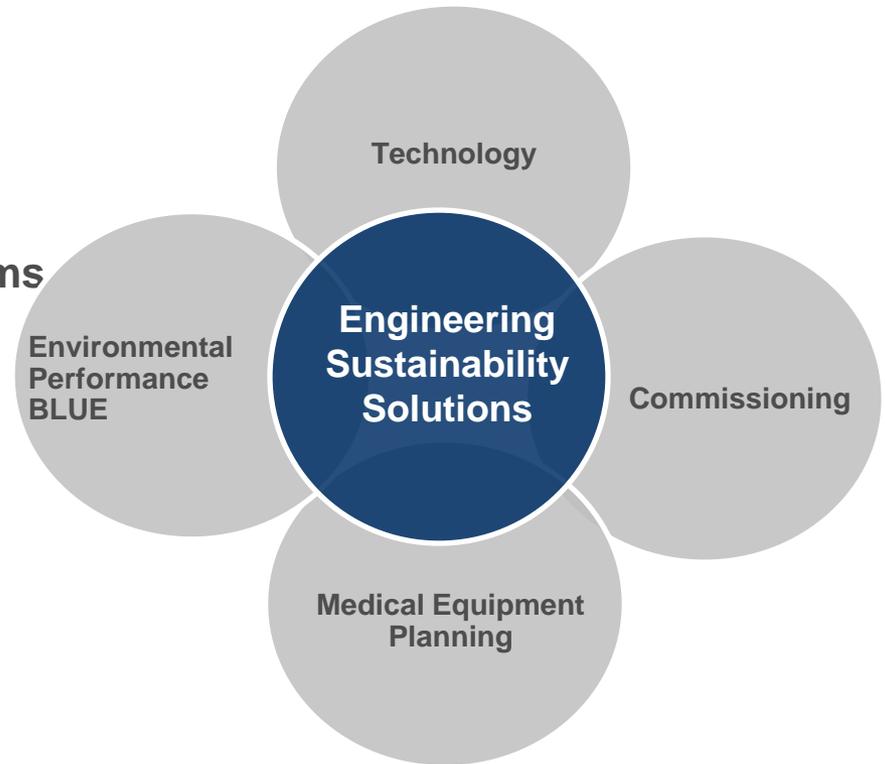
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What Mazzetti does?

- **MEP/FP Design and Integrated Building Design and Building Solutions)**
- **Environmental Performance Consulting/BLUE**
 - Energy, Waste & Water Management
 - GHG Emissions
 - Renewable/Alternative Energy Systems
 - Reporting
 - Organizational Readiness
- **Commissioning and Retro-Commissioning**
- **Technology Consulting**
- **Research and International Development– Sextant Foundation**



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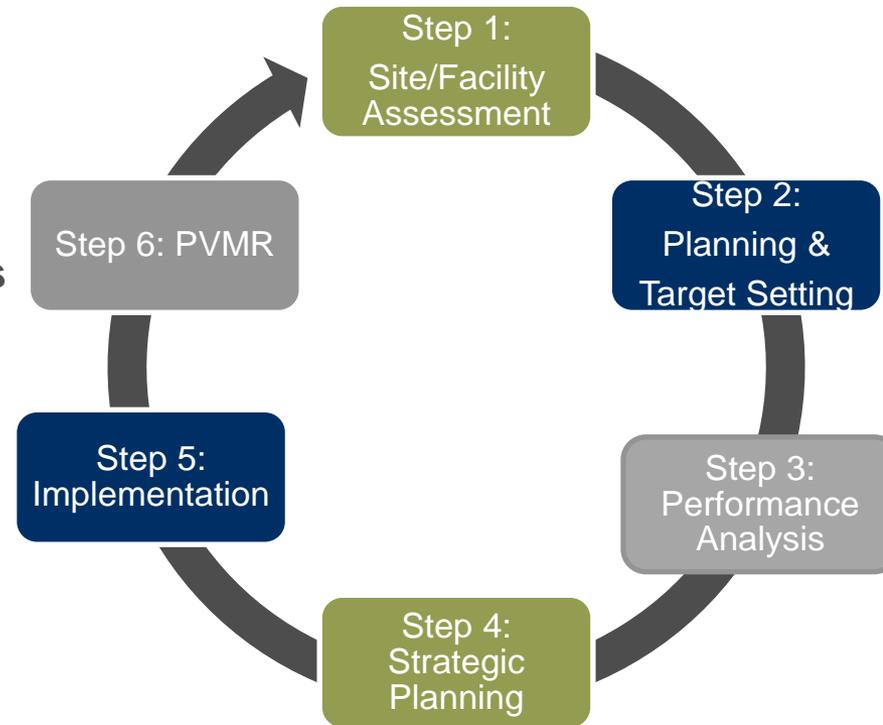


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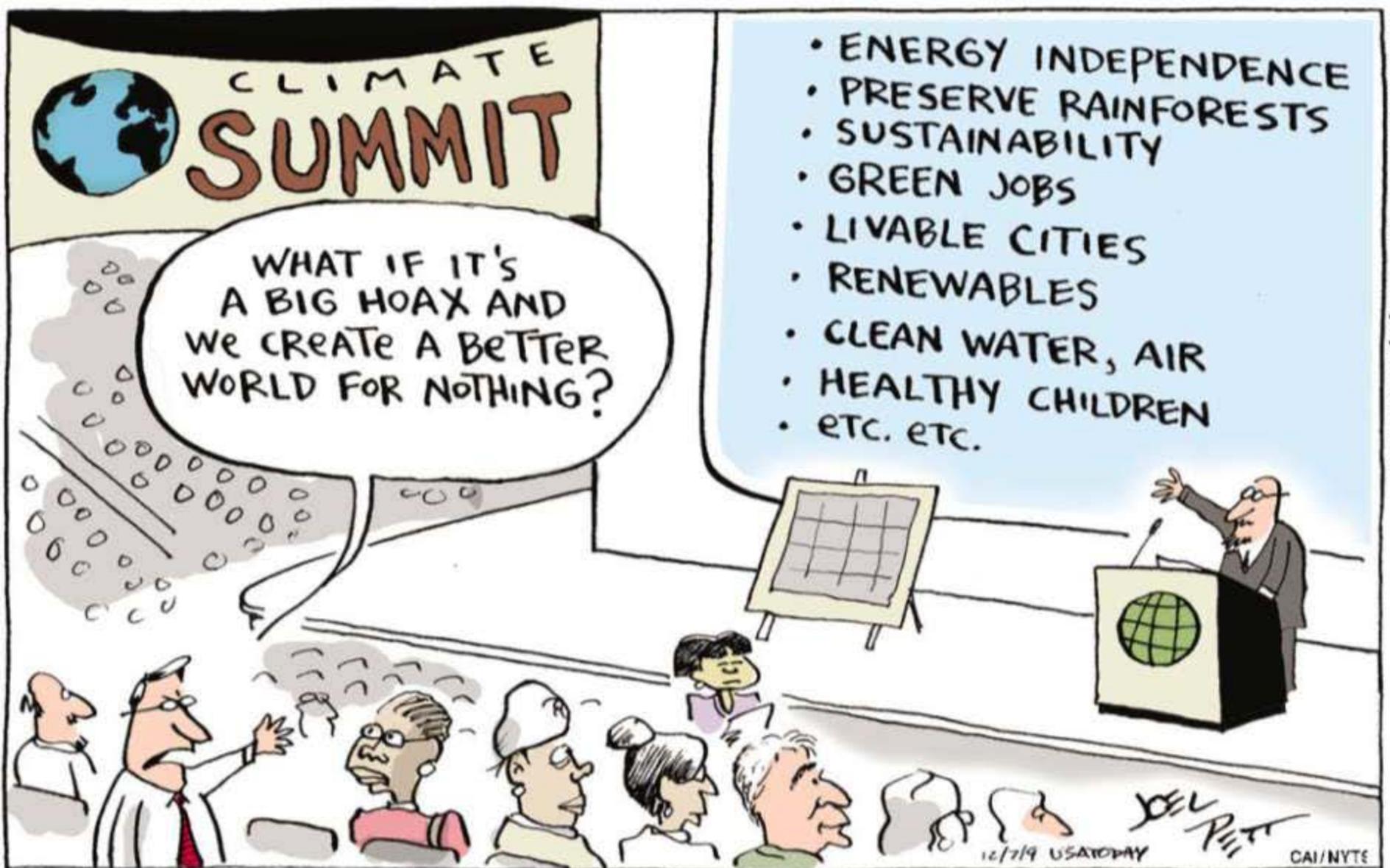


Why we do this work?

- Committed to **making change in the world**
- Emphasis on addressing **actual performance**
- Focus on **organizational drivers** and connection sustainable change
- Leverage design expertise, knowledge base, integrated solutions and thought **leadership**
- **Beyond Engineering approach** but grounded in practical solutions, understanding of how buildings work
- Commitment to **transforming the industry**

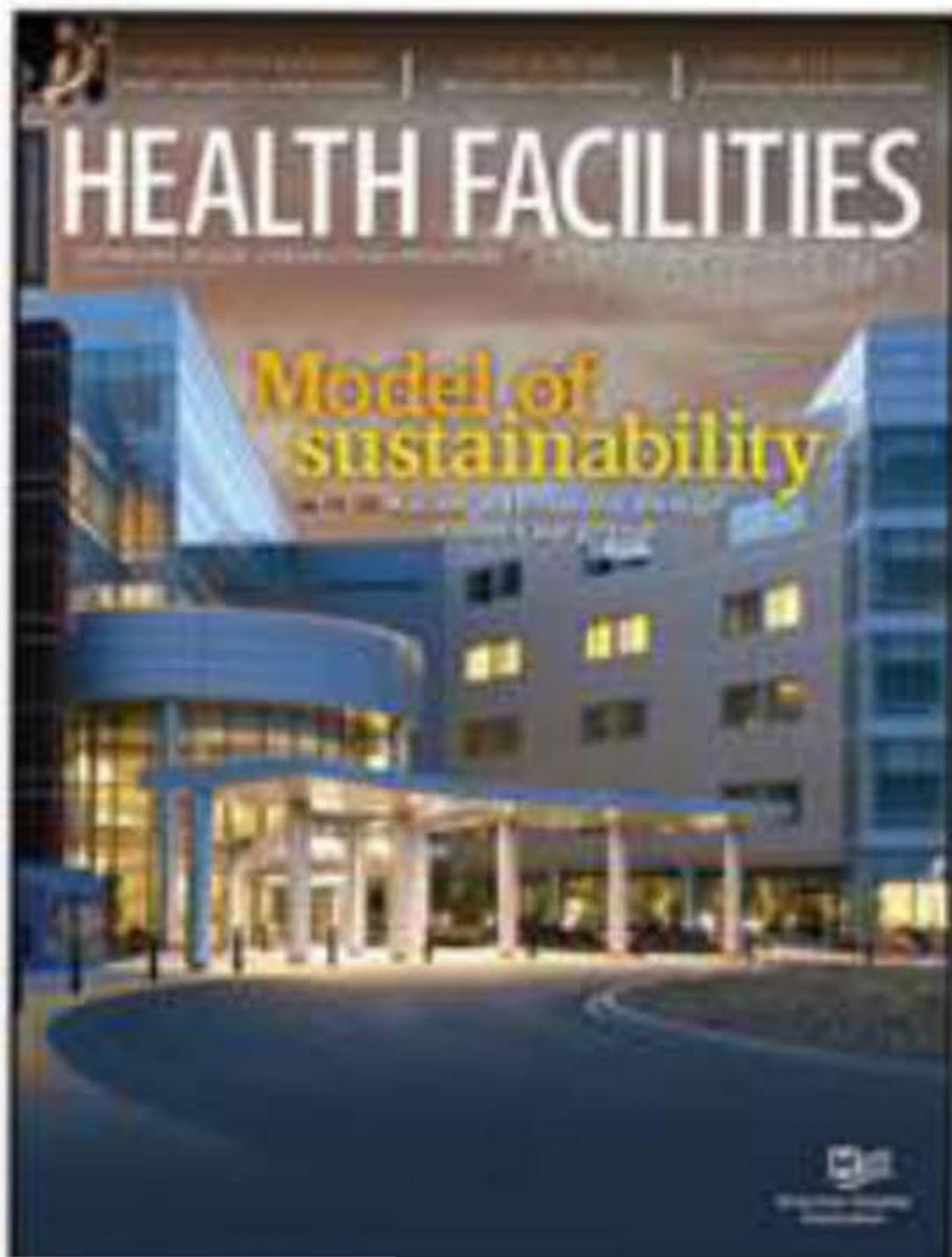


Goal(s) Today



Go on – take the leap...







Sustainable Healthcare Operations

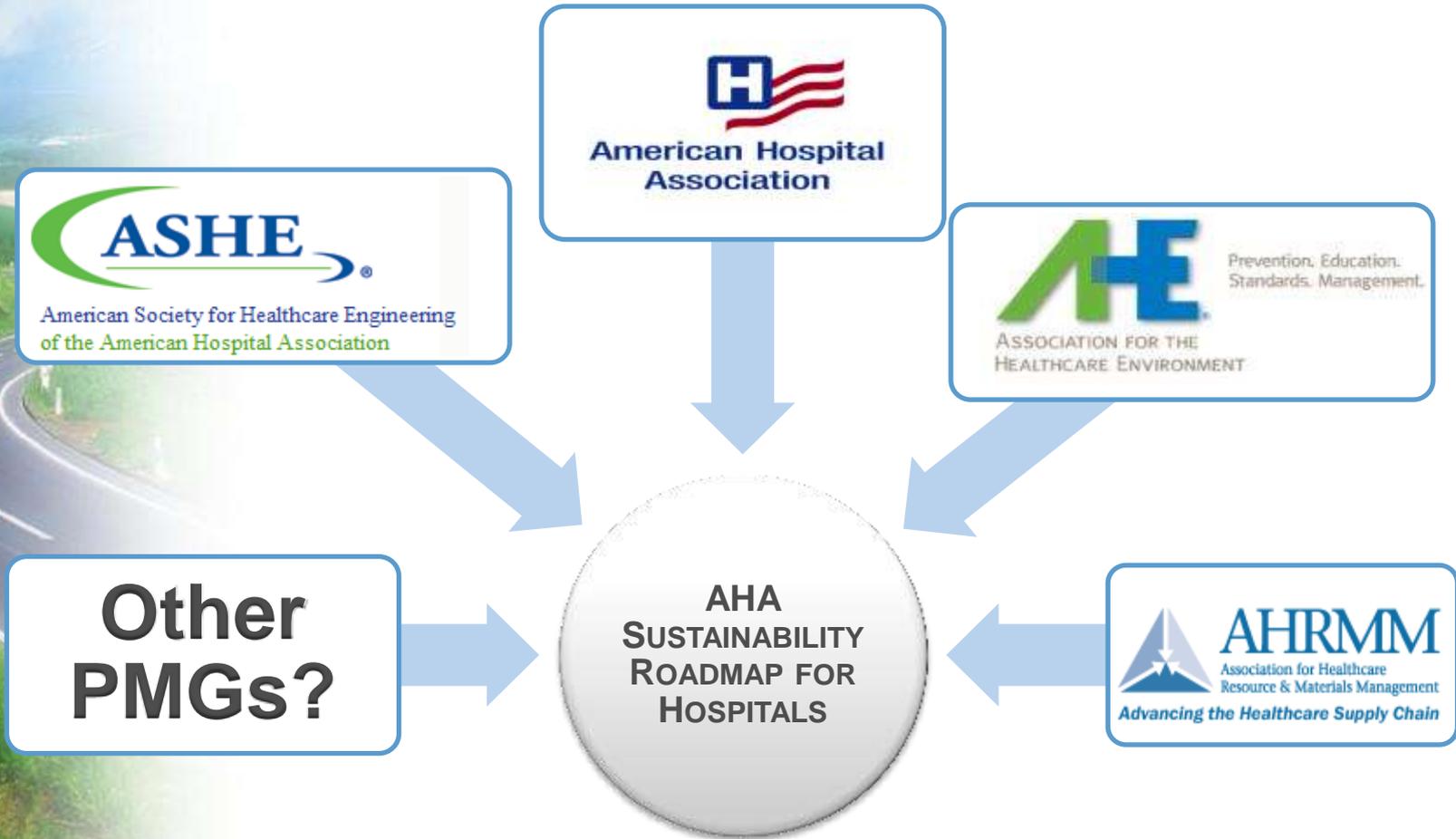




Resource Reduction and Waste Management



So how on earth do we get this done?



...Collaboration



Welcome to the Sustainability Roadmap

Today's health care leaders are approaching sustainability with many different priorities, opinions, and perspectives. Every hospital has a different mix of drivers and motivators for taking on sustainability as a goal. For some, being in compliance in a high-risk regulatory environment is a driver. Others are responding to external pressure to address environmental issues like climate change or resource conservation. Some simply want to be better environmental stewards. Most are looking for cost savings. Whatever your motivations, we can all probably agree that using less energy and less water and generating less waste can both save money and contribute to cleaner air and water and a healthier environment. The Sustainability Roadmap for Hospitals is designed to help you chart a course that responds to your organization's drivers and set targets and individualized action plans that work for your facility.

"The Roadmap is fundamentally a sharing and learning community. We welcome and encourage your participation. If you have suggestions, materials, case studies, or experiences to share, please contact us."

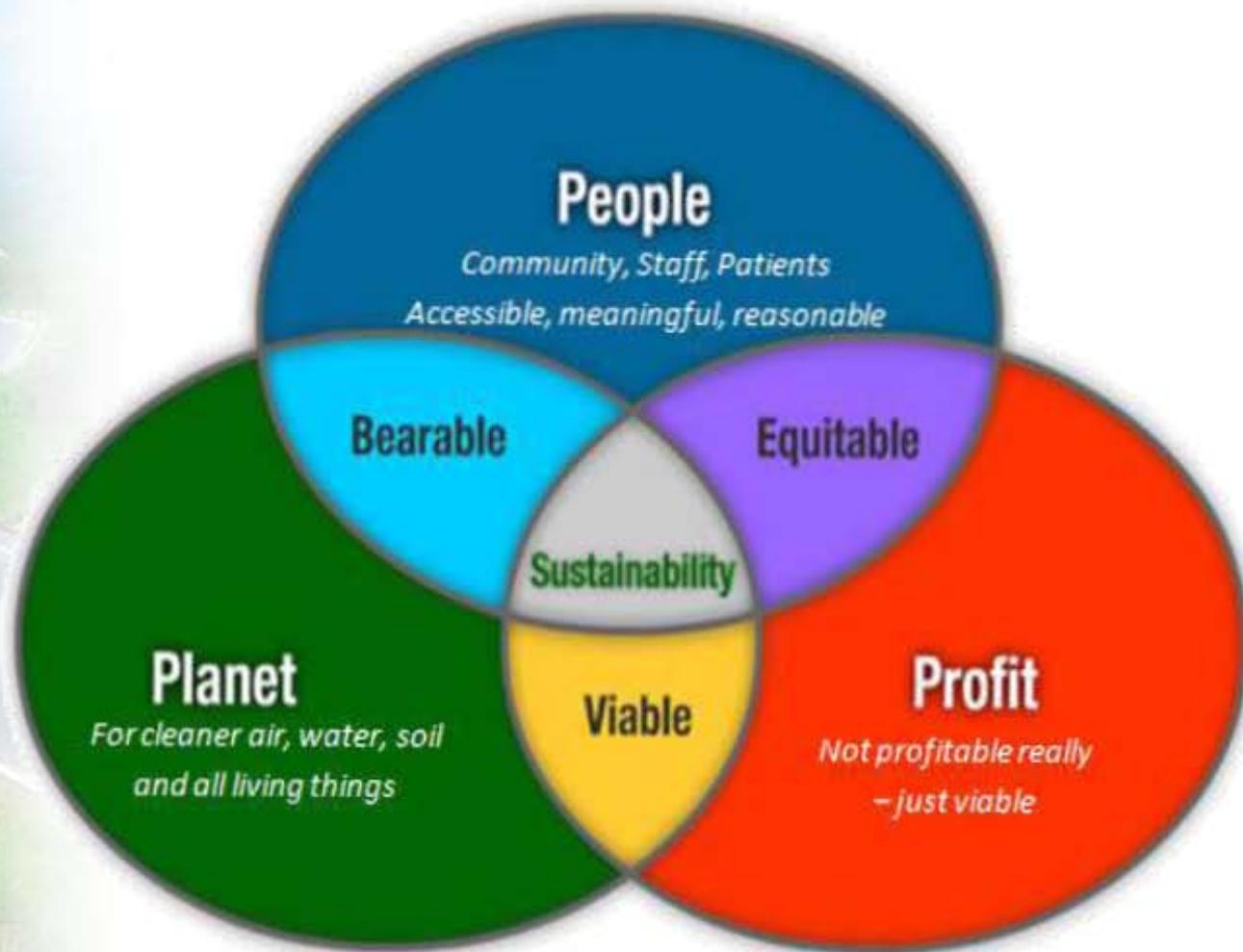
Introduction to the Roadmap

Whether you are a CEO, sustainability manager, facility engineer, supply chain director, floor nurse, administrative assistant, or anyone else interested in sustainability issues in health care, the Roadmap will enable you to learn, encourage, strategize, prioritize, and/or implement plans to achieve your organization's sustainability goals. Here is a summary of what you will find in each section of the Roadmap website:

- **About:** An introduction to the website, its sponsoring organizations' commitments, and a guide for how to use the Roadmap
- **Topics:** An overview of each main topic area, including energy, water, waste, and supply chain
- **Drivers:** A set of talking points to help you better understand the motivating factors that drive sustainability in your organization or facility
- **Strategies:** Strategic planning resources to help you set specific sustainability goals and develop short- and long-term action plans to reach those goals
- **Implementation:** How-to guides, tools, and case studies organized by topic area to assist you in the implementation and management of specific sustainability projects
- **Resources:** The Roadmap library, where you can find more in-depth information and additional resources

Homepage

Understanding Sustainability



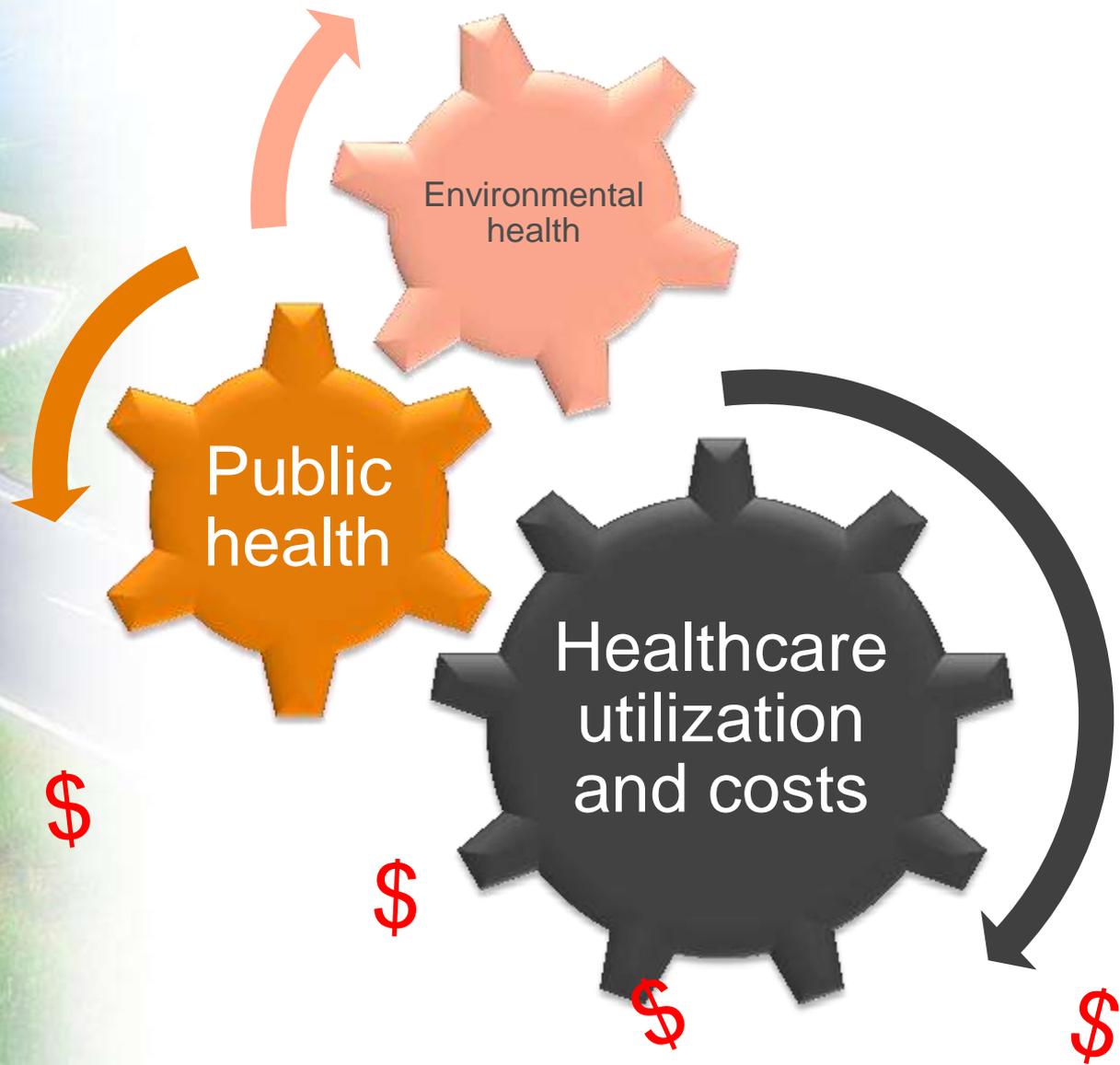
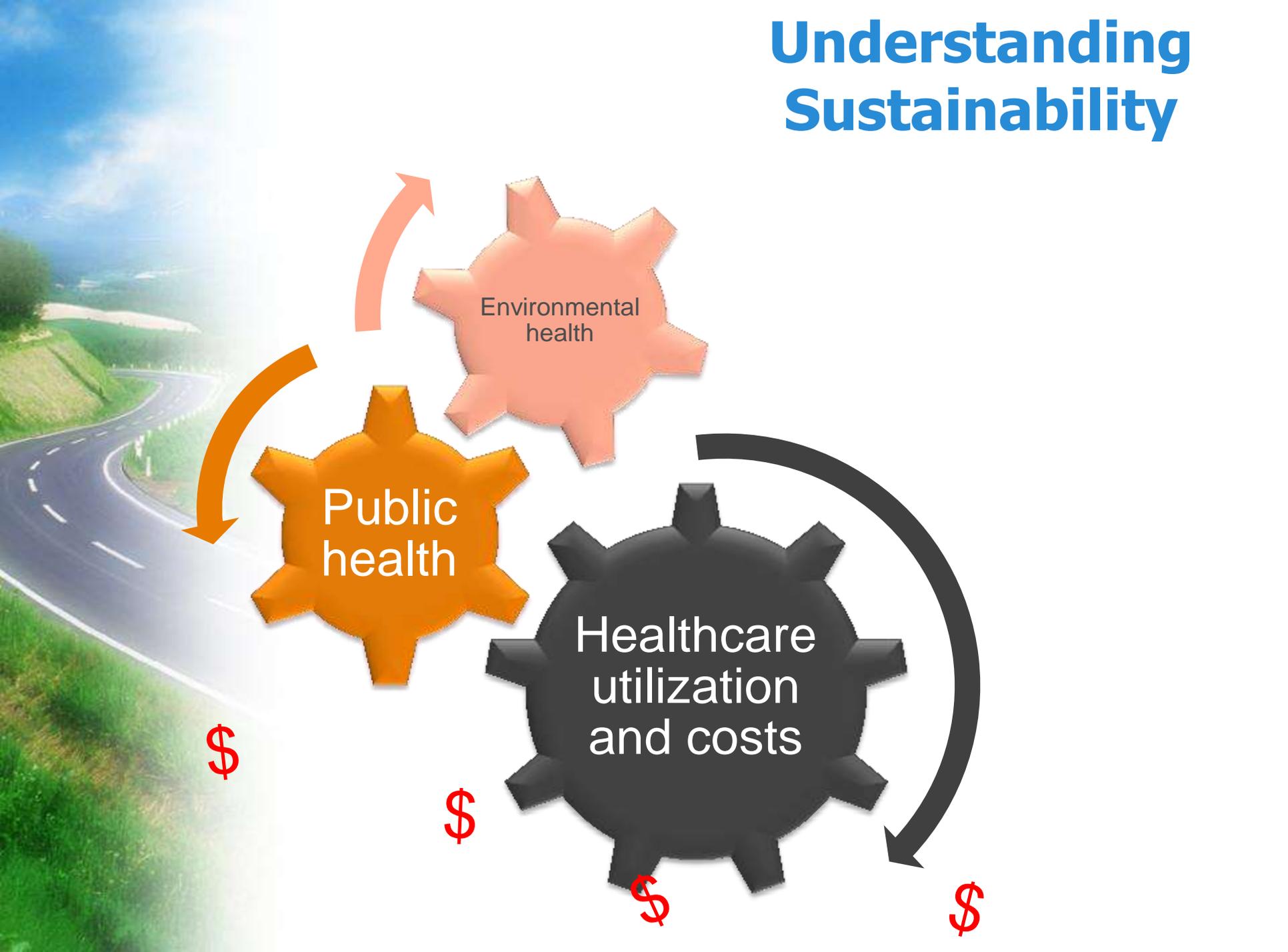
- The Triple Bottom Line

Performance Measured by:

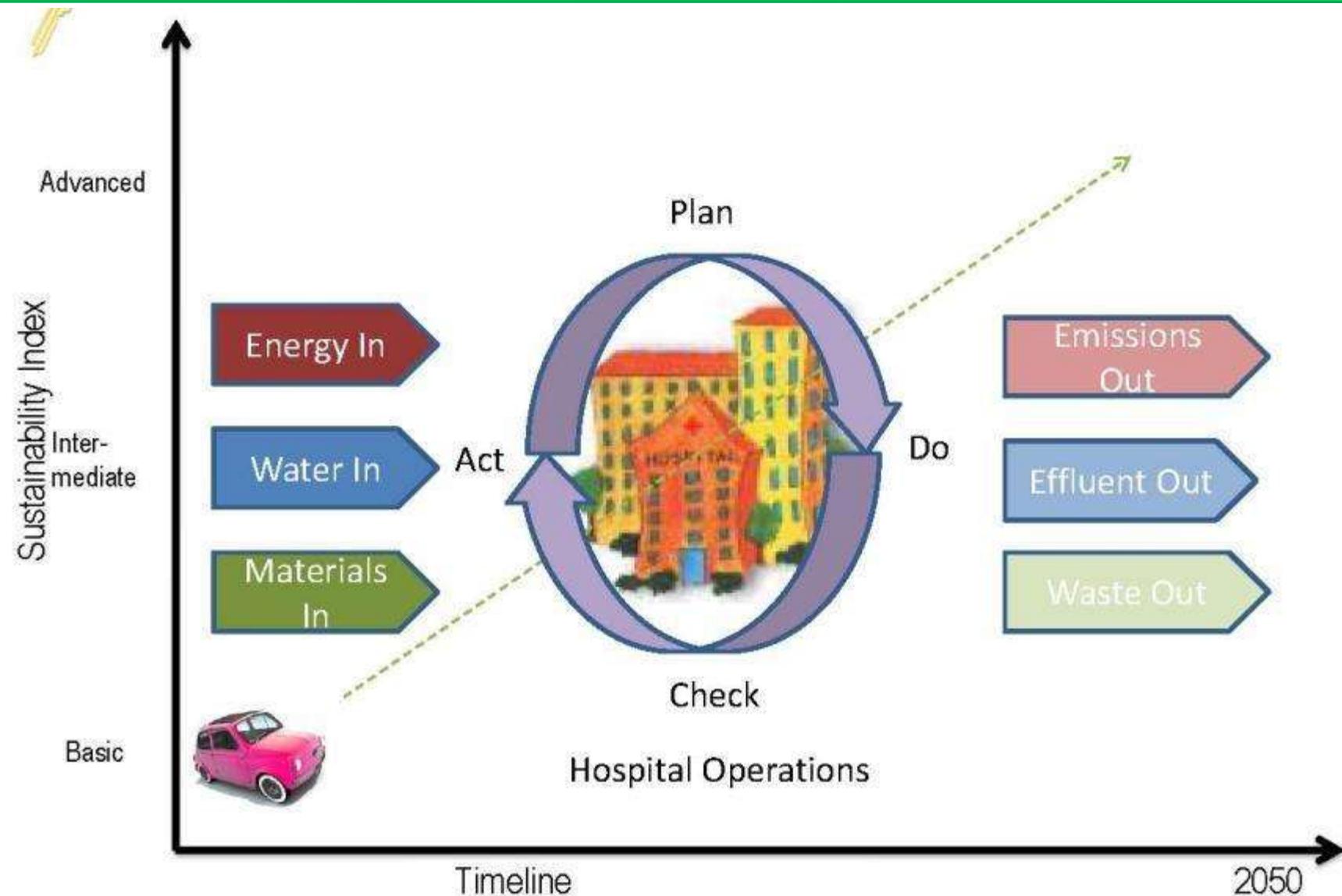
- \$\$\$ Savings
- Environmental Benefit
- Staff Satisfaction
- Quality



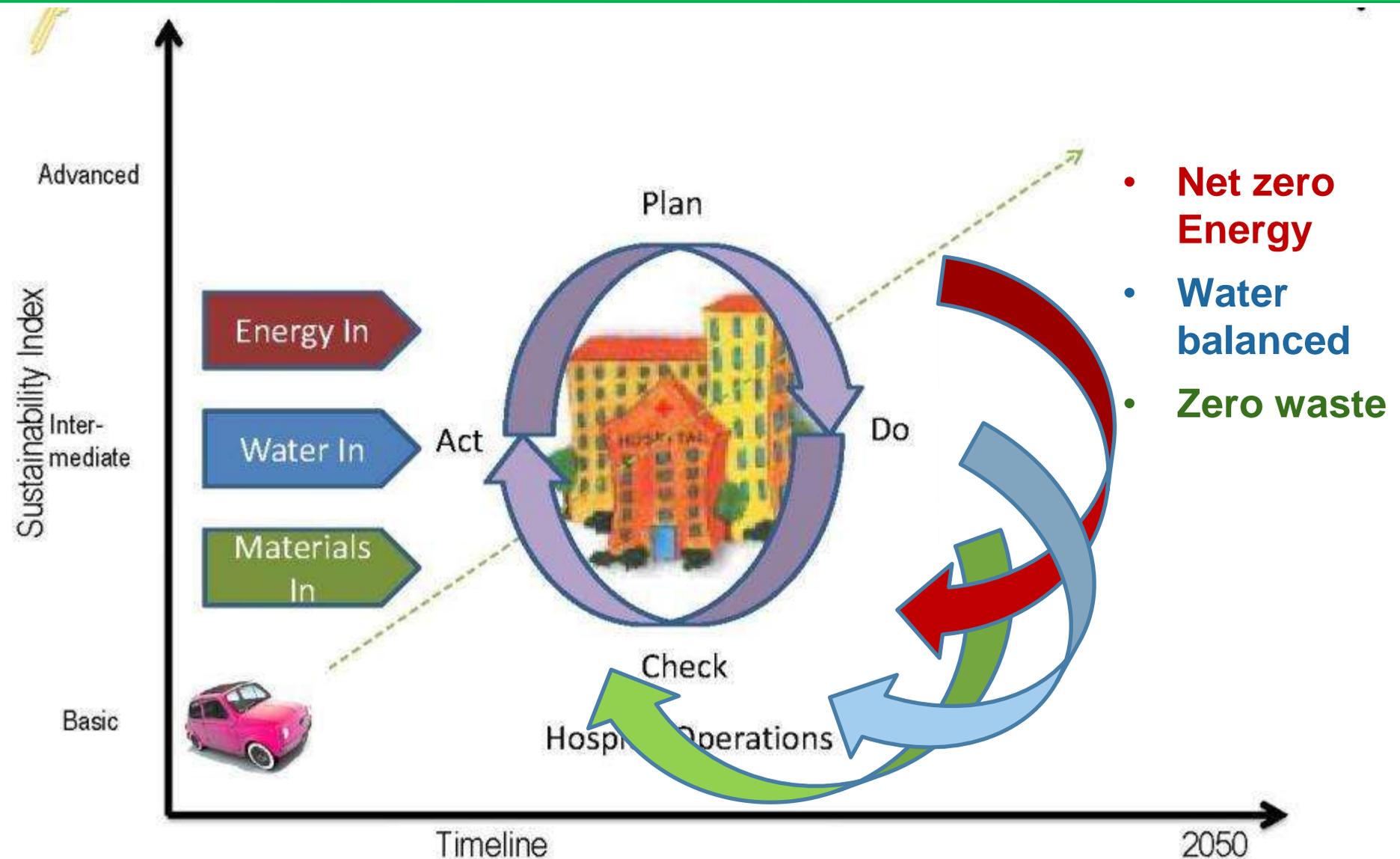
Understanding Sustainability



What does water, energy and waste balance look like?



What does water, energy and waste balance look like?



Chinese Hospital: Alternative Energy

- 100% of Domestic Water Heating via Solar Thermal On-site Generation
- If they can do it....why can't we do it?



Chinese Hospital – 100% Hot Water via Solar Heating

Water Reuse – no longer optional

...Hospitals across Australia is safely recycling water and reusing it for all non-drinking water sources”...



Vancouver Convention Centre



- Treats 100% of wastewater
- Effluent will be recycled for flush fixtures and irrigation

Navy’s “Green” Mobile Wastewater Treatment System“



- produces high-quality drinking water... meets and exceeds WHO's and EPA's drinking water standards.



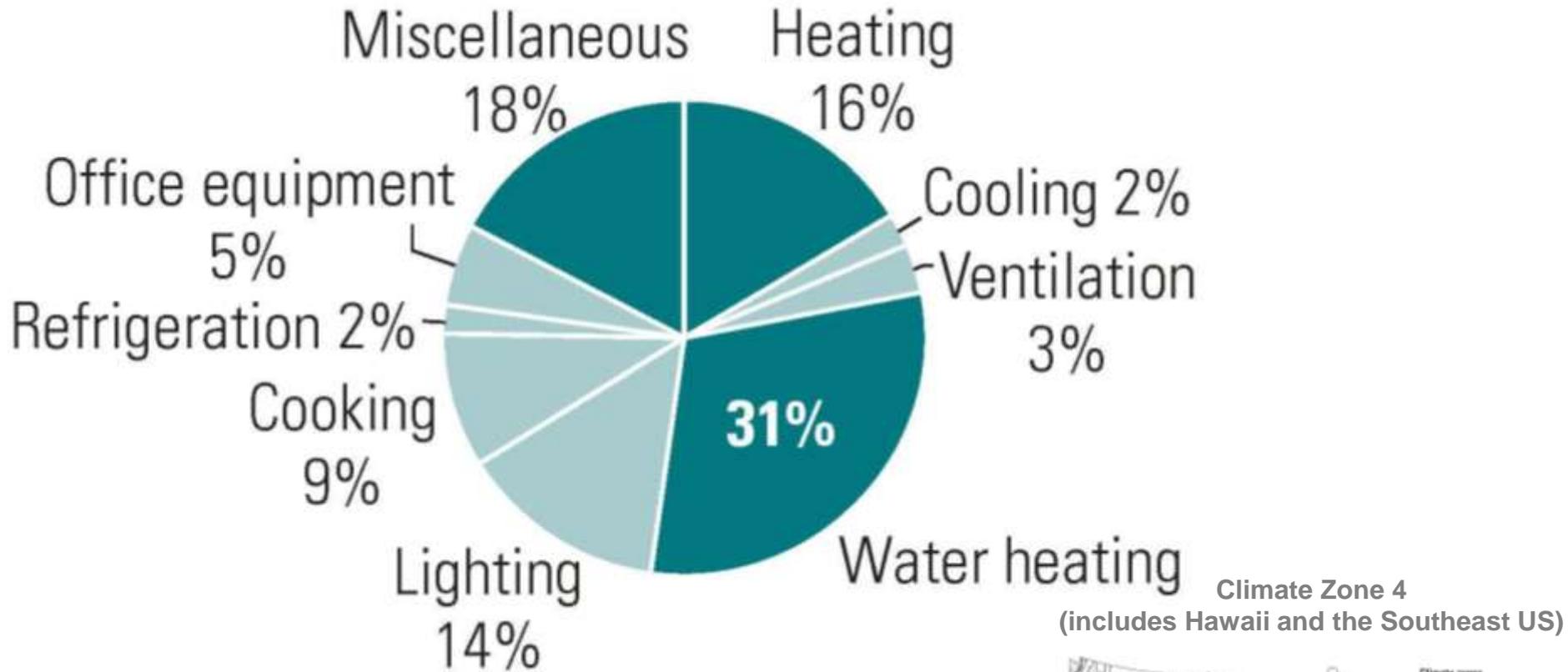
Why can't we?

“Healthcare organizations spend over \$6.5 billion on energy each year, and that amount is rising to meet patients’ needs.”

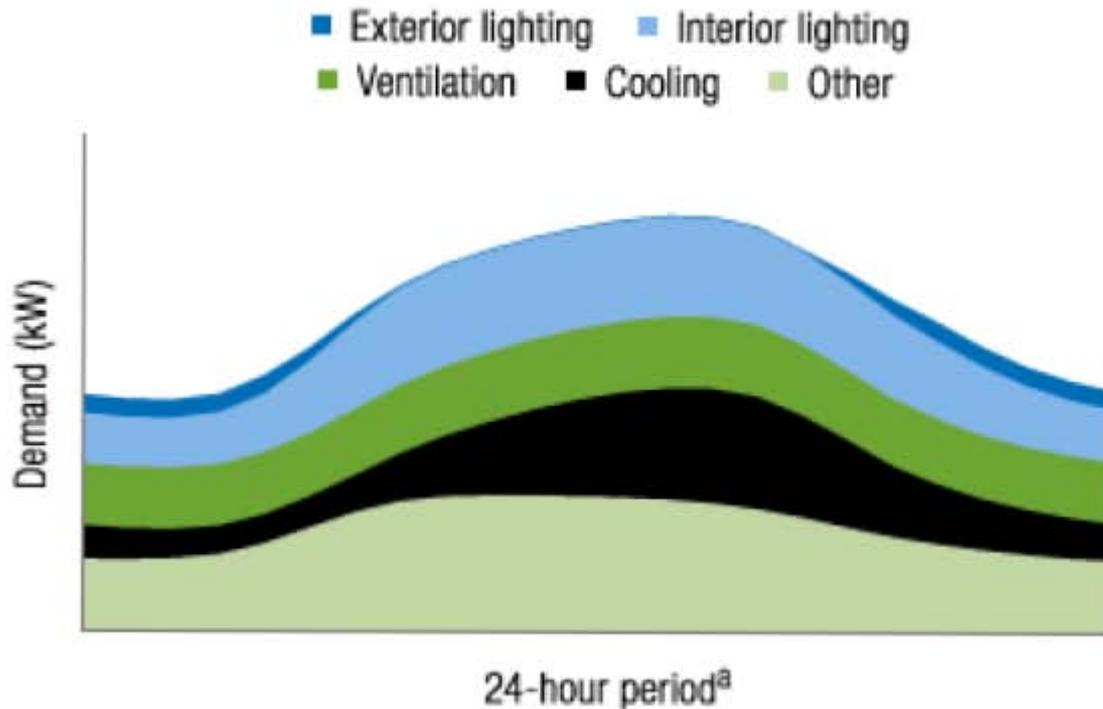
~EnergyStar



Annual Energy Consumption by Source – Hospitals



Daily Energy Consumption by Source – Hospitals



Notes: kW = kilowatt.

a. 24-hour period = midnight to midnight.

© E Source; data from ITRON



Hospitals use
approximately 68,750 to
298,013 gallons per
year per bed.

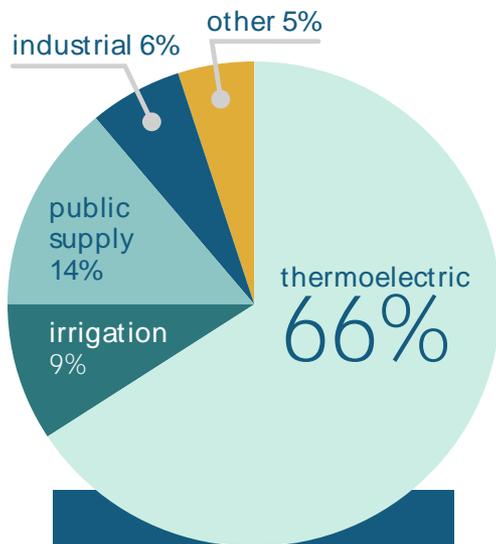
~ Practice Greenhealth





Water ↔ Energy

- Pumping and treating water requires vast amounts of energy
- Running your hot water faucet for five minutes is equivalent to running a 60-watt light bulb for 14 hours
- Water efficiency saves energy and reduces greenhouse gas emissions
- 40% of US water consumption is used to produce energy
- 25% of energy used in CA is used to pump, treat and dispose of water



**Southeastern U.S.
freshwater withdrawals**

Power plants account for two-thirds of all Southeast freshwater withdrawals.⁷⁵



And BTW

- Employ over 5.4 million people.
- Are the second largest source of private sector jobs.
- Spend about \$342 billion on goods and services from other businesses.

Health care accounts for eight percent of U.S. carbon footprint

November 10, 2009

The American health care sector accounts for nearly a tenth of the country's carbon dioxide emissions, according to a first-of-its-kind calculation of health care's carbon footprint.

Published Wednesday in the *Journal of the American Medical*

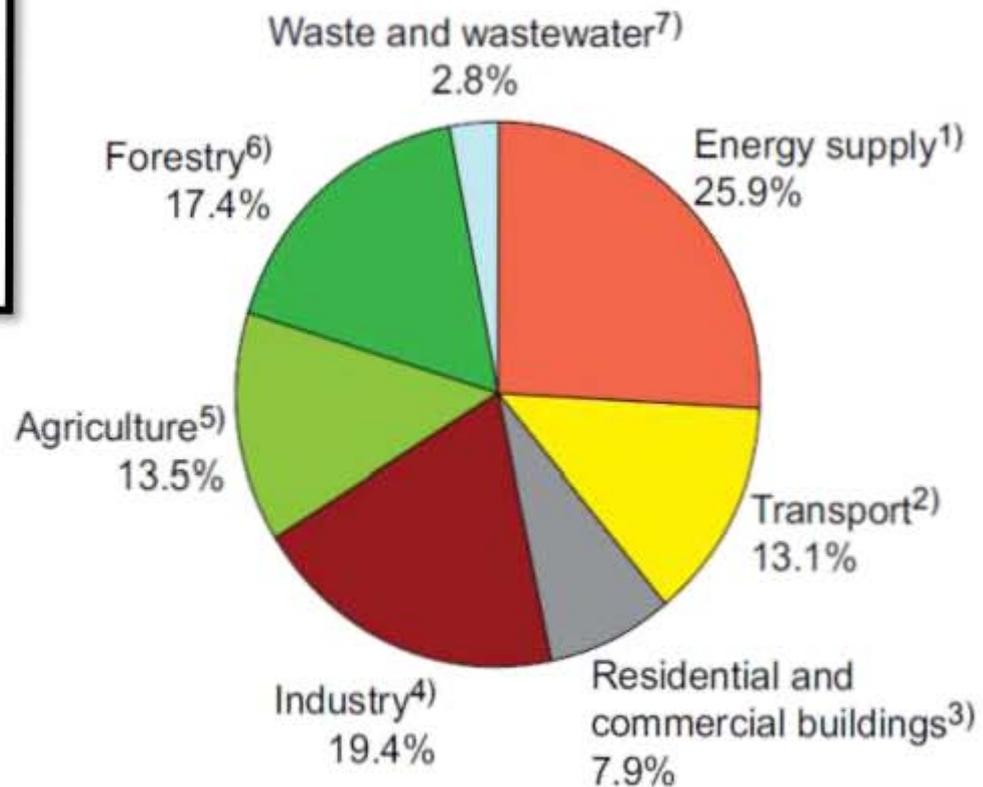
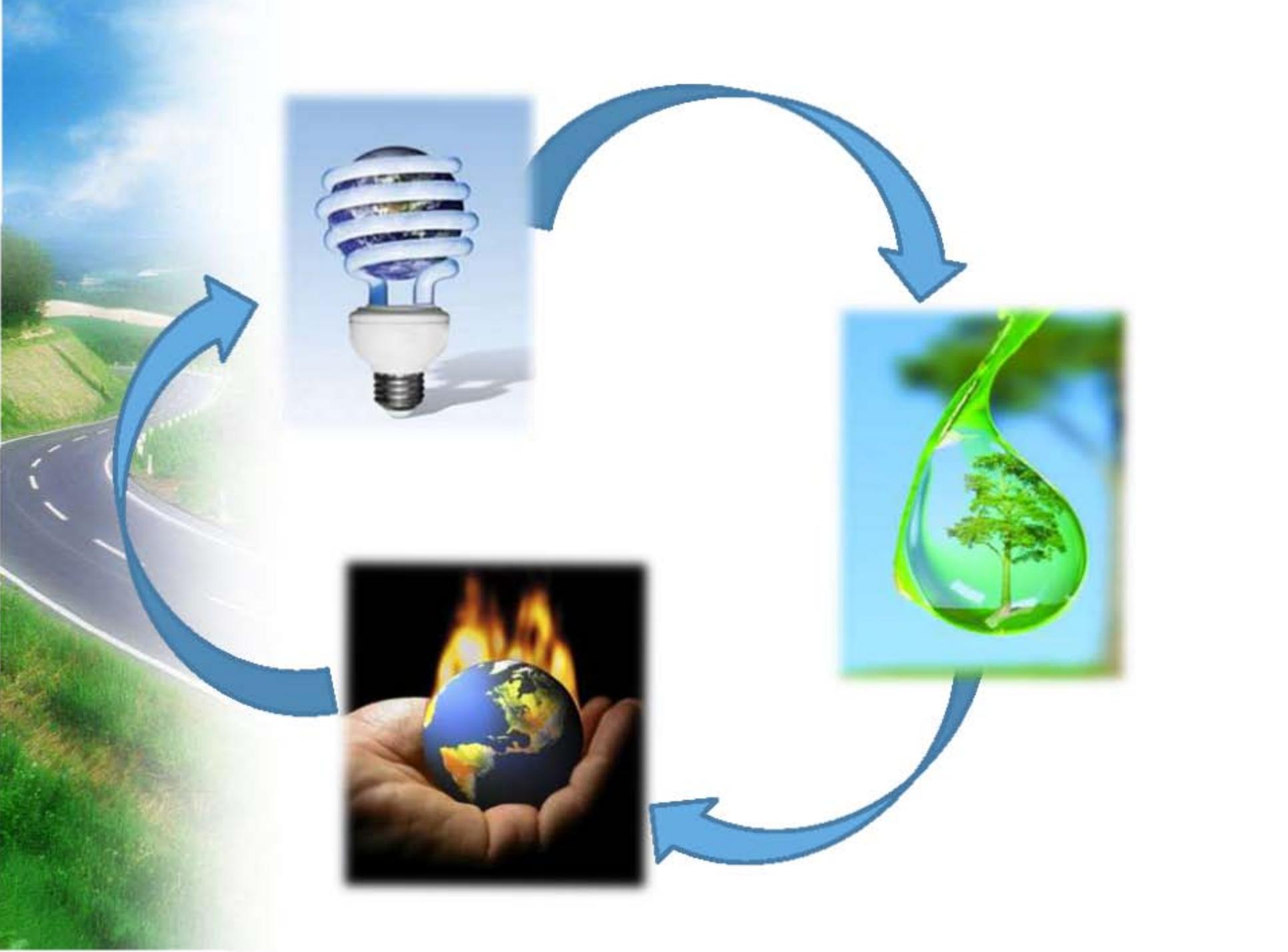


Figure 1.3b: GHG emissions by sector in 2004.

Source: Adapted from Olivier et al., 2005; 2006.







\$\$\$





LEADERSHIP



Top Issues Confronting Hospitals: 2010

ACHE Annual Surveys

Issue	2010	2009	2008
Financial challenges ★	77%	76%	77%
Healthcare reform implementation ¹	53%	53%	—
Governmental mandates ★	32%	30%	26%
Patient safety and quality ² ★	31%	32%	43%
Physician-hospital relations ★	30%	25%	32%
Care for the uninsured	28%	37%	41%
Patient satisfaction ★	16%	15%	22%
Personnel shortages ★	11%	13%	30%
Technology ★	10%	7%	9%
Capacity ★	6%	7%	16%
Governance	3%	2%	—
Issues about not-for-profit status ★	2%	1%	2%
Disaster preparedness ³ ★	< 1%	1%	1%

¹ In 2009 this issue was referred to as “implications of healthcare reform.”

² In 2008–2010 this issue was composed of both patient safety and quality. In prior years, they were two unique issues.

³ In 2008 this issue was broadened from “bio-disaster” to “disaster preparedness.”

Strategies

About Topics Drivers Strategies Implementation Resources

- » Overview
- » Building Teams
- » Leadership
- » Planning a Journey
- » Financial Strategies
- » Management Plans
- » Target-Setting Tools
- » Green Light Projects
- » Consumer Guide

Home » Strategies » Getting Leadership Support

Getting Leadership Support

Healthy organizations base their operations on business plans and sound strategies. A robust business plan incorporates a range of objectives designed to result in successful plan execution, including ways to manage costs, appeal to customers, engage employees, and position the organization for long-term viability. The growing emphasis on sustainability in organizations is exciting because it supports all of these business objectives. To fully take advantage of the opportunities, successful sustainability initiatives hinge on the participation of health care leaders.

Visit AHA's [Executive Primer on Hospital Environmental Sustainability](#), an online guide to help hospital and health system leaders learn about sustainability practices. In particular, visit the pages on [Leading the Journey](#).

Commitment to Sustainability

C-suite leaders are not in a position that calls for them to roll up their sleeves and engage in the details of energy, water, waste, or climate mitigation strategies, but they are positioned to drive an organization's actions by setting and committing to a supportive statement of sustainability goals. In general, such a statement should include the organization's motivations for change (the reasons for the commitments), the results the organization hopes to achieve, and the activities it has committed to in order to reach those goals. The facility's executive leaders, possibly including the board of trustees, should sign off on the statement. You do not have to start from scratch in drafting your documents, thanks to the following organizations that have shared theirs: [Boulder Community Hospital](#), [Dartmouth-Hitchcock Medical Center](#), and [St. Mary's Medical Center](#). [Contact us](#) to share yours.

C-suite leaders can also lead by example through visible, day-to-day personal actions.

- Dedicate the necessary human resources to coordinate and manage sustainability initiatives, a key requirement for a successful program. Sustainability managers are relatively new positions on hospital organizational charts, but they pay for themselves through the management of cost-saving measures that affect waste reduction, environmentally preferable purchasing, and energy and water reduction efforts. [Contact us](#) for sample job descriptions.
- Support the creation of a [green team](#) to ensure that issues regarding sustainability are addressed and initiatives are implemented.
- Walk the talk. Make recycling a top priority in leadership offices. Inset on double-sided copied and printed reports. Use a reusable mug, and encourage others to do the same. Bike, walk, or take public transportation to work. Even actions will be noticed—and potentially emulated—by the staff.
- Publicize the organization's actions and progress on a regular basis. This requires dedicated resources to enable information gathering and communication.
- Encourage the organization to seek recognition in the community through regular public affairs communications as well as sustainability awards and recognition programs.

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Driving Change

It's important that executive leaders understand the vocabulary of sustainability in the health care context and are able to articulate its operational and financial value. They must be informed and capable of communicating what the organization is doing to solve the problems that face all facilities. However, a leader cannot fully address sustainability without adequate support. (See the Roadmap's Resource section for a good set of [talking points](#).) It takes effective teams to create lasting change. Engaging key decision-makers and staff members—and both supporters and skeptics—from relevant departments to build functional teams is critical to every initiative and a logical place to start. See the Roadmap's page on [building teams](#) for more information.

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Financing Change

A common misconception is that "going green" always costs more, creating a barrier to taking even small and easy steps. Leaders play a unique and critical role in providing vision and guidance on this front. Although some sustainability initiatives require creative funding strategies, most pay for themselves with excellent return on investment (ROI) in a relatively short period. Other paybacks are realized in less obvious but no less important ways, such as fewer employee sick days and improved patient recovery time. For more information, see the following resources:

- [AHA Executive Primer Web page on financing initiatives](#)
- [The Business Case for Greening the Health Care Sector](#) is a report prepared by Practice Greenhealth and the Institute for Innovation in Large Organizations. It is available for download at www.practicegreenhealth.org/private/library_resource/365.
- [The Cost of Green Revisited](#), a report available from davislangdon.com, summarizes the real vs. perceived costs of "going green."

Commitment to Sustainability
Driving Change
Financing Change
Resources

From the Harvard Business Review

Why Sustainability is Now the Key Driver of Innovation

- Sustainability is not the burden on bottom lines that many executives believe it to be. In fact, becoming environmentally friendly can lower your costs and increase your revenues. Because of this, sustainability should be a touchstone for all innovation.
- In the future, only companies that make sustainability a goal will achieve competitive advantage, this means rethinking business models as well as products, technologies, and processes.



Hospital Environmental Sustainability

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Getting Started

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Benefits

Leading

Resources

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Sustainability (noun): "the ability to meet present needs without compromising the ability of future generations to meet their needs." ¹

The Executive Primer on Hospital Environmental Sustainability is an [American Hospital Association](#) (AHA) leadership guide for hospital and health system leaders.

Video Introduction by Rich Umbdenstock



The [vision](#) of the AHA is a society of healthy communities where all individuals reach their highest potential for health. One of the many ways to achieve this vision is through actions that make our hospitals more sustainable – environmentally, financially and operationally.



Executive Primer:

This guide was developed by the [American Hospital Association](#) to help hospital and health system leaders learn about environmentally sustainable practices, and how they can help advance mission and performance excellence goals.

Brought to you by...

This project was made possible through the generous support of [Hospira, Inc.](#)



[See also...](#)
a sustainability operations guide for

www.hospitalsustainability.org/

Environmental Stewardship

Hospital Sisters Health System



St. Mary's Hospital
MEDICAL CENTER • GREEN BAY, WI

SAMPLE

Statement of Environmental Principles

We, Sustainable General Hospital (SGH), affirm our commitment to promote healthier communities both locally and globally, and to be an environmental leader in all aspects of our buildings and operations in a manner demonstrably protective of environmental and human health.

SGH recognizes the critical link between human health and the health of the environment, and will seek new and innovative ways to improve environmental performance through conservation, purchasing, reduction, re-use and recycling programs, and through partnership with others in the community to safeguard the environment.

SGH will apply these principles to achieve optimal environmental standards consistent with our mission, including our commitments to clinical excellence, community benefit, and fiscal responsibility.

In an effort to respect and protect the earth's resources, restore environmental quality, and protect human health, SGH will:

- Instill environmental responsibility as a corporate value.
- Incorporate environmental considerations and total facility life-cycle analysis into building design, construction, and renovation strategies.
- Minimize the generation of waste through source reduction, re-use, and recycling programs.
- Manage, minimize, and eliminate—where possible—the use of hazardous materials.
- Strive to purchase and utilize environmentally preferable products and services.

- Conserve energy/water and improve the energy/water efficiency of our operations. Make every effort to use and promote environmentally safe, cost-effective, and sustainable energy sources.
- Evaluate and minimize each aspect of our organization's impact on global climate change.
- Use renewable natural resources and conserve non-renewable natural resources through efficient use and cost-effective and careful planning.
- Employ prevention strategies to minimize negative environmental impacts we cannot eliminate.
- Ensure the health and safety of our employees by promoting safe work practices, reducing exposure to hazardous substances, and using the safest technologies and processes.
- Provide employees with safety and environmental information through training and education programs that enable and encourage them to make work practice decisions in support of these principles.
- Set annual goals and develop action plans to continuously improve the quality and measurable outcomes of our environmental programs.
- Monitor, evaluate, and report on our practices as they relate to these environmental principles.



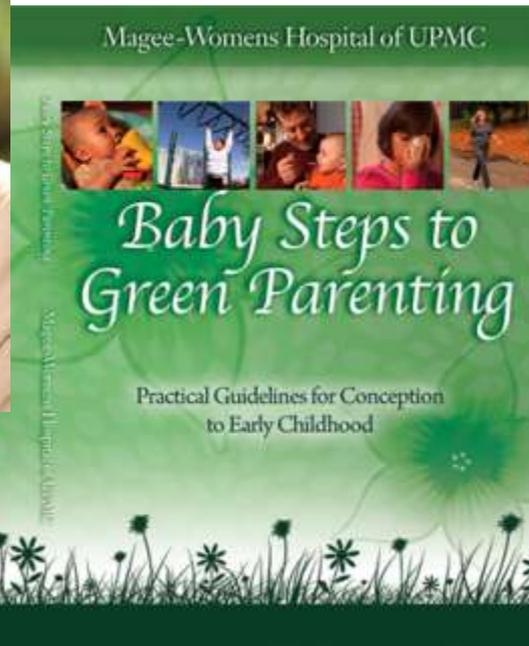
FOR MORE INFORMATION, CONTACT:

HOSPITALS
for a
HEALTHY
ENVIRONMENT

P.O. Box 376
One Lyme Common
Lyme, NH 03768

Phone: 603-795-9946
Fax: 866-379-8705
www.h2e.org

Leadership - Magee Women's Hospital



*“Sustainability is intimately connected to supporting **healthy families and healthy communities**. Green hospitals reduce carbon emissions, waste and air pollution. They reduce air contaminants that may contribute to asthma and hospital acquired infections. Patients exposed to green spaces heal faster and go home more quickly. And studies have shown an increase in employee morale, and a decrease in nursing errors for staff working in Green hospitals.”* **Leslie Davis, President, Magee-Womens Hospital of UPMC**

<http://www.upmc.com/HospitalsFacilities/Hospitals/Magee/aboutus/Pages/environmental-initiatives.aspx> .

Strategies

- » Overview
- » Building Teams
- » Leadership
- » Planning a Journey
- » Financial Strategies
- » Management Plans
- » Target-Setting Tools
- » Green Light Projects
- » Consumer Guide

About Topics Drivers Strategies Implementation Resources

Home > Strategies > Green Teams

Building Sustainability Teams

Implementing sustainability initiatives requires participation from individuals and departments throughout an organization, from senior leadership to front-line workers. Like any organization-wide effort, successful sustainability programs require skilled, accountable staff, adequate resources to meet organizational goals, and a clear understanding of roles and responsibilities across the organization.

Often, responsibilities for sustainability programs are decentralized, which makes successful implementation of institutional goals and action plans a challenge. This section of the Roadmap website suggests various methods for creating committees or teams, but the main objective of each approach is to create a framework that brings together decision-makers and those who implement their decisions in order to effect change.

The distinct layers of leadership found in highly functioning sustainability programs are briefly outlined below, diagrammed in the accompanying figure, and described in greater detail on other pages of this website.

1. **Sustainability Leadership Council (SLC):** This group comprises representatives of an organization's senior leadership who have the authority to approve high-level institutional initiatives and allocate financial resources to those commitments.
2. **Sustainability Committee/Green Team (Ecology or Environmental Committee):** A green team is sometimes broken up into subcommittees on energy, water, waste, and purchasing. These committees consist of director-level representatives from departments responsible for implementing various sustainability programs and then operating them day-to-day.
3. **Value Analysis Committee:** This team is commonly found on supply chain organizational charts. It provides a systematic approach to the selection of products and services purchased, addressing any number of supply chain performance issues (e.g., cost, utilization, effectiveness, new technologies, operations, etc.). Adding sustainability criteria to the selection of products and services is an easy way to integrate basic EPP (environmentally preferable purchasing) principles and should be part of every value analysis team process.
4. **Departmental Sustainability Coordinators:** These department-level coordinators or champions have limited communication and implementation responsibilities within the department.

Sustainability Leadership Council
Sustainability Committee/Green Team
Sustainability Value Analysis Committee
Departmental Sustainability Coordinators



Departmental Sustainability Coordinators

Recruiting staff in every department to help manage sustainability initiatives is a great way to help sustainability directors stretch limited resources. This decentralizes some of the responsibility to the departmental level, where it can be more efficiently and effectively implemented. Coordinators serve as point people to provide critical communication and operational links to all staff. This organizational structure offers the potential for substantial benefits, and it is relatively easy to implement by taking the following three steps.

STEP ONE: Determine the role of the sustainability coordinator and develop a "task description."

This role can be expanded to oversee any related sustainability effort from purchasing to energy education to basic hazardous materials functions, including MSDS (material safety data sheets) management in the department.

Sample Sustainability Coordinator Task Description

1. Serve as a resource on recycling and waste management questions, energy and water conservation, environmentally preferable purchasing (EPP), or other initiatives.
2. Coordinate e-mails, updates, and newsletters to communicate minimization or conservation efforts, including successes and areas needing improvement.
3. Monitor containers for proper waste segregation and recycling.
 - Recycling bins:
 - Make sure all recycling bins are properly labeled.
 - Request additional bins as needed.
 - Assess proper placement and location of bins to encourage recycling.
 - Red bag waste containers:
 - Ensure all staff members are aware of the red bag minimization program.
 - Assess whether proper procedures are being followed, and report successes and problems to staff
4. Help share information about projects—energy, water, and waste. With such communication, the projects will be better understood and their related changes are more likely to be practiced throughout the organization. For example, changes in lighting or plumbing fixtures should be explained so the staff knows what to expect in terms of difference in use, performance, and maintenance.

Suggested Coordinator Responsibilities

- *Serve as communication liaison with the primary sustainability director.* Coordinators can regularly send e-mail updates communicating how the facility is doing with its sustainability efforts, including what is going well and what problems have emerged that need to be addressed. Coordinators would communicate this information to staff via meetings, flyers, e-mail, and word-of-mouth.
- *Monitor waste containers for proper placement and labeling.* Waste containers with requisite bin labels should be placed where they will encourage proper waste segregation and recycling.
- *Implement education programs.* Coordinators can make sure that staff is aware of red bag minimization programs, recycling procedures, proper hazardous waste disposal procedures, energy conservation measures, and so on. They should report successes and problems to department staff.
- *Serve as department resource for other sustainability efforts.* Departmental staff should know who the coordinator is and that he or she is the appropriate person to field questions. Coordinators are also the primary liaison with environmental services (housekeeping) staff and supervisors in the department.



STEP TWO: Recruit staff.

Explain the initiatives to department directors, and ask them to assign staff to the task. The best coordinators are people who care about the issues.

A department or area can have as many sustainability coordinators as necessary to make the job manageable for the given department. Some departments have a main coordinator who in turn passes information to other key people. Others may have more than one coordinator if size warrants or if the coordinator doesn't have access to evening/night and weekend staff. For most departments, one coordinator should be sufficient.

The number of coordinators a department needs can generally be determined by answering the following questions:

- Is the department too large for one coordinator to effectively handle all responsibilities?
- Are evening/night and weekend staff members getting the information they need to make good decisions?
- Are there staff meetings the coordinator does not attend?

After determining staffing needs, gather information to create a spreadsheet that includes coordinator name, department, floor/area, e-mail, phone, housekeeping supervisor name, etc. The spreadsheet should allow sorting the information so the data can work well for each team member. Supervisors can also recruit staff and help keep lists updated.

STEP THREE: Launch your program.

Let staff know who has been designated as the sustainability coordinator for each department. Consider sending out a packet of fliers or other training materials for the coordinators to post. Make sure they understand what is being asked of them and what resources are available to help them coordinate efforts in their areas. Encourage coordinators to discuss waste management, energy savings, and other sustainability issues at staff meetings. Even better, have the coordinators arrange a tour with the sustainability directors of trash areas, energy management areas, pharmacy, etc. to illustrate best practices and areas of improvement.

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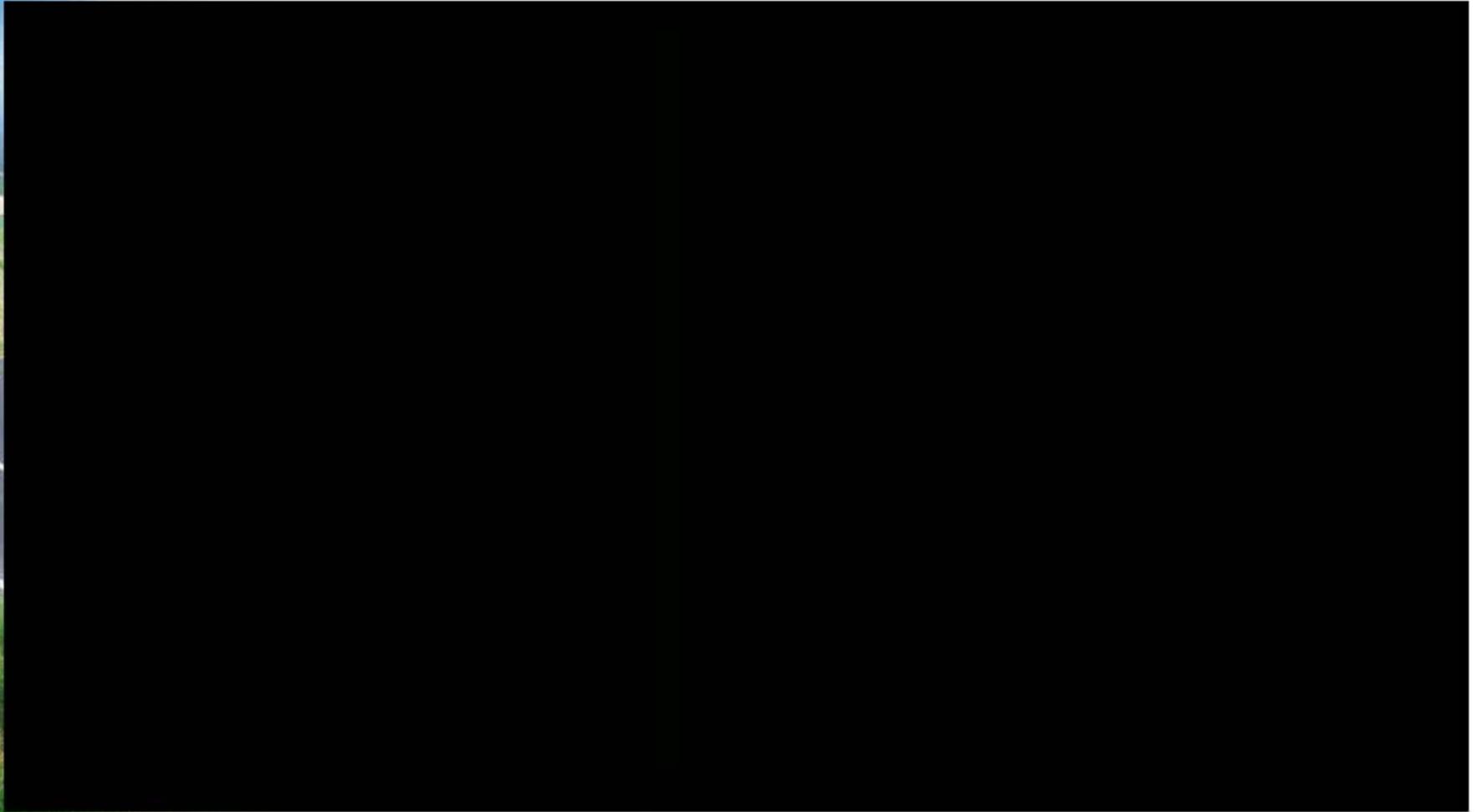
Let's Talk Trash

or energy or water or chemicals...



MedSurg 4 Sustainability Coordinator:
Summer Greenleaf, beeper 7373

The Recycling Police?



Roadmap Tools

Finance Tools



A Practical Guide to Waste Data Collection

You can't manage what you don't really know you have. You can't set target goals if you don't know where you're starting from. You can't develop action plans and financial improvements, if you don't know what you're starting from. You can't develop action plans and financial improvements, if you don't know what you're starting from.

Waste data collection and tracking program can feel like a lot of time spent initiating the project, while the most common complaint is that you don't get the most out of the program. Many new users report that the following is a step-by-step approach to getting the most out of your program in the first year to improve your operations and reduce your costs.

Your Waste

Most every type of waste category imaginable. To get the most out of your program, it is important to understand the general main categories of waste and what department might have responsibility for it. This includes management of contracts and invoices, tracking, operations include Environmental Services, Safety, EHS, Safety Office, Lab Safety Office. Table 1 is a list of waste types, their definitions, treatment and disposal methods, and you'll learn a lot.

Waste Category	Annual Total Cost
-	\$ -
-	\$ -
-	\$ -
Realized	Annual Total Cost

Information

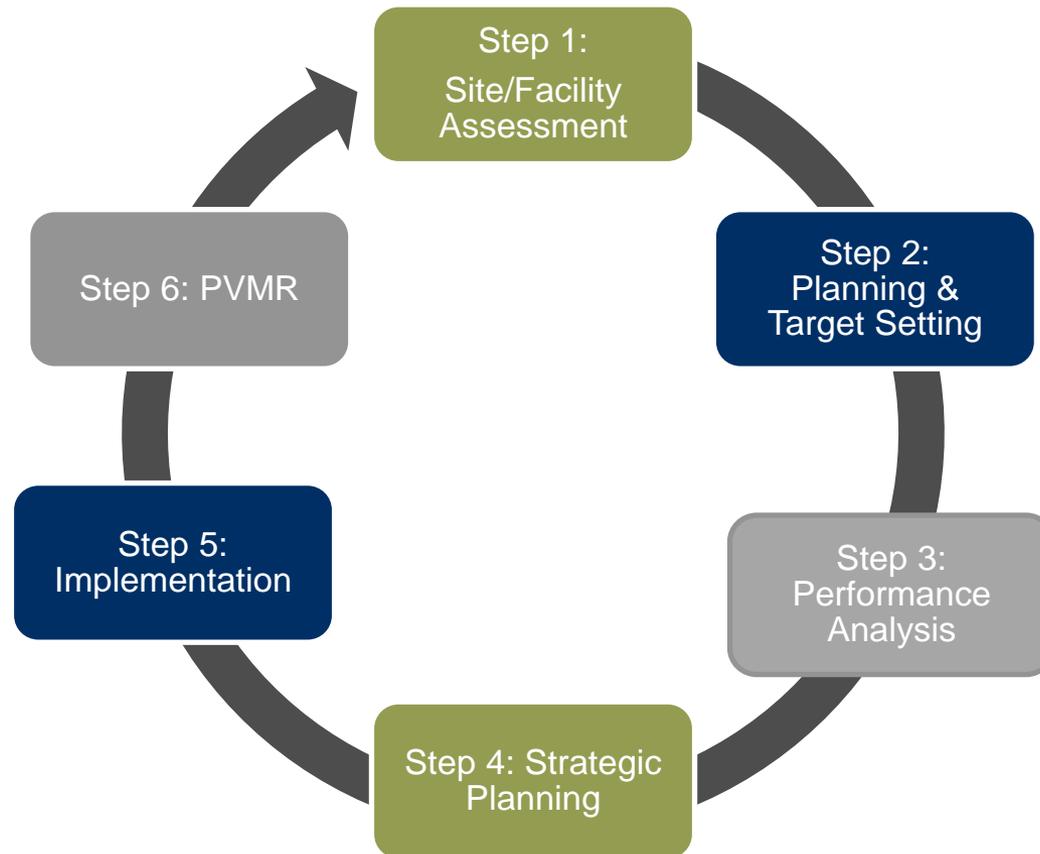
Information	Treatment and Disposal Issues
Waste that is not hazardous, infectious, or radioactive (includes some food waste, construction and demolition waste) (although those too should be recycled)	Landfill or municipal solid waste incinerator*
Waste that is hazardous, infectious, or radioactive (includes some food waste, construction and demolition waste) (although those too should be recycled)	Most recyclers take a range of recyclables. But it's not unusual to have multiple vendors for recycling, reuse and donation. • Objective: total cost of program should be less than landfill costs (i.e. avoided landfill costs pay for the program)
Waste that have a significant potential for leaching or require special handling due to state regulations, and restrictions.	• Requires treatment to kill pathogens, like autoclave, microwave, incineration* • 10% of total RMW is path waste that may require incineration* by regulation
Waste containing flammable, reactive chemicals. Also includes hazardous category, "listed" chemicals, facility chemicals regulated by RCRA.	Managed according to OSHA, EPA and local and state regulations and shipped off-site for proper disposal.
Waste that is the RCRA definition of hazardous waste (includes some food waste, construction and demolition waste) (although those too should be recycled). Eg. batteries, mercury containing items.	Managed by a permitted hauler. www.epa.gov/epaoswer/hazwaste/d /unlvwest.htm

to reduce environmental and health impacts

Project Name	Sample Project
Initial investment	\$100,000
Implementation costs	\$20,000
Other initial costs	\$7,000
Available Incentives (optional)	\$1,000
Total Project Initial Cost	\$72,000
Ongoing support costs	\$1,000
Estimated Annual Electricity Cost Savings	\$19,000
Estimated Annual Natural Gas Cost Savings	\$0
O&M Cost Savings	\$2,000
Additional Annual Savings	\$300
Expected Project Life (years)	10
Cost of Capital (%)	11%
*Electricity Cost Escalation (%)	1.9%
**Natural Gas Cost Escalation (%)	3.2%
**Corporate Tax Rate (%)	33%
Simple Payback	5.96
Discounted Payback	9.92
NPV	\$886
IRR	11%
Impact on bottom line (year 1)	\$8,901

A WORK IN PROGRESS: It is the intention of the Roadmap to continue to build on these Performance Improvement Measures. If you have any resources to contribute, including write a case study, please contact

Six Step Process





Step 1 -Assessment

- Organizational readiness— understand drivers, barriers
- Collect data -- Water, Energy, Waste
- Audits - rounds and policy



Targeting 100!

Envisioning the High Performance Hospital: Implications for A New, Low Energy, High Performance Prototype

Executive Summary

University of Washington's Integrated Design Lab

Northwest Energy Efficiency Alliance's (NEEA) BetterBuilds Initiative

Heather Burpee & Joel Loveland

NEE's Institute for Building Science, Architecture and Engineering
 The GreenSource
 University of Washington
 Northwest Energy Efficiency Alliance

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Waste Stream Target Setting Worksheet - Basic, Intermediate, Advanced Strategies

Name of Hospital/Facility: _____

Number Staffed Beds: 425

\$0.00 \$0.000

Waste Handling Expenses

CATEGORY	Enter cost/ton or lb	
	\$/ton	\$/lb.
Solid Waste (MSW)	\$56.00	\$0.028
C&D (bulk - MSW)	\$90.00	\$0.045
C&D (bulk - recycling)	\$0.00	\$0.000
RMW #1	\$640.00	\$0.320
RMW #2	\$550.00	\$0.275
HW #1	\$1,000.00	\$0.500
HW #2 (UW)	\$0.00	\$0.000
HW #3 - Pharmaceuticals	\$800.00	\$0.400
Recycling	\$0.00	\$0.000
OCC- Cardboard	-\$10.00	-\$0.005
HIPPA-Paper	\$20.00	\$0.010
Recycling - Single Stream	\$0.00	\$0.000
Recycling - Other	\$0.00	\$0.000
Donation	\$5.00	\$0.003
Compost	\$0.00	\$0.000
Source Reduction	\$0.00	\$0.000

ONLY ENTER DATA IN WHITE CELLS

For BASELINE *either* enter the cost per/lb *or* ton for each waste stream selected in B5 thru B20. You can enter either on and the other will be calculated for you. Once you overwrite the equation though with a value, you can't go back and forth.

For BASELINE waste, enter the total tons (or pounds) for each in B25 thru B40, the percentages are calculated for you.

SETTING TARGETS: Percent targets for Basic, Intermediate and Advanced goals are entered for you under the targets tab. You may edit these variables to fit your strategies.

Look to see how adjusting targets will impact your bottom line.

Sustainability Roadmap Waste Target Setting - Basic, Intermediate, Advanced Strategies

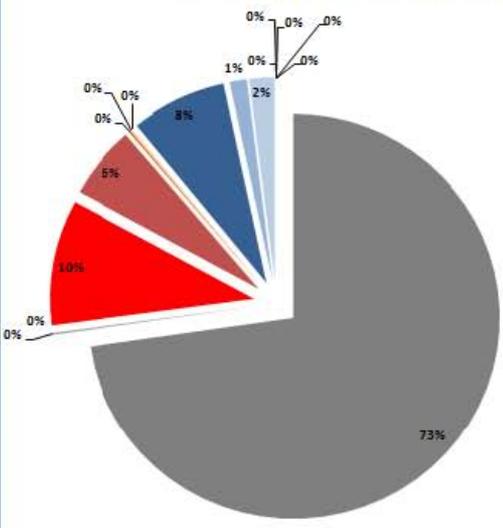
BASELINE

CATEGORY	Enter Actual or Est.			Total Costs	lbs./bed /day
	Tons	Pounds	Waste		
Solid Waste (MSW)	435.00	870000	72.78%	\$24,360	5.61
C&D (bulk - MSW)	1.00	2000	0.17%	\$90	0.01
C&D (bulk - recycling)	0.00	0	0.00%	\$0	0.00
RMW #1	60.00	120000	10.04%	\$38,400	0.77
RMW #2	35.00	70000	5.86%	\$19,250	0.45
HW #1	1.00	2000	0.17%	\$1,000	0.01
HW #2 (UW)	0.50	1000	0.08%	\$0	0.01
HW #3 - Pharmaceuticals	0.56	1120	0.09%	\$448	0.01
Recycling	45.00	90000	7.53%	\$0	0.58
OCC- Cardboard	8.00	16000	1.34%	-\$80	0.10
HIPPA-Paper	12.00	24000	2.01%	\$240	0.15
Recycling - Single Stream	0.00	0	0.00%	\$0	0.00
Recycling - Other	0.00	0	0.00%	\$0	0.00
Donation	0.00	0	0.00%	\$0	0.00
Compost	0.00	0	0.00%	\$0	0.00
Source Reduction	0.00	0	0.00%	\$0	0.00
Total	598	1,196,120	100.00%	\$83,708	
Avoided Landfill costs -				\$7,510,720	

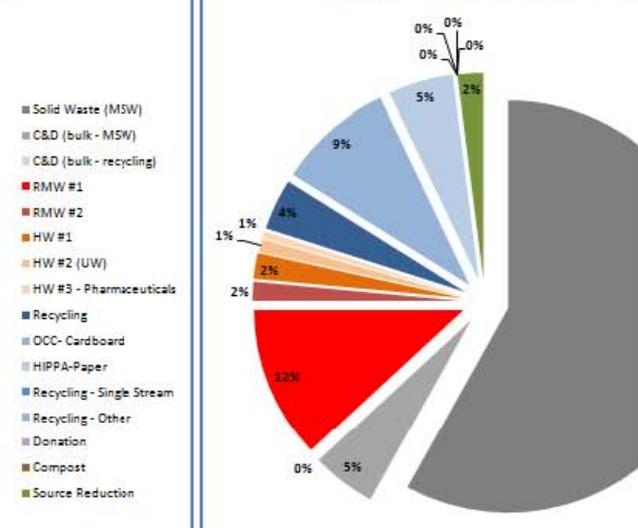
BASIC PERFORMANCE

Solid Waste (MSW)	346.64	693,286	58.00%	\$19,412	4.47
C&D (bulk - MSW)	29.88	59,766	5.00%	\$2,689	0.39
C&D (bulk - recycling)	0.00	0	0.00%	\$0	0.00
RMW #1	71.72	143,438	12.00%	\$45,900	0.92
RMW #2	8.96	17,930	1.50%	\$4,931	0.12
HW #1	11.95	23,906	2.00%	\$11,953	0.15

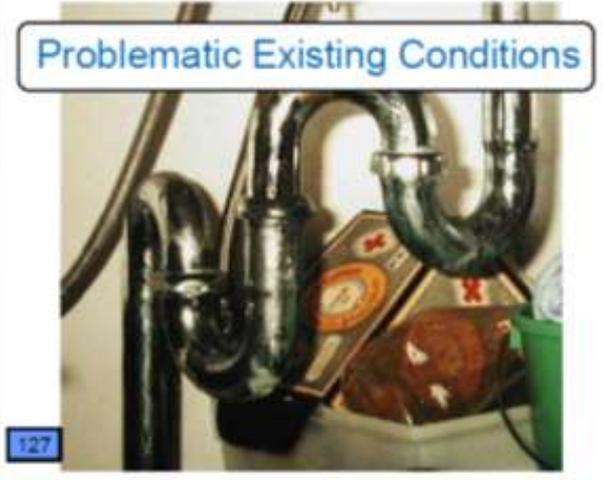
Baseline Waste Stream Distribution



Basic Performance Waste Stream Distribution



Audit – Identify Sources of Waste



Are You
Handicapped?

If Not
Please Don't

Press 

Energy Costs on Campus:
\$1.5 Million

You Can Help SJC Save Energy

Keeping Door Open:

- Breaks air lock
- Let's heat out
- Wastes Energy

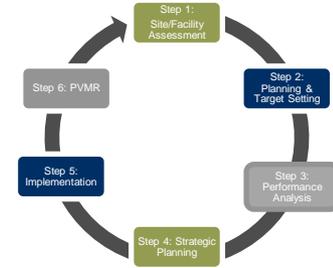


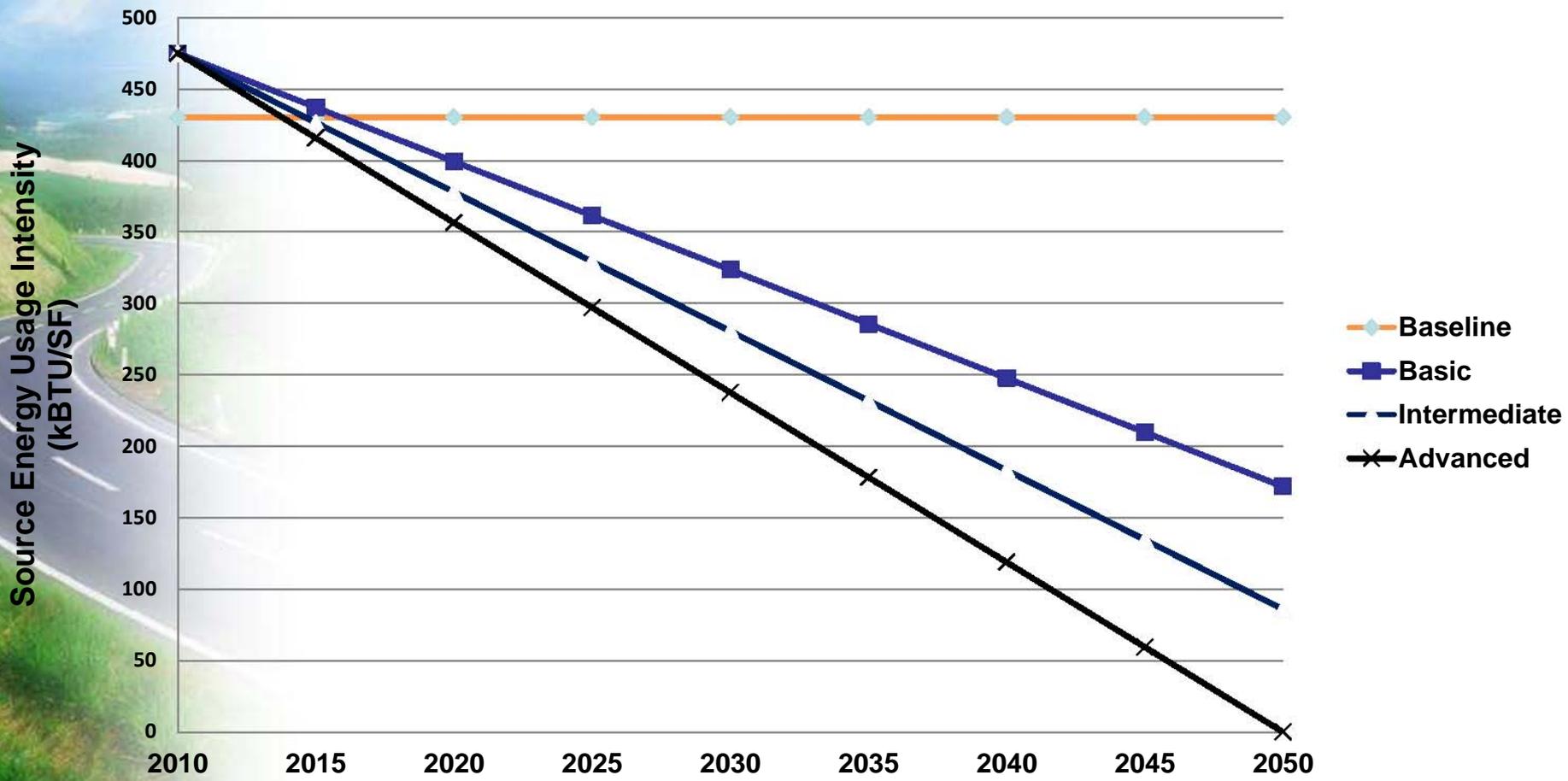
Take every
opportunity to
educate

Change
behavior

Step 2 - Target Setting

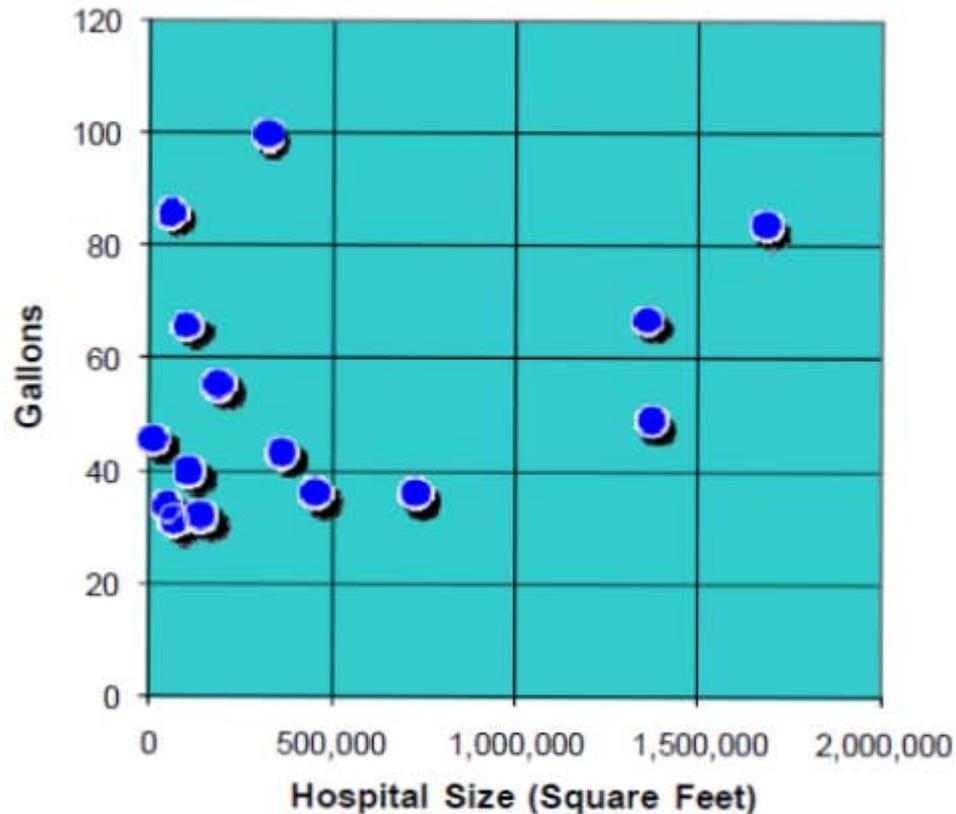
- Set goals and targets which are alignment with organization's mission and priorities
- SMART goals
- Get buy-in and cooperation from key stakeholders
 - **AHA Sustainability Roadmap targets**
 - **Energy Star**
 - **Target 100**
 - **EPA goals**
 - **2030 Challenge**





TARGET ENERGY REDUCTION GOALS

Step 3 – Performance Analysis - Benchmark



• Gallons Used / Square Foot / Year



Implementation

[About](#) [Topics](#) [Drivers](#) [Strategies](#) [Implementation](#) [Resources](#)

- » Overview
- » Performance Improvement Measures
 - » Energy
 - » Water
 - » Waste
 - » Supply Chain

[Home](#) » [Implementation](#) » [PIM](#) » [Waste](#) » [PIM List](#)

Green Light Projects—Waste

- Assess waste-handling and management systems and operations.
- Audit all hazardous waste-related activities to ensure compliance with all local, state, and federal regulations.
- Audit waste equipment utilization/hauling efficiencies.
- Develop a waste-out waste generation rate and set minimization goals.
- Conduct a basic (cardboard and paper) recycling program.
- Create a sustainability team.
- Develop an organizational environmental principles statement.
- Ensure proper placement of RMW containers and signage and education of staff.
- Ensure staff are informed about and trained to participate in sustainability efforts.
- Expand the facility's recycling program.
- Optimize management and improve environmental performance in handling of universal waste.
- Recycling C&D waste for large renovation and construction projects.
- Reduce RMW generation rates.
- Reuse single-use devices.
- Set waste management goals and track and report progress.
- Virtually eliminate the use of mercury and mercury-containing devices.

Note: For the launch of the Sustainability Roadmap for Hospitals, only the Green Light performance improvement measures (PIMs) appear. Watch this space for the addition of additional basic level projects as well as those at the intermediate and advanced levels.

Waste Equipment Right-Sizing Tool - Calculator

ENTER FACILITY NAME	DATE	
---------------------	------	--

Current Program	Service Variables	Customer Options	Total Cost Per Service	Annual Pull Charges	Annual Ton Charges	Rebates	Annual Total Cost
	Container Type/Size	30 yard					
	Tons per Load	0					
	Pulls per Week	0	\$ -	\$ -	\$ -	\$ -	\$ -
	Cost Per Ton	\$0.00					
	Rebate per Ton	\$0.00					
	Cost per Pull	\$0.00					
	Actual Weekly Total Tons	0.00					

Scenario #1	Service Variables	Customer Options	Total Cost Per Service	Annual Pull Charges	Annual Ton Charges	Rebates	Annual Total Cost	Annual Savings Over Current
	Container Type/Size	10 yard						
	Tons per Load	0.0						
	Pulls per Week	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Cost Per Ton	\$0.00						
	Rebate per Ton	\$0.00						
	Cost per Pull	\$0.00						
	Check Td Tons w/ Actual	0						

Scenario #2	Service Variables	Customer Options	Total Cost Per Service	Annual Pull Charges	Annual Ton Charges	Rebates	Annual Total Cost	Annual Savings Over Current
	Container Type/Size	10 yard						
	Tons per Load	0.0						
	Pulls per Week	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Cost Per Ton	\$0.00						
	Rebate per Ton	\$0.00						
	Cost per Pull	\$0.00						
	Check Td Tons w/ Actual	0						

#3	Customer	Total Cost Per	Annual Pull	Annual Ton	Annualized	Annual Total Cost	Annual Savings

General Information:

*Only Add Information in White Cells
 *Results are calculated for you in blue cells
 * Total tons needs to be equal for p
 C1, C12, C21, C30)

Type of Compactor	O
30 yard self contained	3 tons
34 yard self contained	3.5 tons
39 yard self contained	n/a
Stationary w/40 yard box	4.5 tons

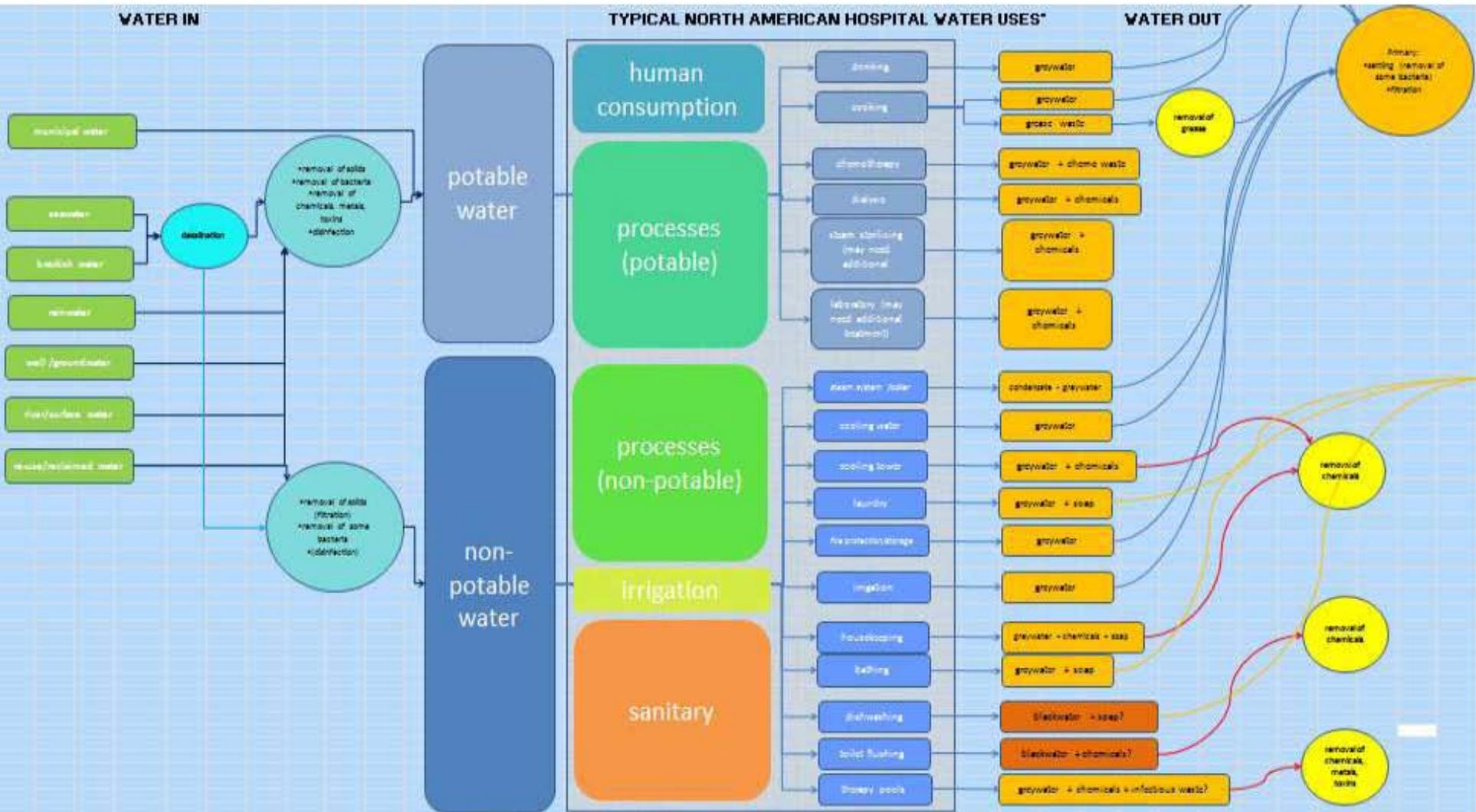
* Tons will vary based upon the comp

CONTAINER TYPES

Compactors
30 yard self contained
34 yard self contained
39 yard self contained
Stationary w/40 yard box
Roll-Offs/Open Tops
20 yard
30 yard

Step 4 – Strategic Planning

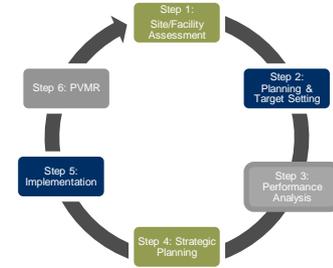
E.g., Water Use Planning



*This is a function-based analysis that considers the water quality that is actually required by each function, rather than what is required by Code. An iteration showing Code implications may be added later.

Step 5 - Implementation

- Greenlight Strategies
- Listserves
- Community



Implementation

About Topics Drivers Strategies Implementation Resources

- Overview
- Performance Improvement Measures
 - Energy
 - Water
 - Waste
 - Supply Chain

Home » Implementation » Pim » Waste » RIM List

Green Light Projects—Waste

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- Audit waste equipment utilization/hauling efficiencies.
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Waste Segregation – Best Practices

Implement an Infrastructure Conducive to Waste Minimization:

Color coded, strategically placed well-labeled containers for:

- Solid Waste
- Infectious Waste
- Hazardous Waste
- Recycling
- Universal Waste
- Others



Storage space for Reusables:
linen, sharps container recycling, cardboard

Proper Medical Waste Disposal



Right-click to display spelling suggestions

Regular Waste: Clear Bag

- ❑ IV bags and tubing
Example: D5W, NS
- ❑ **Empty medication vials or containers**
- ❑ Trash / wrappers
- ❑ Dressings
- ❑ Chux
- ❑ Diapers
- ❑ Gloves
- ❑ Empty foley bags and other drainage bags
- ❑ Disposable patient items
- ❑ Sanitary napkins
- ❑ Batteries

Biohazardous Waste: Red Bag

- ❑ Blood and all OPIM (Other Potentially Infectious Material)
- ❑ Blood tubing/ bags/hemovacs/pleurevacs
- ❑ Soaked/ dripping bloody dressings
- ❑ Intact glass or plastic bottles with bloody fluid or OPIM
- ❑ Suction liners with bloody fluid or OPIM
- ❑ All disposable items soaked or dripping with blood or OPIM

Sharps: Sharps Containers

- ❑ **All sharps**
*Example: needles, **broken glass vials, broken ampules, blades, scalpels, razors, pins, clips, staples***
- ❑ **All empty syringes, tubexes, carpuijects** or those with **trace (unpourable)** amount of medication
- ❑ Trocars, introducers, guide wires, sharps from procedures, specimen devices in endoscopy, etc.
(Use large volume sharps container with

Chemo Waste: Yellow Boxes

- Trace Chemo:**
- ❑ All supplies used to make and administer chemo medication
Example: tubing, empty bags/bottles/ vials, syringes, gloves, pads, masks, gowns, wipes etc.
- Return all unused Chemo to Pharmacy in original pharmacy bag for credit or disposal.**

Special Waste: Radioactive

- Radio active:**
- ❑ Call Nuclear Medicine x 6383, or pager 998-0524 at (or call hospital operator for on-call) for disposal of all radioactive waste.

Pharmaceutical V Blue and White I

- ❑ **No sharps**
- ❑ Syringes, tubexes, carpuijects without sharps with **residual (pourable)** medication
- ❑ IV bags and tubing with **medication**
- ❑ Partially used/ **residual** or over-the-counter medication
Example: vials, tablets, capsules, powders, liquid creams/lotions, eyedrops, suppositories, etc.
- ❑ **Residual or wasted narcotic** and/or controlled drugs
- ❑ Narcotic patches (cut in 1)
Example: Fentanyl patch

YES!

Recycling Guide

NO!



Office paper, Colored paper, Magazines, Newspaper
Boxboard (tissue and packaging boxes)



Aluminum cans, soda bottles, all glass and plastic beverage
containers, includes ALL narrow new screw top plastic containers
Clean, empty, no tops



Please empty and flatten



All batteries – place in battery collection tub in
dirty utility rooms and designated areas



Anything that plugs in



Unbroken and intact



Office Supplies, Furniture, Medical Supplies



Office Supplies, Furniture, Medical Supplies

Paper

Food Containers

Cardboard

Batteries

Electronics

Fluorescent Bulbs

Hazardous Chemicals

Single Use Medical Devices



Plastic Bags, wrappers



Styrofoam containers: coffee cups, trays, packaging, etc.



Styrofoam packaging and forms, plastic bags, etc.



Call Computer Services for more information, Ext.xxx
Call Housekeeping for a pick-up, ext xxxx



Facilities collects bulbs during servicing.
Call xxxx for more information

The Public Face of your Program



Patient Menu



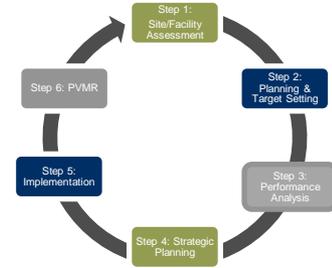
*Breakfast
Lunch
Dinner*

We recycle behind the scenes. Please place your recyclables on for food tray and we'll recycle them for you.

Thank you for helping us keep your hospital clean and green!

Step 6 - PMVR

- Performance Monitoring
- Project Validation
- Reporting
 - Dashboard – facility/enterprise
- Recognition
 - Energy Star
 - ASHE E2C
 - LEED
 - Green Globes
 - Public Relations



Green Globes

Track Benefits!!!

Satisfaction – Quality – Environmental Improvement - Cost

Examples of Savings

\$ 300,000	Medical Device Reprocessing
\$ 123,000	Printing Reductions
\$1,395,000	Energy & Water Reductions
\$ 150,000	Waste Reductions
\$ 500,000	Computer “Sleep Mode”
\$2,468,000	TOTAL SAVINGS

Providence St. Peter Hospital water and sewer use / savings (1998-2009)

💧 Reduced water use 59% (over 31,000,000 gal /yr) while:

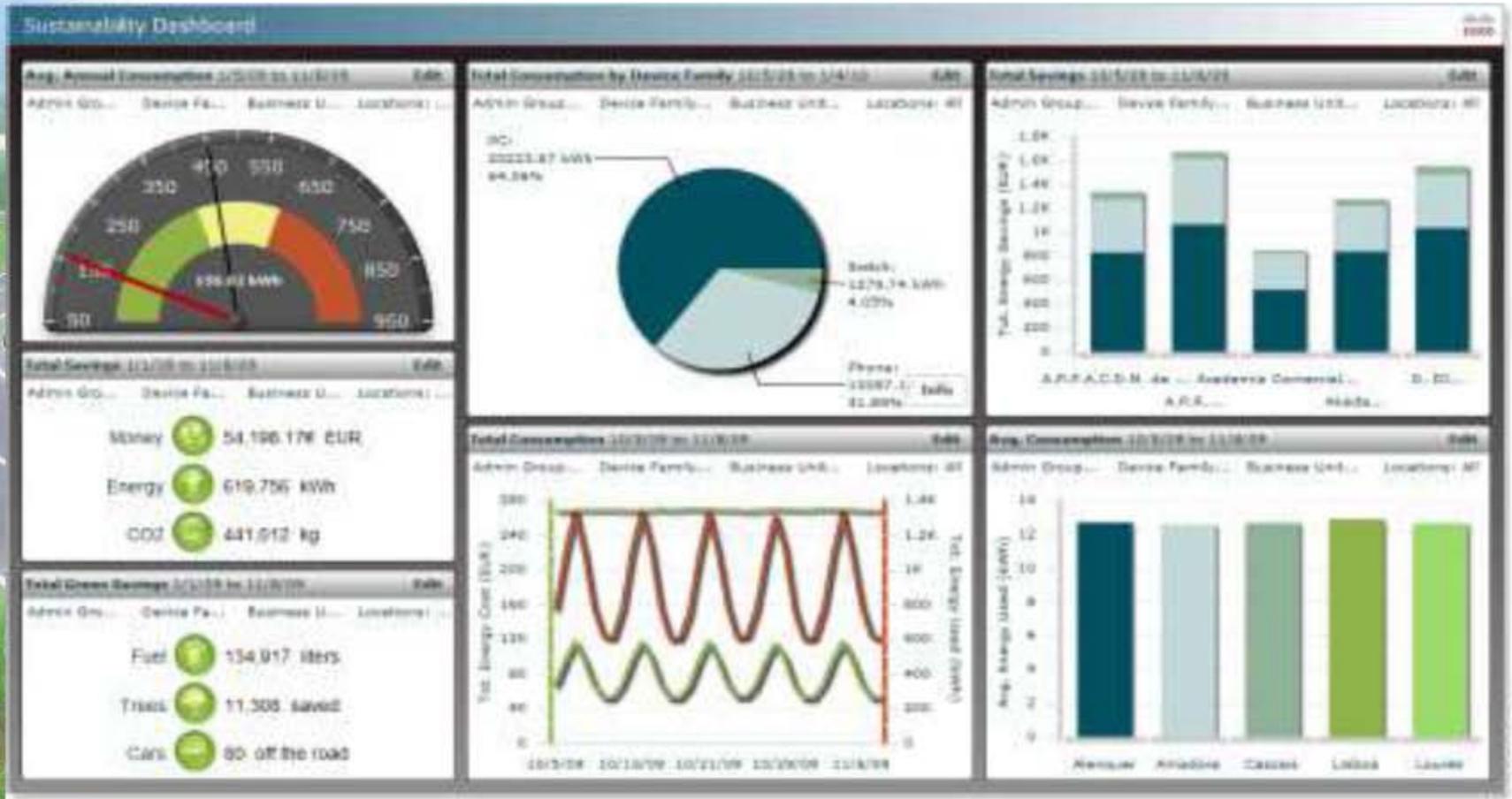
- Campus grew 17%
- Patient days increased 22% per year over the past 5 years

💧 Average water and sewer cost savings over the 11 year period: \$139,539/ year

💧 Total accumulated 11-Year savings = **\$1,534,933**



Dashboards



Have some FUNon this



Journey

Every Day is Earth Day!