

# Energy to Care Toolkit

The intent of this toolkit is to provide additional resources that will help you reduce energy consumption and get the most value out of the Energy to Care program.

# 1

## ENERGY TO CARE TOOLS AND RESOURCES

Get answers to frequently asked questions about Energy to Care.

[ [click here](#) ]

# 2

## VIDEO TUTORIALS FOR THE ENERGY TO CARE DASHBOARD BY TALISEN

Learn how to use your dashboard to track performance, share results with stakeholders, and support energy efficiency projects.

[ [click here](#) ]

# 3

## PERFORMANCE IMPROVEMENT MEASURES (PIMS)

Implement effective no-cost and low-cost projects to help your facility reduce energy consumption.

[ [click here](#) ]

# SECTION 1.

## ENERGY TO CARE TOOLS AND RESOURCES



I haven't done any energy work yet and we don't know how efficient we are. What is the first thing I should do and why?



Why should I participate in Energy to Care?



By participating in Energy to Care, will my energy data be public?



Whom should I benchmark against and what energy metrics should I use?



How does Energy to Care and ENERGY STAR® Portfolio Manager work together?



How to I participate in Energy to Care?



My hospital does not have the financial resources or staff to support the facilities department with energy efficiency. How do I gain that support?



I am participating in Energy to Care and have saved energy. How do I apply for an Energy to Care or Energy Champion Award?



Why should I participate in Energy to Care Chapter Challenge?



# SECTION 1.

## ENERGY TO CARE TOOLS AND RESOURCES

HOME

SEC. 1



I haven't done any energy work yet and we don't know how efficient we are. What is the first thing I should do and why?



How do I measure savings associated with completing the performance improvement measures, and how can I communicate successes with management?



Do you have a question not covered above? Ask the [helpdesk](#).



I haven't done any energy work yet and we don't know how efficient we are. What is the first thing I should do and why?



Experts in the field agree that understanding how efficiently your building is currently using energy is the first step in reducing consumption. The US Environmental Protection Agency (EPA) reports that benchmarking your facility and sharing the results with key stakeholders can lead to significant energy savings.

Hospitals consume more energy per square foot than any other commercial building type outside of the food and beverage industry according to the US Department of Energy's Commercial Building Energy Consumption Survey. Benchmarking is the tool that will help you understand your facility's energy use, monitor how your facility is performing against other buildings, track your performance over time, and share the results with others in your facility. Most energy efficient hospitals in the nation began with energy benchmarking. After all, you cannot manage what you don't measure.

A successful energy management program optimizes energy performance through benchmarking, establishing reasonable goals, developing action plans, tracking program results, engaging an executive sponsor, and communicating those results with senior management.

- [Establish an energy baseline](#) by uploading 12 consecutive months of energy data into the Energy to Care Dashboard powered by Talisen Technologies, Inc.
- Compare your current utility portfolio (gas, electric, water) against your baseline to gauge how energy consumption and cost is trending using the Energy to Care Dashboard.
- Develop an effective energy management program using the [US EPA Energy Management Assessment Matrix](#) and [U.S. Department of Energy Management Program](#).



### Why should I participate in Energy to Care?



ASHE's Energy to Care program was developed by hospital engineers and consultants that know how challenging it is to manage a health care facility where there is often limited time, staff, and budget. The Energy to Care program was developed by ASHE specifically for inpatient and outpatient medical facilities.

Data can be conveniently pulled directly from ENERGY STAR<sup>®</sup> Portfolio Manager, an energy monitoring platform already used by thousands of health care facilities across the nation. Alternatively, data can be uploaded and saved to the Energy to Care Dashboard powered by Talisen Technologies, Inc. and pushed to ENERGY STAR<sup>®</sup> Portfolio Manager. The Energy to Care program provides the tools and resources to help reduce your energy consumption and learn from others in the field who have had success.

Many facility departments use screenshots and reports from the Energy to Care Dashboard when formulating a business case for energy efficiency projects.

In addition to providing tools and resources, Energy to Care serves as the hub for health care energy data. This allows ASHE to research and interpret health care energy data based on various diverse aspects, including: climate region, facility size, staffing levels, EUI, etc. We are proactively learning how to better run health care facilities.

#### **Several benefits and features are offered through the Energy to Care program:**

- Visualize and share your energy data with key stakeholders using the Energy to Care Dashboard, which is compatible with ENERGY STAR<sup>®</sup> Portfolio Manager, a trusted and proven energy monitoring resource recognized by numerous industries.
- Receive recognition for energy reduction through the ASHE Energy to Care [Awards](#) program
- Benchmark utility consumptions across a building, facility campus, or health system.

# SECTION 1.

## ENERGY TO CARE TOOLS AND RESOURCES

HOME

SEC. 1

- Discover how other health care facilities are reducing energy consumption in the Energy to Care [Success Story](#) case studies.
- Team up with others in your ASHE chapter and take on the country by joining the [Chapter Challenge](#). Health care systems can also set up their own internal competition. For more information, contact the Energy to Care help desk at [energytocare@aha.org](mailto:energytocare@aha.org).



By participating in Energy to Care, will my energy data be public? —



No. Energy data is used at the state and national level, in aggregate, but never linked to your facility without express written consent. [Data Use Policy](#).



### Whom should I benchmark against and what energy metrics should I use?



Understanding how your facility is performing against its own baseline as well as understanding how it's performing against the health care industry are both vitally important.

#### 1. **Benchmark against other health care facilities:**

[ENERGY STAR®](#) score helps you assess how your hospital or medical office building is performing compared to other facilities. A score of 50 represents median energy performance, while a score of 75 or better indicates your building is a top performer with potential eligibility for ENERGY STAR® certification.

#### 2. **Establish an energy baseline and benchmark against yourself:**

Compare your current utility portfolio (gas, electric, water) against your baseline to gauge how energy consumption and cost is trending using the Energy to Care Dashboard. Energy performance is depicted with monthly and annual utility data. In some cases, utility performance is measured with using daily data.



### How does Energy to Care and ENERGY STAR® Portfolio Manager work together?



Energy to Care was designed to complement and seamlessly integrate with ENERGY STAR® Portfolio Manager. This compatibility allows the Energy to Care Dashboard to continually export and import data to/from Portfolio Manager and display it within an intuitive dashboard that can be shared with your facility's stakeholders.

Portfolio Manager is a resource management tool that enables you to track and assess energy and water use across your entire portfolio of buildings. Hospitals, and other buildings types, can also receive a 1-100 ENERGY STAR® score. This score compares your building's energy performance to similar buildings nationwide.

See details on how ENERGY STAR® Battle of the Buildings and Energy to Care are [Perfect Partners](#).



### How to I participate in Energy to Care?



With access to your utility data, enrolling your facility in Portfolio Manager then sharing that account with Energy to Care takes less than an hour of your time. Below are the steps to participating in the program:

1. **Gather your site information for input in Portfolio Manager. [Here's what you need.](#)**
2. **Follow the [step-by-step instructions.](#)**



**My hospital does not have the financial resources or staff to support the facility department with energy efficiency. How do I gain that support?**



Without dedicated resources, starting and maintaining an energy efficiency program is challenging based on time and capital constraints found in many hospitals and health care systems. Many successful hospitals in this situation have built partnerships with energy services companies that helped them start and maintain energy efficiency programs. Even health systems with significant resources may find it challenging to maintain a robust energy efficiency program without outside partners.

Many of the most efficient hospitals in the country began with small, low-cost performance improvement measures using their own operating budgets. Once these successes were communicated with senior leadership, more funding often became available. The measures included in this toolkit are ideal initial projects.



I am participating in Energy to Care and have saved energy. How do I apply for an Energy to Care or Energy Champion Award? —



Details for the Energy Champion and Energy to Care Awards can be found at: [Energy to Care Awards](#)

Important notifications regarding Energy to Care and Energy Champion Awards application deadlines are sent directly to you via the Energy to Care Dashboard.



### Why should I participate in Energy to Care Chapter Challenge?



Participating in the Energy to Care Chapter Challenge can help your ASHE chapter obtain Elite Status each year. It has also proven to bring more industry-wide visibility to your facility or system around energy efficiency and helps drive down energy consumption. For details on how your facility can join a team, contact your local [ASHE chapter leadership](#).

- How to compete in an Energy to Care [Chapter Challenge](#)
- To create your own internal challenge as a health care system or ASHE chapter, please contact the Energy to Care help desk at [energytocare@aha.org](mailto:energytocare@aha.org).



How do I measure savings associated with completing the performance improvement measures, and how can I communicate successes with management?



When implementing energy projects, it is important to measure and verify energy savings. Little nuances in control sequences of operation can prevent full energy savings from being realized. These nuances are usually only discovered through a measurement and verification (M&V) or commissioning process.

Ideally in an M&V process, critical systems are monitored and trended for 30 days minimum before and after the project is completed. For example, when implementing measures in which there will be fan and chilled water savings, fan energy and chilled water consumption should be trended and totalized during both the pre- and post- periods. Fan energy can often be trended in the building control system through variable frequency drive speed or kW. When those points are not available in the building control system, a separate temporary kW meter could be installed.

When projects are large enough, these savings can also be documented in the Energy to Care Dashboard. Look for a change in the ENERGY STAR<sup>®</sup> score or compare the energy consumption of the building for the months before and after the project was completed.

For additional information see the Department of Energy's information on [Evaluation, Measurement, and Verification of Energy Data](#).

# SECTION 2. VIDEO TUTORIALS

HOME

SEC. 2



I am participating in Energy to Care. How do I use the dashboard?



Coming soon to [energytocare.org](http://energytocare.org) is series of tutorial videos for using the new Energy to Care Dashboard powered by Talisen Technologies, Inc.



Welcome to the Energy to Care Dashboard

**ENERGY to care H**  
*Greater efficiency supports patient care.*

User Name

Password

[Sign in](#) [Create New Account](#)

[Password Reset](#)

*For Energy to Care Dashboard assistance, contact the Talisen Help Desk at 877-317-7783*



## SECTION 3.

# PERFORMANCE IMPROVEMENT MEASURES (PIMS)

HOME

SEC. 3

This section provides a series of effective no-cost (labor only) and low-cost performance improvement measures (PIMs) to help your facility reduce energy consumption. The measures and supporting information below are best practices that were gathered and verified from a variety of sources including: [Sustainability Roadmap for Hospitals](#), [US Department of Energy's Advanced Energy Retrofit Guide](#), [ASHRAE Journal](#), [EPA ENERGY STAR®](#), and interviews with leading health system facility engineers.

**A** What are some no-cost measures that can be done quickly to set a good foundation for energy savings? 

**B** I am participating in Energy to Care and have completed the no-cost measures. What low-cost projects should I do next to save energy? 

## A What are some no-cost measures that can be done quickly to set a good foundation for energy savings?

The list of “no cost” measures below are best practices used by many of the most efficient facilities in the country.

- A1. Develop an energy management program. +
- A2. Benchmark your portfolio of inpatient and outpatient facilities in [Energy to Care](#).
- A3. Make sure you are receiving copies of all your utility bills and they are inputted into ENERGY STAR® Portfolio Manager.
- A4. Run a daily report of failed and overridden control points in your building automation or control system and address recurring issues. +
- A5. Evaluate all lighting and HVAC systems that can be shut down during off-peak hours or when not in use. +
- A6. Make sure you know your organizations’ capital allocation process and expectations. +
- A7. Find an energy services provider that you would be comfortable working at your facility. +



What are some no-cost measures that can be done quickly to set a good foundation for energy savings?



#### A1. Develop an energy management program.

Health care facilities realize the greatest savings when a formal energy management program is implemented. The U.S. EPA has developed an assessment matrix that can serve as a guide in developing your program. A program emphasizes establishing a team, creating goals, and developing relationships with senior management:

- **Assign a program manager that will develop an executive sponsor and be the liaison between key stakeholders and senior management**

- **Set clear energy goals. Some examples are:**

*Win an Energy to Care Award*

*Compete in a Chapter Challenge*

*Reduce energy consumption by X% percent by the year*

*Y Achieve ENERGY STAR® Certification*

- **Establish a “team huddle” daily or weekly to discuss energy efficiency and facility operations and ask:**

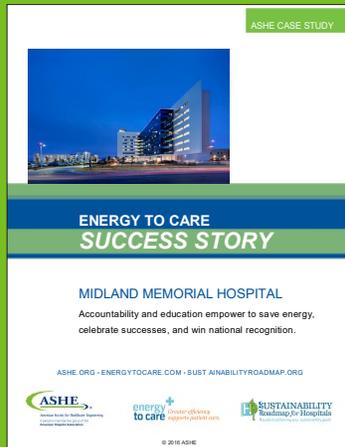
*What went well? What did not go well? What is causing pain?*

A

What are some no-cost measures that can be done quickly to set a good foundation for energy savings?

○

A4. Run a daily report of failed and overridden control points in your building automation or control system and address recurring issues with a policy around overriding points.



**CASE STUDY:**  
[Indiana Regional Medical Center](#)  
set alarms when points were overridden

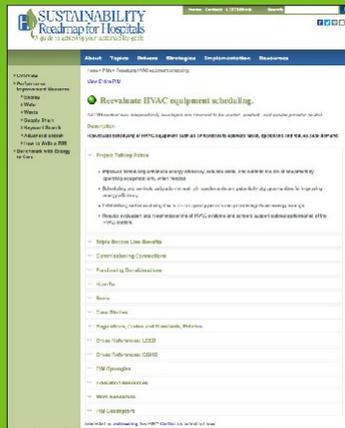
A

What are some no-cost measures that can be done quickly to set a good foundation for energy savings?

A.5

Evaluate all lighting and HVAC systems that can be shut down during off-peak hours or when not in use.

Ensure all major systems are on an on/off schedule in the building control system.



For additional information see the Sustainability Roadmap for Hospitals performance improvement measure on [equipment scheduling](#).

**A**

What are some no-cost measures that can be done quickly to set a good foundation for energy savings?

●

**A6. Make sure you know your organization's capital allocation process and expectations. Some considerations:**

- What financial threshold or return on investment must be reached?
- What is the process and signing authority required at various capital amounts?
- Can operational efficiency be included in the ROI calculation?
- What utility incentives are available?
- How fast are energy costs escalating year over year in my area?

**A**

What are some no-cost measures that can be done quickly to set a good foundation for energy savings?

**A7.**

**Find an energy services provider that you would be comfortable working at your facility.**

These providers are generally consulting engineers or contractors that can help you plan, budget, and implement an energy management program. Reach out to your local utility or ASHE peers for suggestions in your area.

**B** I am participating in Energy to Care and have completed the no-cost measures. What low-cost projects should I do next to save energy?



The following list of performance improvement measures (PIMs) will increase energy efficiency, provide a high return on investment, and require no or little capital. Most of these measures are dependent on a functioning building control system. Savings are interdependent and not necessarily cumulative.

Savings Range

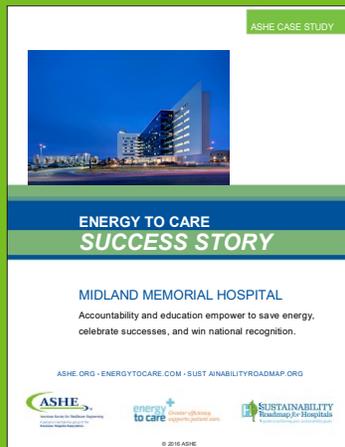
<input type="radio"/>	<b>B1. Retro-commission building automation or control system</b>	L M H	+
<input type="radio"/>	<b>B2. Energy efficient lighting</b>	L M H	+
<input type="radio"/>	<b>B3. Operating room unoccupied setbacks</b>	L M H	+
<input type="radio"/>	<b>B4. Economizer damper operation and maintenance</b>	L M H	+
<input type="radio"/>	<b>B5. Temperature and ventilation unoccupied setbacks</b>	L M H	+
<input type="radio"/>	<b>B6. Steam trap repair and replacement</b>	L M H	+
<input type="radio"/>	<b>B7. Thermostat temperature setpoint standards</b>	L M H	+
<input type="radio"/>	<b>B8. Air handling unit duct static pressure reset</b>	L M H	+
<input type="radio"/>	<b>B9. Chilled water supply temperature reset</b>	L M H	+
<input type="radio"/>	<b>B10. Hot water supply temperature reset</b>	L M H	+
<input type="radio"/>	<b>B11. Air handling unit supply air temperature reset</b>	L M H	+
<input type="radio"/>	<b>B12. Replace air handling unit filters consistently</b>	L M H	+

**B** I am participating in Energy to Care and have completed the no-cost measures. What low-cost projects should I do next to save energy?

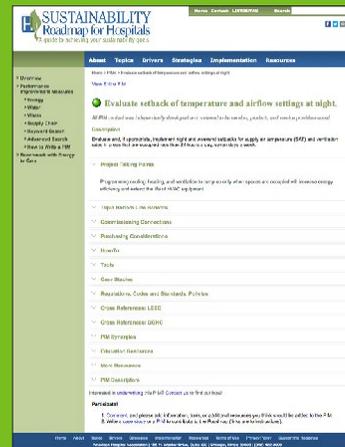


**B1. Retrocommission building automation or control system**  
 Perform retrocommissioning (RCx) of the HVAC controls to fine-tune operating conditions and improve performance. RCx, also called existing buildings commissioning, is a three-stage process:

- Developing an operations plan
- Test systems to determine whether they are meeting the plan’s requirements
- Repair or replace underperforming systems.



See how [Midland Memorial Hospital](#) implemented this measure.



For additional information see the Sustainability Roadmap for Hospitals performance improvement measure (PIM) on [retrocommission HVAC Controls](#).

**SAVINGS RANGE:**  
 5 TO 20 PERCENT OF TOTAL BUILDING ENERGY CONSUMPTION

**B** I am participating in Energy to Care and have completed the no-cost measures. What low-cost projects should I do next to save energy?

**B2. Energy efficient lighting**

Installing new lighting or retrofitting existing systems to energy-efficient lighting can result in less expensive operations and maintenance costs and lower energy bills. Controls can reduce lighting energy use and affect the sizing of heating, ventilation, air conditioning (HVAC), and electrical systems. Many successful facility departments have started small by installing occupancy sensors and upgrading the lighting gradually over time using operating dollars.

ASHE CASE STUDY

**ENERGY TO CARE SUCCESS STORY**

CAROLINAS HEALTHCARE SYSTEM PINEVILLE

Pineville cuts energy usage by 26 percent in 18 months, empowering the organization to use energy wisely

ASHE.ORG - ENERGYTOCARE.COM - SUSTAINABILITYROADMAP.ORG

SUSTAINABILITY Roadmap for Hospitals

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Home > Main > Energy Efficient Lighting

View Full PIM

**Energy-Efficient Lighting**

All PIMs are independently developed and tailored to the unique practices and needs of your facility.

**Description:**

Lighting is one of the largest energy consumers in a hospital facility. It is responsible for 10 to 15 percent of a facility's energy use. Energy-efficient lighting can reduce energy use and affect the sizing of heating, ventilation, air conditioning (HVAC), and electrical systems.

**Project Saving Points:**

- Upgrade lighting systems to meet the latest energy codes (e.g., ASHRAE 90.1-2010, Title 24).
- Upgrade lighting systems to meet the latest energy codes (e.g., ASHRAE 90.1-2010, Title 24) and the latest energy codes (e.g., ASHRAE 90.1-2010, Title 24) and the latest energy codes (e.g., ASHRAE 90.1-2010, Title 24).
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**Triple Bottom Line Benefits:**

- Financial: Lower operating costs
- Social: Lower energy bills
- Environmental: Lower greenhouse gas emissions

Green Performance: GBCI, LEED, Green Performance, GBCI, PIM, Sustainable, EHS, Energy, Resources, PIM Descriptions

See how [Carolinas HealthCare System Pineville](#) implemented this measure.

For additional information see the Sustainability Roadmap for Hospitals performance improvement measure (PIM) on [energy-efficient lighting](#).

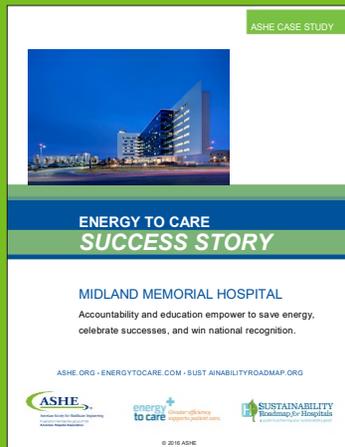
**SAVINGS RANGE:**  
5 TO 15 PERCENT OF TOTAL BUILDING ENERGY CONSUMPTION

**B** I am participating in Energy to Care and have completed the no-cost measures. What low-cost projects should I do next to save energy?

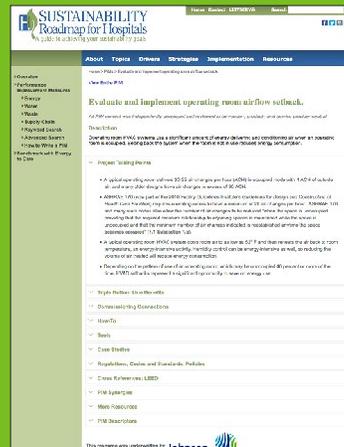


**B3. Operating room unoccupied setbacks**

Operating room HVAC systems use a significant amount of energy delivering and conditioning air when an operating room is occupied. Setting back the system when the room is not in use reduces energy consumption.



See how [Midland Memorial Hospital](#) implemented this measure.



For additional information see the Sustainability Roadmap for Hospitals performance improvement measure (PIM) on [operating room setbacks](#)

**SAVINGS RANGE:**  
5 TO 15 PERCENT OF TOTAL BUILDING ENERGY CONSUMPTION



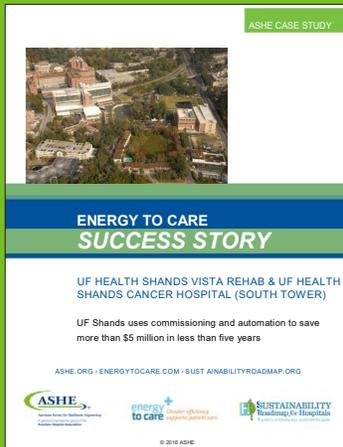
**B** I am participating in Energy to Care and have completed the no-cost measures. What low-cost projects should I do next to save energy?

**B5. Temperature and ventilation unoccupied setbacks**

Evaluate and, if appropriate, implement night and weekend setbacks for supply air temperature (SAT) and ventilation rates in areas that are occupied less than 24 hours a day, seven days a week.

During unoccupied periods, set temperature and ventilation rates according to climate, season, and length of time the space is unoccupied. The optimal temperature setback will vary based on specific systems, climate, space, and building.

During weekends and holidays in the heating season, temperatures can be set back to 55° F in some locations if sufficient time is provided to reheat those spaces prior to occupancy. For shorter unoccupied periods, 60°- 63°F may be more appropriate.



See how [UF Health Shands](#) implemented this measure.



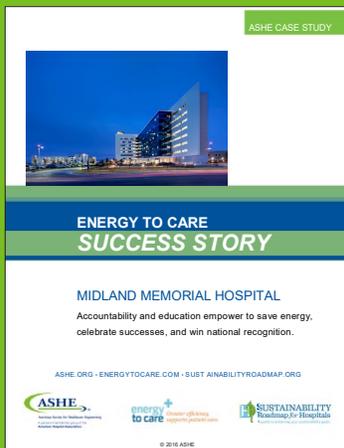
For additional information see the Sustainability Roadmap for Hospitals performance improvement measure (PIM) on [unoccupied setbacks](#)

**SAVINGS RANGE:**  
5 TO 15 PERCENT OF TOTAL BUILDING ENERGY CONSUMPTION

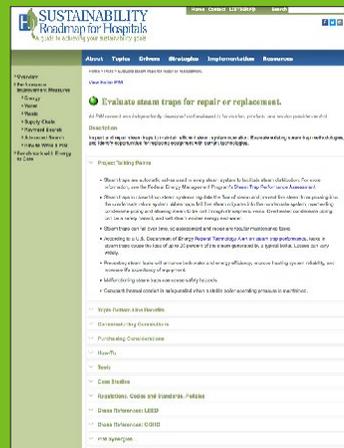
**B** I am participating in Energy to Care and have completed the no-cost measures. What low-cost projects should I do next to save energy

**B6. Steam trap repair and replacement**

Approximately 20 percent of the steam leaving the boiler is lost via leaking traps for a typical facility. Losses can be significantly reduced by implementing a program using portable test equipment. Fixed monitoring equipment can reduce losses to less than 1percent but require more capital. Estimated savings from implementing a program using portable test equipment has an average payback of less than six months.



See how [Midland Memorial Hospital](#) implemented this measure.



For additional information see the Sustainability Roadmap for Hospitals performance improvement measure (PIM) on [steam traps repair or replacement](#)

**SAVINGS RANGE:**  
5 TO 15 PERCENT OF TOTAL BUILDING ENERGY CONSUMPTION

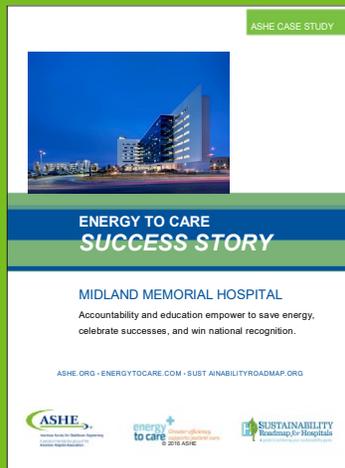
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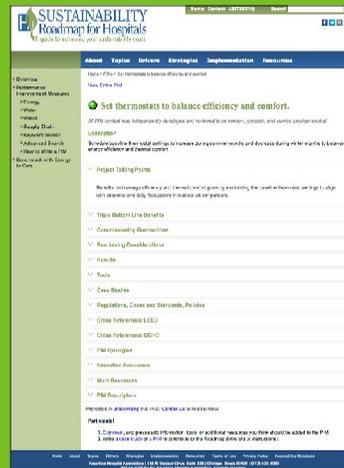
B7.

Thermostat temperature setpoint standards

Establish facility-wide heating and cooling temperature set point standards for typical clinical and common areas and lock down thermostats to only operate within this range. Suggested temperature range of 70 ° F in heating season and 75° F in cooling season using a 2° F deadband. Also ensure that variable air volume terminal units go to minimum flow before heating is enabled.



See how [Midland Memorial Hospital](#) implemented this measure.



For additional information see the Sustainability Roadmap for Hospitals performance improvement measure (PIM) on [thermostat settings](#)

SAVINGS RANGE:  
5 TO 10 PERCENT OF TOTAL BUILDING ENERGY CONSUMPTION

B

I am participating in Energy to Care and have completed the no-cost measures. What low-cost projects should I do next to save energy?



### B8. Air handling unit duct static pressure reset

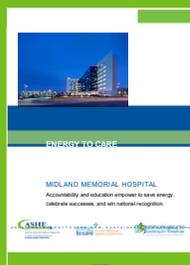
#### Duct static pressure reset for variable air volume systems:

Often the air handling unit's supply duct static pressure (typically measured 2/3 down the longest duct run) is set to a constant value to satisfy the zone calling for the most airflow. This zone is often referred to as the "critical zone." The challenge is that the critical zone often changes based on heating/cooling requirements or location in the air distribution system.

Reset strategy: Adjust the duct static pressure setpoint gradually until the damper position on the critical zone reaches 90 percent open. Though this reset strategy is rather simple, developing and maintaining this control loop in a stable manner can be more challenging.

Air distribution systems may have zones that demand constant airflow regardless of fan speed. These zones will likely need to be removed from the control logic when evaluating the critical zone.

- Return on investment for this measure is typically less than 1 year.



See how [Carolinas HealthCare System Pineville](#) implemented this measure.



For additional information see the ASHRAE Journal, June 2007 on [increasing efficiency with variable air volume static pressure setpoint reset](#).

#### SAVINGS RANGE:

5 TO 10 PERCENT OF TOTAL BUILDING ENERGY CONSUMPTION

B

I am participating in Energy to Care and have completed the no-cost measures. What low-cost projects should I do next to save energy?

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### B9. Chilled water supply temperature reset

#### **Chilled water supply temperature reset to increase chiller efficiency:**

The efficiency of chillers increases as the primary chilled water supply temperature increases. When the building cooling load is high, a cold chilled water supply temperature is necessary to provide enough cooling to the building. However, when the cooling load is low, the chilled water supply temperature can be raised to increase chiller efficiency and provide energy savings.

On average, a 1° F increase in supply air temperature corresponds to a decrease in compressor electricity consumption of 1.7 percent (DOE Advanced Energy Retrofit Guide).

Reset strategy: Adjust the chilled water supply temperature between a range of 42° and 47°F based on your air handling unit chilled water valve position. If the chilled water valve calling for the most water is open less than 90-95 percent, increase supply water temperature gradually. When the first chilled water valve reaches 100 percent open, begin decreasing chilled water supply temperature gradually.

Increasing chilled water supply temperature can have a negative impact on pump energy and dehumidification. To maximize energy savings, it is recommended to only initiate this sequence when secondary chilled water flow is at or below 60 percent of the design flow rate. Also be aware of "low delta T syndrome" where the difference in supply water and return water temperature falls well below the optimal design of the chiller.

#### **SAVINGS RANGE:**

5 TO 10 PERCENT OF TOTAL BUILDING ENERGY CONSUMPTION

**B**

I am participating in Energy to Care and have completed the no-cost measures. What low-cost projects should I do next to save energy?

**B10.**

**Hot water supply temperature reset**

**Hot water supply temperature reset to increase boiler efficiency:**

A hot water supply temperature reset saves energy by increasing boiler efficiency. This is most true with condensing boilers and less so with non-condensing boilers. As building heating demands decrease, the heating hot water supply temperature can be decreased and still meet heating loads. A reset is typically controlled to an outside air dry-bulb temperature.

**SAVINGS RANGE:**

5 TO 10 PERCENT OF TOTAL BUILDING ENERGY CONSUMPTION

**B**

I am participating in Energy to Care and have completed the no-cost measures. What low-cost projects should I do next to save energy?

**B11.****Air handling unit supply air temperature reset**

Supply air temperature reset to minimize simultaneous heating and cooling.

Often the supply air temperature discharge is set to a constant value, typically between 50°-55°F to satisfy the zone with the highest demand for cooling during the warmest days of the year. During days with typical weather, reheat zones warm the air to maintain comfortable conditions. This type of operation (simultaneous heating and cooling) is very inefficient.

To minimize simultaneous heating and cooling, reset the supply air temperature based on either outside air temperature or warmest zone (most accurate), to closely match supply temperature desired at the zone level. The optimal supply air temperature will require the least combined fan, heating and cooling energy for the building.

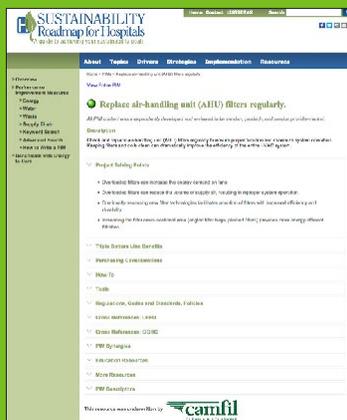
**SAVINGS RANGE:**

5 TO 10 PERCENT OF TOTAL BUILDING ENERGY CONSUMPTION

**B** I am participating in Energy to Care and have completed the no-cost measures. What low-cost projects should I do next to save energy?

**B12. Replace air handling unit filters consistently**

Check and replace air handling unit filters regularly to ensure proper function and maximize system operation. Keeping filters and coils clean can dramatically improve the efficiency of the entire HVAC system. Evaluate the installation of differential pressure sensors across the filter banks and change filters only when the differential pressure threshold has been exceeded.



For additional information see the [Sustainability Roadmap for Hospitals performance improvement measure \(PIM\) on changing air handling unit filters consistently](#)

**SAVINGS RANGE:**  
2 TO 5 PERCENT OF TOTAL BUILDING ENERGY CONSUMPTION