

# Guide to Healthcare Energy Management Tools and Materials

The Tools and Materials listed in this Guide support actions associated with developing and implementing Strategic Energy Management (SEM) at healthcare facilities. SEM is a holistic, organization-wide approach to best practices in energy management. Individual tools listed here can also be useful to utility staff, design and construction professionals, and hospital facility staff where SEM approaches are not in place.

# Index

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<b>1. Assess</b> . . . . .	4	LCCA Spreadsheet	Energy Efficiency in Small Hospitals
Energy Practice Checklist		Guide to Optimizing Your Hospital Facility Investments	Case Study: Swedish Medical Center
Project Prioritization: Getting the Biggest Bang for Your Buck		Setting Up an Energy Efficient Purchasing Process . . . .	Computer Power Management
<b>2. Commit</b> . . . . .	5	Air Filter Comparison Calculator	<b>6. Recognize</b> . . . . .
Think Like Your Hospital Executive		Top Five No Cost/Low Cost Energy Savings Opportunities	Case Study – St. Alphonsus Regional Medical Center
Reporting and Relationships for Success – Legacy Health		What is Enhanced O&M?	Case Study – Kalispell Regional Medical Center
<b>3. Plan</b> . . . . .	6	Sample Request for Qualifications and Proposal for Hospital Facility Development . . . . .	Case Study – Mercy Medical Center
SEMP Template and Workplan		High Performance Building Design Charrette Sample Agenda	Case Study – Kiser Permanente’s East Interstate Medical Office
Goal Setting and Energy Tracking		Mike Hatten Shares Advice on Smart Hospital O&M Savings	Case Study – Othello Community Hospital . . . .
Healthcare: A Business & Ethical Case for Sustainability		Building Scoping for HVAC Opportunities	Case Study – Legacy Health System
<b>4. Secure</b> . . . . .	7	Top Four Common Opportunities for Large and Small Hospitals . . .	Case Study – OHSU’s Center for Health and Healing
Sample Executive SEMP Presentation		Case Study: Fred Hutchinson Cancer Research Center	
Communications Quick Sheet			
<b>5. Implement</b> . . . . .	8		
Life Cycle Cost Analysis Versus Simple Payback			

# Introduction

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This Guide helps you understand the types of tools and materials that are available. The material is organized around six (6) key steps in the development and implementation of SEM; 1. Assess 2. Commit 3. Plan 4. Secure 5. Implement 6. Recognize. This Guide provides background on the tools and materials to help you assess their use for SEM support or for individual healthcare facility initiatives. Each tool and material is listed by title, the format of the document, and a short description. In addition, the intended users are described, especially noting its appropriateness for small hospitals, as well as some short tips regarding its use.

# 1. Assess

Tools and materials in this section help hospitals assess and document baseline energy practices as well as benchmark energy performance. From a SEM perspective, this step involves taking an initial look at the energy management opportunities at the hospital. The focus here is to benchmark current energy usage, investigate improvements to energy-related management practices and systems, and estimate energy savings. Through this process the hospital gathers preliminary information for an SEM plan (sometimes referred to as SEMP), builds organizational support, and prepares to get executive go-ahead for plan development in **2. Commit**.

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## Energy Practice Checklist

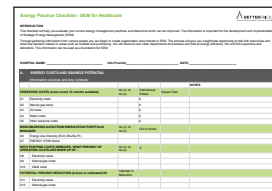
**FORMAT:** Excel spreadsheet

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Comprehensive 8 page questionnaire that can document baseline energy practices in a healthcare facility. Can be used to help identify both performance goals and opportunities. Critical tool for SEM development. The checklist can be self-reported by a facility director, but its best use is in interview format with an adviser or utility professional.

**TIPS:** This very comprehensive checklist for baseline practices can be completed as information becomes available, not necessarily all at one.



The image shows a screenshot of an Excel spreadsheet titled "Energy Practice Checklist - SEM for Healthcare". The spreadsheet is organized into several sections with green headers. The first section is "GENERAL INFORMATION" with fields for Name, Address, City, State, Zip, and Phone. The second section is "ENERGY MANAGEMENT PRACTICES" with columns for "Practice", "Yes/No", and "Comments". The third section is "ENERGY EFFICIENCY" with columns for "Practice", "Yes/No", and "Comments". The fourth section is "ENERGY CONSERVATION" with columns for "Practice", "Yes/No", and "Comments". The fifth section is "ENERGY MONITORING" with columns for "Practice", "Yes/No", and "Comments". The sixth section is "ENERGY TRAINING" with columns for "Practice", "Yes/No", and "Comments". The seventh section is "ENERGY AUDIT" with columns for "Practice", "Yes/No", and "Comments". The eighth section is "ENERGY REPORTING" with columns for "Practice", "Yes/No", and "Comments".

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## Project Prioritization: Getting the Biggest Bang for Your Buck

**FORMAT:** Pre-recorded webinar

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** A project finance consultant and hospital facility director team up to discuss the best methods for analyzing the financial returns of energy efficiency.



## 2. Commit

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Tools and materials in this section focus on the importance of senior executive support for energy management in the hospital. From the SEM perspective, the goal is to meet with the executive team, get buy-in for a strategic approach to energy management, and gain approval to spend additional time and money to develop a SEMP. Through this process gaining an executive SEMP champion makes plan approval in **4. Secure** much easier.

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### Think Like Your Hospital Executives

**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Short factsheet designed to help facility professionals more effectively communicate with their senior leadership. Tips on motivational messaging and approaches are provided. Factsheet is good preparation for preparing and delivering a request for energy management support to hospital executives.

**TIPS:** The healthcare market is extremely challenging. Communications with senior executives must be succinct.



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### Reporting and Relationships for Success – Legacy Health

**FORMAT:** Pre-recorded webinar

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** A strategic resource manager for regional healthcare system talks about his experience in developing internal relationship and communication strategies to advance his energy management agenda.



# 3. Plan

Tools and materials in this section support the development of energy performance goals and in combination with other resources in **1. Assess** the creation of a strategic energy management plan (SEMP).

## SEMP Template and Workplan

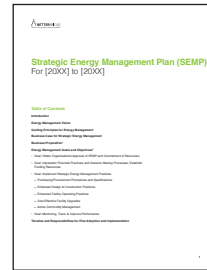
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** No

**DESCRIPTION:** This document provides guidance and format suggestions for creating a long range strategic energy management plan. SEM for many healthcare organizations, especially larger hospitals, can benefit from developing a comprehensive plan as described in this template.

**TIPS:** Plans must fit the needs and culture of individual healthcare organizations. Use the template as a guide but customize to individual circumstances.



## Goal Setting and Energy Tracking

**FORMAT:** Pre-recorded webinar

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Two hospital system facility staff people describe their process in establishing energy performance goals and for benchmarking and tracking energy results.



## Healthcare: A Business & Ethical Case for Sustainability

**FORMAT:** InDesign document

**FOR USE BY:** Utility adviser, SEM adviser

**APPLICATION TO SMALL HOSPITAL:** No

**DESCRIPTION:** This document makes the case that sustainability practices in healthcare organizations can be both good business practices and an ethical approach to community stewardship values.

**TIPS:** Motivations for deploying good energy management practices are diverse. This article highlights two different motivational ideas. They don't have to be posed together when making the case.



# 4. Secure

Tools and materials in this section support communication strategies, especially with senior management. From a SEM perspective, securing executive commitment to provide money, people, and support is critical to successful SEM implementation.

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## Sample Executive SEMP Presentation

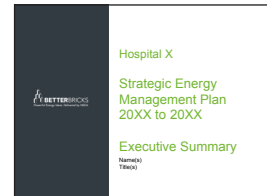
**FORMAT:** PowerPoint presentation

**FOR USE BY:** Hospital facility director

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** PowerPoint presentation template that can be customized for presentation to a hospital senior leadership group describing SEM and a strategic plan.

**TIPS:** See "Think Like Your Hospital Executive" for ideas.



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## Communications Quick Sheet

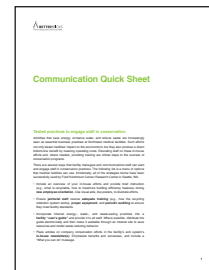
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** This short factsheet describes ideas for communicating with internal staff and external stakeholders about the importance of energy management. Hospital staff are important participants in making energy management practices work day to day.

**TIPS:** All the ideas in this factsheet were successfully used at the Fred Hutchinson Cancer Research Center.



# 5. Implement

Tools and materials in this section support the implementation of energy management operational and capital improvements in hospitals. From a SEM perspective, these are the set of actions designed to achieve the goals established in **2. Commit**. Given that energy use is affected by a wide range of practices, these tools and materials cover multiple areas including financial practices; purchasing; operations and maintenance; design and construction; staff and public awareness; and capital upgrades.

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## Life Cycle Cost Analysis Versus Simple Payback

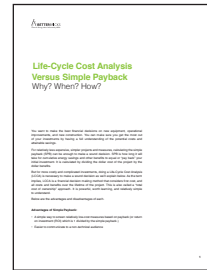
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** This factsheet describes the best use for two different project economic analysis approaches – simple payback and life cycle cost. Guidance is provided as to the strengths and weaknesses of each approach. Choosing the right tool or project economic analysis is important to a successful request for funding.

**TIPS:** Read this document before using the LCCA Spreadsheet.



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## Simple Life-Cycle Energy Savings Calculator

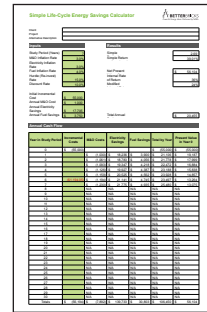
**FORMAT:** Excel spreadsheet

**FOR USE BY:** Hospital facility director; SEM adviser, Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** This spreadsheet tool calculates the life cycle cost characteristics of energy efficiency investments. Results provide the net present value of an efficiency investment allowing users to select the most attractive alternative from a total cost of ownership perspective. Inputs to the spreadsheet require both knowledge of the cost and energy savings of the project as well as some specific financial investment information of the facility.

**TIPS:** Check out the very complete glossary of terms included on a separate tab in the spreadsheet. It is a primer on financial analysis.



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## Guide to Optimizing Your Hospital Facility Investments

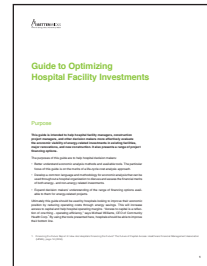
**FORMAT:** InDesign document

**FOR USE BY:** SEM adviser; Utility adviser; Hospital facility director

**APPLICATION TO SMALL HOSPITAL:** No

**DESCRIPTION:** This is a very comprehensive guide to the economics of energy efficiency investments. Chapters of the guide provide background on how to analyze and interpret the economic value of energy efficiency. The guide also discusses various methods of financing projects and their possible advantages and disadvantages.

**TIPS:** Use the table of contents to find sections of this guide specific to your information needs.





## 5. Implement

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### Setting Up an Energy Efficient Purchasing Process

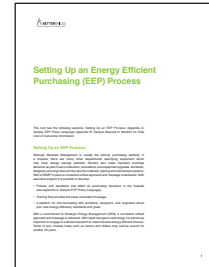
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** This factsheet describes the importance of and steps for establishing better procurement policies for energy efficiency. In many institutions, procurement is handled by a department outside of facilities. Establishing policies that emphasize a total cost of ownership perspective are key.

**TIPS:** A sample policy statement and a set of vendor requirements included in this factsheet can help a hospital get started.



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### Air Filter Comparison Calculator

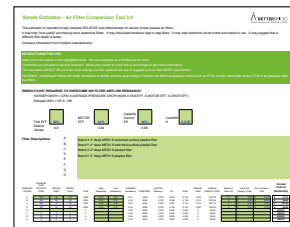
**FORMAT:** Excel spreadsheet

**FOR USE BY:** Hospital facility director

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** This simple Excel spreadsheet provides easy to use comparisons of various choices of air filters. Using the "MERV" rating of a filter, the spreadsheet produces a total cost of ownership calculation for the selected filter.

**TIPS:** Hospital facilities require lots of filtration. Small amounts of energy savings per filter add up when multiplied by the number of filters.



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### Top Five No Cost/Low Cost Energy Savings Opportunities

**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** While every hospital facility has unique characteristics, there are common energy savings opportunities in most all facilities that are effective and cost little to no capital to implement. This factsheet describes the five most common opportunities.

**TIPS:** Check out *What is Enhanced O&M?* to get ideas on persisting the savings from these common opportunities.



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### What is Enhanced O&M?

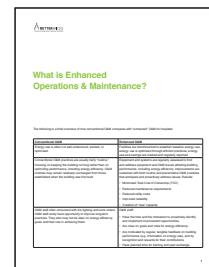
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** This factsheet describes an approach to operations and maintenance practices that provides for better and more durable energy savings. Enhanced O&M is contrasted to a standard practice of reactive maintenance that most often leads to less than optimal operation of the facility.

**TIPS:** Operations staff training may be necessary to make the switch from reactive practices to enhanced O&M.



## 5. Implement

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### Sample Request for Qualifications and Proposal for Hospital Facility Development

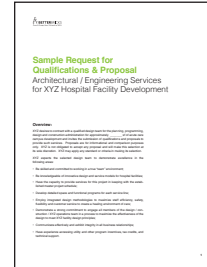
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director of construction manager

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Achieving good energy performance in new construction or major remodels begins with establishing specific expectations in the request for proposals from the design and construction teams. This document provides an example of how to incorporate those requirements into a request for proposals.

**TIPS:** This document is based on an actual RFP issued by a Northwest hospital.



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### High Performance Building Design Charrette Sample Agenda

**FORMAT:** Word document

**FOR USE BY:** Designers; Hospital facility directors

**APPLICATION TO SMALL HOSPITAL:** No

**DESCRIPTION:** Best practices in integrated design for new construction recommend using a design charrette in the earliest stages of the project concept phase. This document describes the goals and objective of the charrette, a list of critical participants, and a sample agenda for making the event successful.

**TIPS:** Using an experienced charrette facilitator will help ensure its success.



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### Mike Hatten Shares Advice on Smart Hospital O&M Savings

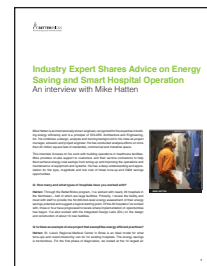
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility directors

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Using a question/answer interview format, this factsheet provides information and motivation from an experienced consulting engineer. With multiple hospital facility projects in his background, this engineer describes how operational savings opportunities in hospitals are discovered and analyzed. These ideas are applicable to large and small facilities and have in common that they have very low if any capital expense.

**TIPS:** Note the similarities in this factsheet to Top Five No Cost/Low Cost Energy Savings Opportunities.



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### Building Scoping for HVAC Opportunities

**FORMAT:** Pre-recorded webinar

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Hospital facility director and energy consultant talk about their experience at a Montana based regional medical center and community hospital. A specific focus is the use of a building scoping.



## 5. Implement

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### Top Four Common Opportunities for Large and Small Hospitals

**FORMAT:** Pre-recorded webinar

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Consulting engineer and hospital facility staff discuss the most common types of energy savings operational opportunities in both large and small hospitals..



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### Case Study: Fred Hutchinson Cancer Research Center

**FORMAT:** Pre-recorded webinar

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** No

**DESCRIPTION:** Hospital and research center facility director talks about their experience with energy management at this award winning Seattle facility.



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### Energy Efficiency in Small Hospitals

**FORMAT:** Pre-recorded webinar

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Small hospitals have unique challenges different from their larger counterparts. An energy engineer presents specific ideas for energy savings actions in smaller facilities.



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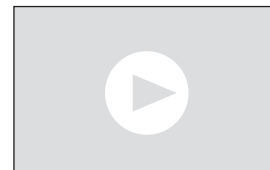
### Case Study: Swedish Medical Center

**FORMAT:** Pre-recorded webinar

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Resource conservation manager talks about his experience in implementing computer power management efforts in his hospital. Computer loads are rapidly increasing in healthcare facilities and this conversation focuses on both the challenges and opportunities for improved energy management practices.



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### Computer Power Management

**FORMAT:** Pre-recorded webinar

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Resource conservation manager talks about his experience in implementing computer power management efforts in his hospital. Computer loads are rapidly increasing in healthcare facilities and this conversation focuses on both the challenges and opportunities for improved energy.



# 6. Recognize

The tools and materials in this section describe how to track progress and provide recognition for successes. Case studies can be good ways to learn and apply best practices. From a SEM perspective, tracking and reporting progress toward goals and recognizing accomplishment is key to sustaining energy performance over time.

## Case Study – St. Alphonsus Regional Medical Center

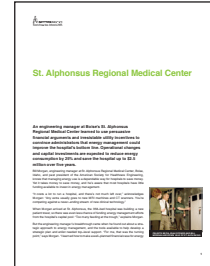
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** No

**DESCRIPTION:** Success story featuring a 330+ bed hospital facility in Boise, Idaho. Guided by a SEMP, this facility reduced its energy use by 25%.

**TIPS:** Note the key role that utility incentives played in this story to making the project financials work.



## Case Study – Kalispell Regional Medical Center

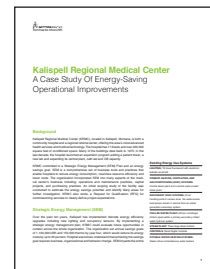
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Success story featuring a 175 bed hospital facility in Kalispell, Montana. Guided by a SEMP, this facility tracked its energy savings using Energy Expert.

**TIPS:** Note the partnership strategy that was used here to help the facility achieve success.



## Case Study – Mercy Medical Center

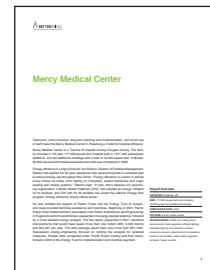
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Success story featuring a 150 bed facility in Roseburg, Oregon. Central plant improvements not only reduced energy use but increased overall capacity.

**TIPS:** Note how reduction in labor costs from the improvements factored into project economics.



## Case Study – Kaiser Permanente’s East Interstate Medical Office

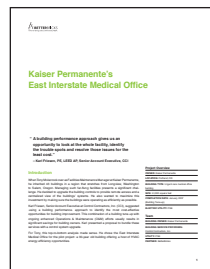
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Success story of a 50,000 square foot medical office building in Portland, Oregon. Using a low cost building tune-up approach, this facility was able to implement a host of energy savings changes.

**TIPS:** MOB's offer a number of scheduling opportunities not always available in acute care hospital facilities.



## 6. Recognize

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### Case Study – Othello Community Hospital

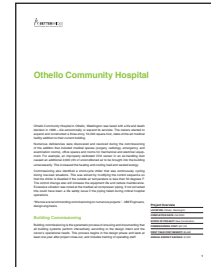
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** Yes

**DESCRIPTION:** Success story of a 50,000 square foot addition to the hospital. Building commissioning was used as a means to ensure that the energy using systems in the building were operating correctly prior to occupancy.

**TIPS:** Retro-commissioning can also be a good idea for existing facilities.



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### Case Study – Legacy Health System

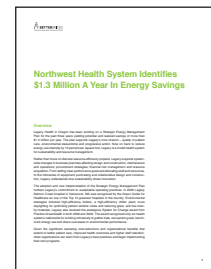
**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** No

**DESCRIPTION:** Success story of a five hospital system located in Washington and Oregon. Using a system wide SEMP, this hospital system implemented more than \$1.3M worth of energy savings.

**TIPS:** Note in this case study the emphasis on system wide changes to energy related business practices.



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### Case Study – OHSU's Center for Health and Healing

**FORMAT:** InDesign document

**FOR USE BY:** Hospital facility director; SEM adviser; Utility adviser

**APPLICATION TO SMALL HOSPITAL:** No

**DESCRIPTION:** Success story of a newly constructed 400,000 square foot mixed use health services facility in Portland, Oregon. Using integrated design strategies and features, this facility was able to beat energy code performance substantially but with no construction cost premium.

**TIPS:** Note the importance of post occupancy evaluation of performance.

