

# BetterBricks Hospitals and Healthcare Initiative

## *Market Progress Evaluation Report #2*

PREPARED BY

**Research/Into/Action**

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# Final

## BetterBricks Hospitals and Healthcare Initiative Market Progress Evaluation Report #2

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**March 1, 2007**



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**BETTERBRICKS HOSPITAL INITIATIVE MPER #2**



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The evaluators wish to thank the BetterBricks managers who supported the evaluation with time spent in in-depth discussions of their hospital-sector activities and a careful review of the facts presented in this report. Of course, any errors that remain are the responsibility of the authors. The evaluators thank the market specialists and technical advisors who also gave their time for in-depth interviews and candid discussions.



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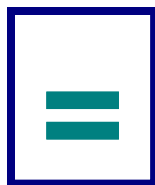
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**BETTERBRICKS HOSPITAL INITIATIVE MPER #2**



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## EXECUTIVE SUMMARY

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This second Market Progress Evaluation Report (MPER #2) documents the results of an ongoing evaluation to assess the activities and accomplishments of the Northwest Energy Efficiency Alliance's (NEEA) BetterBricks Hospitals and Healthcare Initiative (Hospitals Initiative), which is currently funded through 2008. BetterBricks is the umbrella initiative that covers all of NEEA's commercial activities. The evaluation covers the period between October 2005 and October 2006. Interviews in support of this research were conducted in September 2006 with fourteen Hospitals Initiative staff, contractors, and industry consultants. Note that neither staff and executives at hospitals nor utility representatives were interviewed for this MPER because there were concerns, shared by the evaluators, that such interviews might create confusion in the market at a time when the Initiative was still in its early stages. The findings therefore reflect only the views of NEEA staff and contractors.

MPER #1 provided a baseline analysis of hospital facility manager activity, as well as the Hospitals Initiative's progress between January 2003 and October 2005.<sup>1</sup> The next MPER is planned for fall 2007.

This evaluation finds that NEEA continues to make substantial progress with the Hospitals Initiative. It appears that the Initiative will meet its 2010 objective of having comprehensive Strategic Energy Management Plans (SEMPs) in place at multi-hospital systems and community hospitals that collectively comprise 40% of the region's hospital beds.

The research yielded the following conclusions and recommendations.

### CONCLUSIONS

**Conclusion 1:** The Hospitals Initiative is making considerable progress, working on SEMP adoption at hospitals comprising 31% of the region's beds.

**Conclusion 2:** Hospitals Initiative team members are working well together and program supports are sufficient to enable hospitals to consider and commit to SEMPs. Six hospitals and hospital systems have executive approval of, or commitment to develop a SEMP.

**Conclusion 3:** BetterBricks comprises many initiatives that overlap and would benefit from improved coordination. In particular, further improvement is needed in coordinating and

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<sup>1</sup> MPER #1 referred to the High Performance Hospitals Partnership. In late 2005, the name was changed to the BetterBricks Hospitals and Healthcare Initiative to capitalize on the market awareness of the name BetterBricks.





directing the work of technical advisors at targeted hospitals. Currently there is no clear direction as to how the technical advisors are to interact and the degree to which they are to support each other and the Hospitals Initiative's market specialists.

**Conclusion 4:** The initiative does not have the business processes in place to deliberately develop and produce market-ready tools and materials in a timely manner. Examples include hospital owners' guides for life-cycle costing and design and construction. It has consistently taken much longer than anticipated to produce such materials and there has been confusion about the roles BetterBricks staff in different areas are supposed to play in material development.

**Conclusion 5:** The Hospitals Initiative's 2010 objectives are not fully measurable as stated. Functional definitions of key terms need to be developed, as some currently are subject to interpretation. For example, a 2010 goal is to have hospitals representing 40% or more of beds in the region approve and implement energy management plans. It is unclear, however, whether the word *implement* means every aspect of the plan, a fixed portion of it, or something else.

**Conclusion 6:** The Initiative is working with the region's largest hospitals and hospital systems and is on-track to be actively working with hospitals comprising 40% of the region's beds by 2010. Assuming all of these hospitals go on to fully implement their SEMP, the 40% market-share goal would be attained through the one-on-one client relationships of the market specialists. Consequently, the Initiative is unlikely to need to reach many hospitals in addition to the ones with which it is actively working in order to meet its objectives.

**Conclusion 7:** Hospitals face significant market challenges—most of which are consequences of how they are reimbursed for services—that constrain staff time and attention, and threaten hospital viability. Yet hospitals are receptive to the BetterBricks message and are influenced by their peers.

**Conclusion 8:** The market transformation theory is strong regarding the adoption and implementation of SEMP by hospitals with which BetterBricks is working directly, but it is weaker with respect as to why and how these actions will be repeated by hospitals that have no direct involvement with the Initiative team.

**Conclusion 9:** Relationships are critical to making progress in the market. Contacts credit all program achievements to date to relationships—the relationships the market specialists, supported by technical advisors, have formed with hospital staff and, even more importantly, have facilitated among hospital staff.

**Conclusion 10:** SEMP development is data-intensive; SEMP adoption depends on making an unequivocal case for the economic and non-economic benefit of strategic energy management planning; and SEMP implementation depends on a clear understanding of highly technical material. Getting “the facts” into the hands of Hospitals Initiative team members remains a challenge.



## RECOMMENDATIONS

**Recommendation 1:** The BetterBricks senior manager should convene a series of meetings with the initiative managers to directly address issues of coordination between the various initiatives. Of immediate need to the Hospitals Initiative is improvement in how the work of technical advisors is coordinated and directed.

**Recommendation 2:** BetterBricks management should develop internal processes that will allow the quick and efficient production of market-ready tools and materials. This is critical to keep pace with the market's demands for information and methods, as stimulated by the BetterBricks marketing and market specialists.

**Recommendation 3:** NEEA should revise the 2010 objectives to ensure they are measurable, including defining all objectives in terms of beds and defining how *SEMP implementation* will be evidenced.

**Recommendation 4:** If the 2010 objective of *SEMP implementation* is intended to mean full implementation, the objective is unlikely to be attained prior to 2012, and thus the objective's date should be revised. If *implementation* has a different meaning, then the objective should be re-written to be more specific, per Recommendation #3.

**Recommendation 5:** Because the 2010 objectives for 40% of market share are likely to be met (or roughly met, by 2012) through the actions of healthcare organizations the Hospitals Initiative team is working with directly, NEEA might begin to consider whether such an achievement would constitute "market transformation" in the absence of *SEMP* adoption and implementation by hospitals not working directly with the Initiative team.

**Recommendation 6:** BetterBricks should continue to seek out and work with hospital market leaders and pursue its plans to publicize their efficiency successes, as hospitals are highly influenced by their peers. This is particularly important given our finding that market change to date has resulted from relationships. BetterBricks management should consider this finding in light of the market transformation theory and the Initiative's eventual need to move from targeted hospitals to wider market acceptance and transformation where the current resource-intensive relationships will not be feasible. Management should determine how current relationships can be used to generate self-sustaining momentum in the market using existing market actors.





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# 1

## INTRODUCTION

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The Northwest Energy Efficiency Alliance (NEEA) is a non-profit corporation supported by Bonneville Power Administration, electric utilities, public benefits administrators, state governments, public interest groups, and energy efficiency industry representatives. These entities work together to make affordable, energy-efficient products and services available in the marketplace.

This second Market Progress Evaluation Report (MPER #2) documents the results of an ongoing evaluation to assess the activities and accomplishments of NEEA's BetterBricks Hospitals and Healthcare Initiative (Hospitals Initiative), which is currently funded through 2008. The evaluation covers the period between October 2005 and October 2006. Interviews in support of this report were conducted in September 2006.

MPER #1 provided a baseline analysis of hospital facility manager activity, as well as the Hospitals Initiative's progress between January 2003 and October 2005.<sup>2</sup>

BetterBricks is the commercial initiative of NEEA. Overall, it seeks to:

...make energy efficiency an integral part of business decision-making. Within targeted vertical markets, change energy-related business practices to achieve energy efficiency in design and construction, and in building and facility operations. Create natural market demand for related trade ally products and services.<sup>3</sup>

The changes in business practices will result in facilities that achieve reductions in energy-related capital and operating costs, as well as potential non-energy benefits, such as occupant comfort and productivity, and an alignment of design and construction projects with industry best practices.

BetterBricks currently addresses three "vertical" markets (hospitals and healthcare, groceries, and office real estate), as well as two "cross-cutting" markets (Design and Construction, and Building Operations). As shown in Figure 1, the vertical and cross-cutting markets overlap, representing the relationship between the supply (cross-cutting) and demand (vertical) sides of a given sector.

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<sup>2</sup> MPER #1 referred to the High Performance Hospitals Partnership. In late 2005, the name was changed to the BetterBricks Hospitals and Healthcare Initiative to capitalize on the market awareness of the name BetterBricks.

<sup>3</sup> Northwest Energy Efficiency Alliance. 2006. *Commercial Sector Initiative 2006-2008 Project Description (July 5, 2005)*. Portland, Oreg.: Northwest Energy Efficiency Alliance, p. 6. See: <http://www.nwalliance.org/proposals/rfps/CSIPProjectDescriptionForRFP.pdf>.



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Figure 1: BetterBricks Markets

BetterBricks		Vertical Target Markets			
		Hospitals & Health Care	Grocery	Real Estate	
Cross-Cutting Markets	Design & Construction				Other Buildings
	Building Operations				Other Buildings

## INITIATIVE DESCRIPTION

The ultimate goal of the Hospitals Initiative is to transform the hospitals and healthcare market. The first phase of this plan is to work with selected individual hospitals and hospital systems to validate the benefits of changing energy-related business practices and thus to create success stories that can later be used to influence the broader market. The vehicle by which the Initiative hopes to achieve this is the Strategic Energy Management Plan, or SEMP. A SEMP addresses financial decision-making, financial analysis methods, facility operating performance, facility upgrades, equipment procurement practices, design and construction practices, and monitoring and tracking ongoing performance. It establishes energy management goals and objectives, and delineates timelines and responsibilities for achieving them.

Key to the success of a SEMP is organizational commitment. The process of SEMP development and implementation must generate an understanding of its benefits that is shared by decision-makers, financial analysts, facility managers, construction managers, procurement agents, and everyone else who will be affected. A practical indication of organizational commitment is the allocation of sufficient resources for both development and implementation of the SEMP.

The SEMP concept is flexible, serving as a means to integrate energy efficiency thinking into the normal business processes of the organization. A formal and detailed SEMP would be appropriate for a multi-million dollar, multi-state hospital system or large stand-alone hospital. For a smaller organization, a simple series of energy management guidelines and a brief implementation plan by the facility director might be more appropriate.

The job of promoting, gaining the adoption, and supporting implementation of SEMPs falls to the Hospitals Initiative’s market specialists who are NEEA contractors. The market specialists’ main activities are making the business case for strategic energy planning to hospital decision-makers, conducting assessments of hospitals’ energy-management capabilities, supporting the



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development of SEMP, and providing advice on and support for SEMP implementation. Further, the market specialists collaborate with the utilities and public benefits administrators, involving them to the extent those staffs desire. To create initial success stories, market specialists identify hospitals that fit established target criteria and develop account plans that reflect each hospital's unique circumstances, articulate the basic value proposition to be offered, and identify an approach or strategy for engaging hospital executives and facility managers. A variety of tools and materials has been developed by the Initiative to facilitate the market specialists' work.

Each of three Northwest states (Idaho, Montana, and Oregon) has its own market specialist, while a three-person team serves Washington State. In addition, the Hospitals Initiative manager serves a dual role as market specialist for the Northwest's largest hospital system.

The Hospitals Initiative also leverages and is supported by the cross-cutting BetterBricks initiatives. Just as the market specialists implement the Hospitals Initiative, technical advisors implement the Building Operations program and Design and Construction. Technical advisory services may be used in such activities as assisting a hospital in energy benchmarking or in developing high-efficiency design alternatives for a new building. They can also play a vital role in demonstration projects which concretely illustrate the benefits being promoted through the SEMP. Demonstration projects can be extremely persuasive in getting hospital decision-makers to commit to an organization-wide strategic plan. The market specialists work closely with the technical advisors to address the interwoven business and technical needs of hospitals considering, developing, or implementing SEMP.

In addition to technical advisors, the Initiative is supported by a marketing team and an education and training team. The marketing team's activities falls into two main categories: developing materials for use by both market specialists and hospital staff, and disseminating success stories and lessons learned throughout the hospital/healthcare market to speed market transformation. The education and training team develop curricula and deliver both to technical and business-related audiences within the hospitals.

## INITIATIVE THEORY

The Hospitals Initiative's market transformation theory is reflected in the Initiative's hypotheses and long-term goals given in Table 1. Shorter-term objectives and progress indicators are given in Chapter 5, *Assessment of Initiative Progress* and hospital-level goals for targeted hospitals are given in Appendix A.



Table 1: Hospitals Initiative Hypotheses and Long-Term Goals

HYPOTHESIS	LONG-TERM GOALS
<b>If hospital executives are aware of the benefits available through high energy efficiency, then they will request and support energy management plans and changes in energy-related business practices.</b>	Hospital executives are aware of the benefits available through high energy efficiency and obtain these benefits by supporting changes in energy-related business practices.
<b>If facility managers and others are aware of the benefits of pursuing energy management strategically and are provided with the tools and resources to develop, sell, and implement such plans, then they will do so.</b>	Facility managers and others develop and implement strategic energy management plans that improve energy-related business practices. The development and implementation is viewed by them and their managers as an important part of their job responsibilities.
<b>If facility managers, construction managers, and others request trade ally support to achieve energy efficiency in design and construction and facility operations, the trade allies will be willing and able to support these efforts.</b>	The changes in energy-related business practices achieve energy efficiency in design and construction and facility operations, and trade allies promote and support high energy efficiency

Figure 2 graphically depicts the activity flow and outcomes for the program. The beginning of program intervention is symbolized by the horizontal line in the middle of the figure. Above that line, organizations implement projects and receive technical assistance on a project-specific basis.

Where these projects are successful, some hospital managers come to recognize the value energy efficiency has provided to their organizations and are receptive to the message from the market specialists that these benefits can be expanded in scope and duration by taking a SEMP approach. This is shown on the horizontal line, where market specialists identify hospitals that fit established program target criteria and develop organization-specific account plans.

As the market specialists discuss the business case for strategic energy planning and work with hospital executives and facility managers, the benefits of a SEMP and what it entails become apparent. When awareness among key groups is gained (shown in the row of three smaller side-by-side boxes below the horizontal line), hospital executives support the development of a SEMP and assign resources to allow this to happen.

Under executive direction, facility and other managers develop a SEMP, assisted by BetterBricks Hospitals Initiative materials and tools. Hospital executives request the resulting plan be implemented and allocate the necessary resources. (These phases are represented in the rows below the smaller boxes.)

With the plan in place, hospital purchasing agents implement its procurement practices, facility managers implement its operations practices and identified system upgrades, and design and construction managers implement the plan's construction practices. (These activities are represented by the three colored boxes near the lower left of the figure.) BetterBricks provides

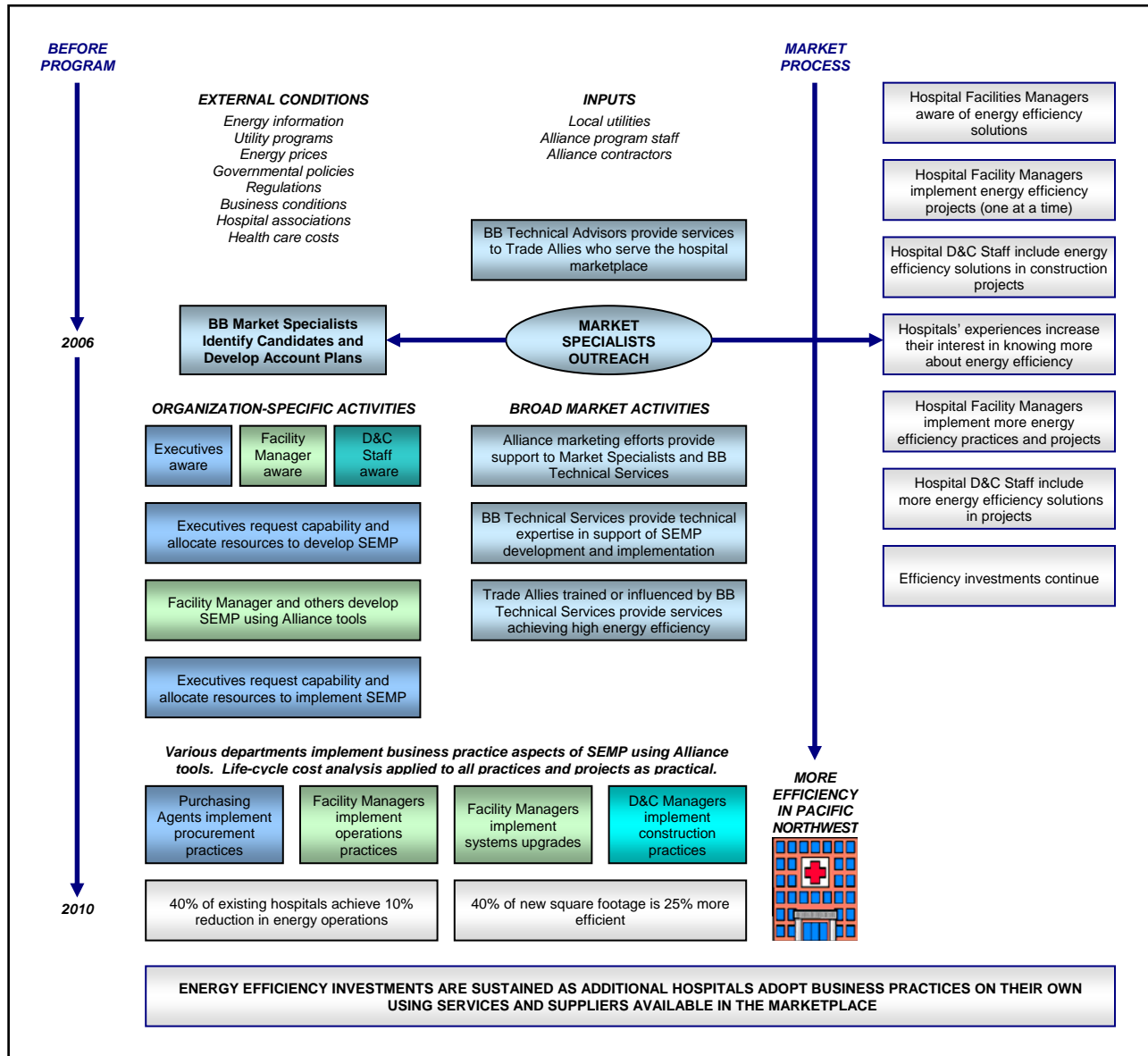


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help through its Hospitals Initiative materials and tools as necessary to the organization as it implements its SEMP. Utilities provide project-related technical and financial assistance as available.

Figure 2: Market Process for Energy Efficiency Improvements with BetterBricks Hospitals Initiative



The BetterBricks initiative provides support to hospitals developing and implementing SEMP, as represented by the three boxes below the oval. These supports include BetterBricks marketing efforts, expertise provided by BetterBricks technical advisors, and services provided by trade allies trained or influenced through BetterBricks.





The last two rows in the figure change from an individual organization perspective to the market perspective, respectively showing the percent of the whole market affected and the adoption of SEMP business practices by organizations not working directly with BetterBricks. BetterBricks marketing and training activities are aimed at raising general awareness of the high-efficiency advantages among hospitals and to encourage the adoption and implementation of SEMP practices. The market transformation theory does not provide a strong rationale for understanding the motivations or mechanisms that will lead to SEMP adoption and implementation among hospitals with which BetterBricks is not working directly.

## PRIOR MPER FINDINGS

MPER #1 found NEEA had made substantial progress between January 2005 and October 2005 in the Hospitals Initiative by presenting the SEMP concept to executives and facility managers at targeted hospitals and at professional association events. The Initiative manager had developed a number of supporting tools, including a document that puts forth the business case for strategic energy management planning, a “template” SEMP, a sketch of additional tools and materials to be developed, and managerial supports. Complementing these efforts, BetterBricks technical advisors consulted on a number of new construction and building performance projects with hospitals during the period. With Initiative assistance, initial implementation activities commenced at the first hospital to sign a SEMP.

The baseline survey of 65 facility managers, conducted in October 2005, found that 75% reported they had heard of the term *strategic energy management plan*, 66% had heard of *high performance building*, and 43% had heard of BetterBricks.<sup>4</sup> The baseline survey found that facility managers were likely to report that their facilities engaged in energy efficiency operational practices. In contrast, institutional/managerial practices were rarely reported to be implemented. When asked, “What is the most important thing you would need to promote energy efficiency improvements from your position,” facility manager responses related to technical assistance desired (42%), managerial assistance desired (37%), and responses related to both technical and managerial assistance (5%).

Table 2 provides the MPER #1 conclusions and recommendations, and gives the status of implementation of the recommendation.

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<sup>4</sup> Although the baseline found high recognition of the term *high performance building*, subsequent market research completed by NEEA in June 2006 suggests that hospital executives and facility managers don't associate *energy efficiency* with high performance, but rather associate it with a low environmental impact generally or as indicating an organization where all systems work smoothly together.



**Table 2: MPER 1 Conclusions and Recommendations**

CONCLUSION	RECOMMENDATION	STATUS
<p>The hospital market appears receptive to the Hospitals Initiative program concepts.</p>	<p>[No recommendation given]</p>	<p>NA</p>
<p>Hospital program staff appear to have clearly identified the products, services, policies, and procedures needed to support program delivery, and are working hard to develop these supports.</p>	<p>NEEA should empower Hospital program contractors to meet the high market interest by using a generational approach to developing materials and tools, whereby the first generation of infrastructure has the basic functionality needed for the program and subsequent generations revise and augment the early items.</p>	<p>This is being increasingly done.</p>
<p>The primary effort to develop the Hospitals Initiative approach has been internal to NEEA, and the technical advisors (both Design and Construction and Building Operations) are unfamiliar with many of the details of the approach.</p>	<p>Communicate clearly with the technical advisors, both informing them of their roles and responsibilities, and also seeking their market understanding that has resulted from their field experiences.</p>	<p>This is being increasingly done.</p>
<p>Program planning and implementation would benefit from a team approach, where NEEA program staff are the clear team leaders, yet the business and technical advisors are valued contributors to the program evolution.</p>	<p>Periodically convene meetings of the BetterBricks staff involved in the Hospitals Initiative, the market specialists, and the key technical advisors. Allow sufficient opportunity to build the relationships that support candor and creative thinking. Consider the suggestion of a market specialist that such meetings be held twice a year for a two-day period.</p>	<p>This is being done.</p>



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## EVALUATION METHODOLOGY

This MPER #2 is the second in a series of four market progress evaluations planned for the BetterBricks Hospitals Initiative. Table 3 describes the planned activities and completion dates for each MPER.

**Table 3: MPER Activity Schedule**

TASK	DATA SOURCES	MPER #1 12/05	MPER #2 12/06	MPER #3 12/07	MPER #4 12/08
<b>INITIATIVE STATUS</b>					
<b>Initiative Activity Status</b>	Hospital Staff	X*		X	X
	Program Staff	X	X	X	X
	Program Contractors	X	X	X	X
	Database Review		X	X	X
<b>Initiative Support Activities Status (Tools and Materials, Education and Training, Marketing—collectively termed <i>Products</i>)</b>	Tool/ Materials Review	X	X	X	X
	Tool/ Materials Developers		X	X	X
	Tool/ Materials Users			X	X
	Database Review		X	X	X
<b>MARKET CHARACTERIZATION</b>					
<b>Market Characterization</b>	Program Contractors	X	X	X	X
	Industry Professionals		X	X	X
	Literature Review		X	X	X
<b>ASSESSMENT OF INITIATIVE PROGRESS</b>					
<b>Initiative Progress/ Market Progress Assessment</b>	All Sources Spanned by the MPER	X	X	X	X
<b>PROCESS EVALUATION</b>					
<b>Assessment of Program Implementation Issues</b>	Hospital Staff			X	X
	Program Staff	X	X	X	X
	Program Contractors	X	X	X	X
	Utility Staff			X	X
	Database Review	X	X	X	X
<b>Energy Savings</b>					
<b>Summary of Method and Results</b>				X	X

\* In MPER #1, hospital facility managers were surveyed to establish a program baseline.



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MPER #1 includes a table of market progress indicators developed from the baseline study that will be tracked in subsequent MPERs to assess market progress. Table 4 provides the progress indicators and the data sources that will be used to assess them.

**Table 4: Data Sources for Market Progress Indicators**

OBJECTIVE AND PROGRESS INDICATOR(S)	DATA SOURCES
<b>Seventy-five percent of Pacific Northwest hospital decision-makers are aware of the specific benefits available from new and existing high performance hospitals.</b>	
<ul style="list-style-type: none"> <li>Executive level awareness of benefits</li> </ul>	Market survey (random sample of executives)
<ul style="list-style-type: none"> <li>Facility managers aware of the term <i>strategic energy management plan</i></li> </ul>	Market survey (random sample of facility managers)
<b>Hospitals representing 40% or more of the beds in the region approve and implement energy management plans that change business practices, including three or more of the largest multi-hospital systems and three or more community-based hospitals within each state.</b>	
<ul style="list-style-type: none"> <li>Adopted strategic energy management plan and began implementation</li> </ul>	In-depth interviews with managers at hospitals with SEMP
<b>Forty percent of those with design and construction management responsibility are capable of managing change in energy-related business practices.</b>	
<ul style="list-style-type: none"> <li>Design and construction policies and procedures are consistent with strategic energy management plan</li> </ul>	In-depth interviews with managers at hospitals with SEMP
<b>Forty percent of facility managers are capable of managing change in energy-related business practices for facility operations (for specific indicators of facility managers' capabilities see Table 10).</b>	
<ul style="list-style-type: none"> <li>Facility operations policies and procedures are consistent with strategic energy management plan</li> </ul>	In-depth interviews with managers at hospitals with SEMP
<b>Forty percent of new floor space uses 25% less energy per square foot than baseline.</b>	
<ul style="list-style-type: none"> <li>New floor space using less energy than baseline</li> </ul>	Energy use analysis
<b>Forty percent of existing floor space uses 10% less energy per square foot than baseline.</b>	
<ul style="list-style-type: none"> <li>Existing floor space using less energy than baseline (EUI = 21 kWh/SF)</li> </ul>	Energy use analysis

Table 5 presents the number of interviews conducted for the current MPER. In September 2006, in-depth interviews of one to two hours were conducted with the BetterBricks staff and contractors (market specialists and technical advisors) most directly involved in providing services to the hospital sector. Shorter interviews of 15 to 30 minutes were conducted with the other interviewees.



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Table 5: Hospitals Initiative MPER #2 Sampling Plan

GROUP	POPULATION	COMPLETED INTERVIEWS
NEEA BetterBricks Project Managers Serving Hospitals Initiative	5	5
Other NEEA Staff Serving Hospitals Initiative	2	2
Hospitals Initiative Market Specialists	4	4
Marketing Firm	1	1
Technical Advisors*	2	1
Industry Professionals**	—	2

\* The Technical Advisor was interviewed by another BetterBricks evaluation contractor. The responses were shared with the Hospitals Initiative evaluation team. This approach minimized the evaluation burden placed on the respondent.

\*\* The two industry professionals interviewed included one consultant to the Hospitals Initiative and one member of the evaluation team.

In addition to the interviews, sources of information used in this evaluation include: a review of program documents; a review of program tools and materials, educational and training materials, and marketing materials; a review of the literature; a review of the BetterBricks program tracking database; and participation in two BetterBricks-convened market specialists meetings (June 14 and October 12-13, 2006). Regarding the database, the evaluators found the Hospital team was just beginning to record its activity in the database; further assessment of the database will be conducted for MPER #3.

The evaluation team did not interview staff or executives at hospitals for this MPER. A baseline survey of hospital facility managers was conducted for MPER #1. The Hospitals Initiative manager and the evaluation team both advised NEEA management against contacting them at this stage of implementation. Targeted hospitals, as discussed in the next chapter, *Initiative Status*, are just beginning to undertake the energy efficiency activities the program promotes. Interviews with participants would therefore need to be restricted to the very simple “How is it going so far?” Probing questions into experiences, plans, problems, and successes would run the risk of confusing participants. The evaluators are mindful of the multi-year MPER schedule and do not want to burden participants with multiple interviews. The current evaluation plan has the team interviewing hospital participants in 2007 and 2008.

For similar reasons, the evaluation team did not interview representatives of utilities or public benefits administrators involved in their customers’ Initiative activities. These interviews, too, will occur in 2007 and 2008.

Estimation of energy savings for the Hospitals Initiative is being conducted by a separate evaluation contractor analyzing the entire commercial sector BetterBricks effort.



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# 3

## MARKET CHARACTERIZATION

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### INDUSTRY TRENDS

Hospitals are facing enormous financial pressure from many interrelated factors. Not only are the financial pressures high, the underlying trends are escalating in their rate of change, compounding the difficulties from year to year.

The following summary is based on the comments of contacts interviewed for this MPER and a review of periodicals.

- ➔ **Technical advances are occurring with increasing rapidity, increasing the speed at which facilities become obsolete.**
  - Technical advances increase the complexity of equipment, increasing the speed at which equipment costs are escalating.
  - Technical advances increase the complexity of building design requirements and make it necessary to gut, rather than modify, existing buildings. The majority of facilities are many decades old and often the old designs cannot accommodate the new requirements (as example, ceiling heights are often too low to accommodate the electrical and ducting requirements associated with new patient care technologies, and wider corridors are needed).
  
- ➔ **Insurance reimbursements for non-specialty areas are lower than hospitals' costs and are still falling.**
  - As reimbursements fall short of operating expenses, hospitals have spent down reserves once maintained for capital expenses. Nonprofit hospitals, in particular, are challenged to fund the construction of new facilities. Hospitals are currently experiencing the seemingly contradictory conditions of financial crisis—due to changes in Medicare and Medicaid funding for patient care—and building boom, as the demand for healthcare services continues to increase. And while demand increases, Medicare/Medicaid reimbursement levels continue to decrease.
  - Due to costs in excess of reimbursements, hospitals are increasingly dependent on philanthropy to cover costs, rather than using donated funds solely for facility construction, as in the past.
  
- ➔ **All hospitals with emergency facilities** (as well as many not-for-profit hospitals, as consistent with their charter) **are required to serve the uninsured**, even if the patients are unable to pay, **and increasing numbers of uninsured are turning to hospitals for care.**



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- Increasing proportions of doctors in private practice (although not all) are refusing to serve the uninsured, so increasing proportions of the uninsured have no health care provider other than hospitals.
  - The uninsured, as a proportion of the population served by hospitals, is rising. Throughout Oregon, the overall rate of uncompensated care as a percentage of gross charges has been steadily increasing from a rate of approximately 3% in 2002 to 6% in 2005. In 2006, the total cost of uncompensated care in Oregon was \$675,965,755, and appears to be rising at a rate of about 1% of gross charges per year. In the Portland metropolitan area, uncompensated care rose from 3% of gross charges in 2001 to approximately 6% in 2005, for a total of \$327,984,685.
  - Nonprofits hospitals are threatened with losing their nonprofit status through lawsuits that challenge the extent to which they serve the uninsured or provide other community services.
  - Although hospitals have a requirement to serve, as a nation, American's have not developed a definition of a citizen's basic entitlement to healthcare.
- ➔ **Demand for hospital services are increasing due to the aging of the population**, as the elderly per capita consumption of healthcare greatly exceeds those of other demographic groups.
- ➔ **Hospitals' market share of specialty areas**, such as orthopedic surgery, **is falling as physicians form private practices to reap the more generous insurance reimbursements these areas offer.**
- These specialty areas often require highly specialized diagnostic and treatment facilities and equipment for the most difficult cases that are not purchased by the doctor practices. The result is that hospitals must spend large amounts of money on equipment that is used relatively rarely, at the same time that they are losing revenue from more common procedures.
- ➔ **To garner market share in high-reimbursement specialty areas, hospitals try to quickly establish specialties in emerging areas they hope will be profitable** (example: bariatric surgery). On the negative side, **these new areas can themselves contribute to increasing hospital facility and equipment costs and may not be closely aligned with hospital mission and core competencies.**
- ➔ **To garner market share as a means of increasing revenues, competition among hospitals is intensifying.**
- ➔ **Insurance costs (malpractice and liability) are rising at ever-increasing rates.**
- *Example:* Washington has the seventh highest insurance costs in the 50 states.



- **Regulation and litigation occupy significant resources and limit the expression and adoption of new ideas.** It is common for a hospital’s legal counsel to say, in effect, “Don’t do anything until you call us.”
- **Staff recruitment is increasingly difficult, as there are national shortages of doctors and nurses. There is also a dearth of volunteers.**
  - The physician profession is attracting fewer people as the cost of medical training is increasing and the compensation, due to insurance reimbursements and cost of coverage, is decreasing.
  - The nursing profession is attracting fewer people as hospital working conditions for nursing staff deteriorate due to cost-cutting moves hospitals institute to respond to reimbursement rates below the cost to provide services.
  - From a national or regional perspective, one hospital’s success in attracting staff results in another hospital’s difficulty recruiting personnel, as the total professional populations are lower than the need.
  - Volunteering in hospitals is at an all-time low and volunteers are limited in the activities they can conduct with patients due to liability concerns (i.e., volunteers are no longer used to transport patients).
- **Most nonprofit hospitals were established and have been run by religious orders, which themselves are attracting few novitiates.** Hospitals are grappling with the issues of who owns the organization after a religious order has ended or becomes too small to support a hospital, and who will preserve its founding spirit and spiritual principles. As the founding governance structure fades away, hospitals become more secular, leading to a crisis of culture. Some hospitals established in a religious tradition have been investing time and resources to ensure the mission and values of the organization will be sustained by all leadership and employees, rather than dependent on the religious orders.

## MARKET SIZE

The region’s largest hospitals are the systems: Providence Health & Services (21% of regional beds), Legacy Health Systems (9%), and Catholic Health Initiatives (3%).

Table 6 and Table 7 present the total number of hospitals and hospital beds in the region, by state. In addition, the tables show the number of multi-hospital systems and the number of hospitals and beds comprising these systems. For example, in Oregon more than half of the hospitals (32 of 60) are members of multi-hospital systems. These data were provided by the Hospitals Initiative manager and are current as of July 2005.



Table 6: Size of Hospital Market: Number of Hospitals

STATE	ALL HOSPITALS	HOSPITAL SYSTEMS			COMMUNITY HOSPITALS: 300 BEDS OR MORE		COMMUNITY HOSPITALS: UNDER 300 BEDS	
		NUMBER OF SYSTEMS	NUMBER OF HOSPITALS	PERCENT OF HOSPITALS	NUMBER OF HOSPITALS	PERCENT OF HOSPITALS	NUMBER OF HOSPITALS	PERCENT OF HOSPITALS
OR	60	10	32	53%	2	3%	26	43%
WA	106	18	38	36%	5	5%	63	59%
ID	40	6	7	18%	1	3%	32	80%
MT	68	6	14	21%	1	1%	53	78%
<b>Region</b>	<b>274</b>	<b>33*</b>	<b>91</b>	<b>33%</b>	<b>9</b>	<b>3%</b>	<b>174</b>	<b>64%</b>

\* Six systems cross state lines. The region total is less than the sum of the states to reflect subtractions made to avoid double counting.

Table 7: Size of Hospital Market: Number of Beds

STATE	ALL BEDS	HOSPITAL SYSTEMS		COMMUNITY HOSPITALS: 300 BEDS OR MORE		COMMUNITY HOSPITALS: UNDER 300 BEDS	
		NUMBER OF BEDS	PERCENT OF BEDS	NUMBER OF BEDS	PERCENT OF BEDS	NUMBER OF BEDS	PERCENT OF BEDS
OR	8,010	5,345	67%	782	10%	1,883	24%
WA	15,316	7,915	52%	1,948	13%	5,453	36%
ID	3,123	1,210	39%	409	13%	1,504	48%
MT	3,733	1,646	44%	356	10%	1,731	46%
<b>Region</b>	<b>30,182</b>	<b>16,116</b>	<b>53%</b>	<b>3,495</b>	<b>12%</b>	<b>10,571</b>	<b>35%</b>



# 4

## INITIATIVE STATUS

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This chapter provides a status of the Hospitals Initiative's activities and progress with the hospitals it has targeted as of September 2006. In addition, it provides a status of support activities, such as education and training. Note that neither staff and executives at hospitals nor utility representatives were interviewed for this MPER because there were concerns, shared by the evaluators, that such interviews might create confusion in the market at a time when the Initiative was still in its early stages. The findings therefore reflect only the views of NEEA staff and contractors.

### ACTIVITIES AND PROGRESS WITH TARGETED HOSPITALS

In 2006, the Hospitals Initiative worked with eleven hospitals or hospital systems that it had targeted in the region. Included among these eleven are four hospital systems, six community hospitals, and one teaching hospital. The hospital systems are among the largest providers in the region (one of which is also among the largest providers nationally).

One of these targeted hospitals/systems adopted a SEMP in 2004. Three targeted hospitals/systems are anticipated to adopt SEMPs by the end of 2006, and another three are anticipated to adopt a SEMP in the first half of 2007. SEMP adoption entails written approval of a SEMP document by the hospital's chief executive officer and board of directors. Preliminary work has begun with three additional hospitals/systems. The Hospitals Initiative has ceased work at the eleventh hospital, as the team judged the support of the chief executive officer to be insufficient to motivate the development of a SEMP.

#### Hospital A

At Hospital A, a hospital system, key executives with responsibilities for both new construction and facility operations are committed to developing a SEMP, which was well underway by mid-October 2006. The SEMP will have a three-year planning horizon.

All facility managers have embraced the strategic planning, which corresponds well with corporate efforts to obtain operating cost reductions and facility managers' desire to have greater authority for and control of operating budgets at the individual hospital level. As evidence of their interest, facility managers have begun monthly meetings. In turn, the monthly meetings are furthering the facility managers' commitments to a SEMP. The market specialist has conducted an organizational assessment and is facilitating the development of the SEMP. Staff are considering what energy benchmarking tool they wish to use.



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The progress at this healthcare system illustrates the potential for a hospital's embrace of a SEMP when it has an appropriate, effective champion. The champion, in turn, has needed to "sell" the Initiative to a director. Aware of the director's style, the market specialist worked with this facility manager to develop a pithy statement of the benefits the hospital system would reap from a SEMP. The manager successfully presented the business proposition to the director, who reports to the CEO. The market specialist also reports having a good relationship with utilities serving the hospital system.

### Hospital B

The market specialist began working with this community-based hospital in May 2006 and reports the hospital has moved very quickly. The hospital takes pride in its progress, especially because it views itself as a keen competitor of another hospital working with the Initiative. The market specialist emphasized the SEMP has support at all levels of the organization.

The market specialist is working with hospital staff on a SEMP, whose objectives and key components have been reviewed in a strategy session that strengthened management's commitment to the endeavor. The hospital has given staff of the BetterBricks Lab Network free reign to look at all systems in an upcoming new construction project and has committed to paying for 50% of the study. Further, the hospital is incorporating energy efficiency measures into its phase-two activities of a construction project already underway. The hospital is reviewing its operational process as it commissions a new chiller and boiler package that support a new tower.

A facility assessment was conducted by BetterBricks technical advisors and the hospital began work in September on its first energy project in ten years—installing, with financial assistance from its utility, variable frequency drives (VFDs) on two large central air units—expected to save \$125,000 in annual electricity costs. The market specialist credits this project with increasing support throughout the organization for SEMP. Information from this project is also expected to inform the SEMP.

The hospital engineering manager also serves as the president of the American Society for Healthcare Engineering (ASHE). The manager has dedicated several of his *President's Letters* in the organization's monthly *Health Facilities Management* publication to energy planning and management. In these articles, he describes his hospital's work to develop "a business plan for energy." He credits the support provided by NEEA, the BetterBricks design lab, and the hospital's utility.

### Hospital C

Hospital C is a large community-based hospital with multiple facilities. A rough draft of a SEMP was completed in early September 2006, supported by an organizational assessment and the analysis of operations conducted by a BetterBricks technical advisor. Life-cycle cost analysis



requirements have been defined, as well as a definition of what “life-cycle” encompasses, including acquisition, design, installation, maintenance, training, and end-of-life disposal. The market specialist describes himself as the “guinea pig” for the Hospitals Initiative team’s effort to create a life-cycle cost analysis template, which was an outgrowth of his work to conduct life-cycle cost analyses for construction already underway.

The market specialist reports that SEMP facility operations practices are being embraced by staff, as the hospital already had many of the managerial structures in place, although without serving the objective of energy savings. Says the market specialist: “These are not top-down plans; we got buy-off at both the executive and facility level.”

The market specialist and BetterBricks technical advisors are working with the hospital on four locations engaged in facility construction. One of the design labs in the BetterBricks Lab Network led an energy design charette. The hospital system is constructing a hospital and a medical office building and it “wants to add all the energy efficiency it can.” The market specialist reports the architectural firm with which the hospital is working has been slow to embrace integrated energy design. The market specialist has encouraged the BetterBricks Lab Network staff to form a relationship with the lead architect.

The market specialist reports that the success of the first life-cycle cost analysis they conducted has led to its adoption at the other facilities being constructed. For example, the Design Lab recommended the use of condensing boilers rather than standard high-efficiency steam boilers.<sup>5</sup> Condensing boilers are not yet commonly used and it took considerable selling of the idea of condensing boilers to the engineering firm and client by the market specialist for them to ultimately choose this rather than high-efficiency steam boilers, the more conventional approach. The engineering team had not previously designed them, and new systems both require new designs (as opposed to an essentially “off-the-shelf” design) and carry the perceived risk of the unknown.

As a first step in this process, the market specialist and a BetterBricks technical advisor conducted a life-cycle cost analysis showing that the condensing boilers have a lower overall life-cycle cost (they also have lower first costs) than conventional high-efficiency steam boilers. The second task was to get the client comfortable with the idea of using condensing boilers rather than steam boilers. The market specialist contacted the condensing boiler manufacturer and got several references on peer hospitals using this technology. The hospital’s facility director called the peer facility director and this peer said that not only were the condensing boilers easy

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<sup>5</sup> Condensing boilers are higher efficiency due to three factors: one, the boiler is itself is more efficient; two, the system requires considerably less piping, because the standard system requires the return water be pre-heated before re-entering the boiler; three, much smaller pumps are needed, because less pressure is needed to move water through less piping, and motor size is a function of the square of the pressure requirement. Two of these factors—less piping and smaller motors—make condensing boilers the low-cost, as well as high-efficiency, alternative.



to operate and efficient, they were modular, allowing a phased startup. The hospital has now decided to use them in two facilities under construction.

The hospital has had a history of implementing energy efficiency projects. The newly hired specialist had most recently been managing a two-and-one-half year project for the hospital to install adjustable speed drives (ASD) as a contractor for a controls company. Of all their efficiency projects, the ASD project contributed the most to the hospital's receptivity to the Hospitals Initiative.

In early 2006, the hospital received a very large incentive for the ASD project from its utility. Lots of publicity accompanied the delivery of the incentive check and the chairman of the hospital's board of directors (a body comprised mostly of hospital physicians) asked the crowd to ponder why the utility would pay them not to use its electricity. Met with many blank looks, the chairman went on to explain that through energy efficiency, the hospital wins, the utility wins, and the environment wins.

This moment served as a turning point. While the construction and operations staff had previously proposed energy-efficient projects (and had undertaken many), energy efficiency did not have the attention of hospital administrators and was viewed as competing with the needs of the physicians and nurses. The Hospitals Initiative team was able to seize the moment and forge relationships with the physicians' and nurses' management groups. The market specialist reported having met with the head nurse for one hour—an unprecedented amount of attention. The nurses have been quite receptive to the Initiative's concepts regarding the benefits for staff and patients; this receptivity bodes well for the SEMP as the hospital is particularly concerned with retaining its nursing staff.

The market specialist formed a team to develop a SEMP that included the directors of construction and operations, the chief financial officer, and physicians and nurses. The latter two groups are brought into discussions as needed. Thus the SEMP team has representatives from all the major hospital staff functions, as well as having the support of the CEO and board of directors.

The hospital, with its catalyst in the ASD project, highlights the potential synergy of utility involvement with BetterBricks-targeted hospitals.

## Hospital D

Hospital D is a hospital system. The key components of its SEMP include an energy savings goal of 10% (cumulative over the three-year life of the plan), commitment to a financial hurdle rate for investment decisions that would be consistently applied throughout the system, and a capital commitment. All affected decision-makers (central administration executives, executives for each hospital, and facility vice presidents and managers) have agreed to the plan's performance goals. Thus, the plan will have full buy-in throughout the organization. Central administration executives anticipate integrating the strategic plan and capital commitment into the hospital's





2007 budget process, which occurs in the first quarter of 2007 and should be completed by mid-year. The planned reduction of 10% in annual energy consumption will be attained through activities over a three-year period. The plan focuses on facility operations, but is expected to influence any new construction projects planned subsequent to its adoption.

To develop the facility energy performance goals (a 10% reduction at each facility), ENERGY STAR<sup>®</sup> performance benchmarking was conducted for all but one of the system's facilities in the Pacific Northwest. Staff at each facility participated in a Web-cast training on the benchmarking tool. Subsequent to the benchmarking, BetterBricks technical advisors conducted scoping projects to identify potential savings in two underperforming facilities. Assessments of the energy-related business practices for the two regions further informed the strategic energy management plan.

The market specialists described the progress made on the plan as resulting from: “[The SEMP] having grown up organically through the hospital system. There's been more buy-in, more involvement of the facilities into the plan's creation. We've been working with middle management to push the plan up and down the organization. And this strategy is working well.”

As a further element of the Hospitals Initiative's approach, the market specialists early on involved the utilities serving each of the system's facilities in the region. As one outcome of such involvement, one of the utilities now plans to install interval metering to provide real time data to a facility. Discussions are underway about utility financial support to partially pay for a hospital facility staff member to serve as a resource conservation manager.

It is the market specialists' impression that hospital staff are frequently unaware of or confused about the services their utilities offer; the market specialists help them “navigate” this. The market specialists added, “We've pushed them to use the free services of the utilities to conduct facility assessments, which include buildings and equipment, and thus differ from the BetterBricks Building Operations assessments. These facility assessments have been critical to the plan development.”

Although the market specialists had known many of the hospital system's facilities directors and managers for years, they first met formally in June 2005 with the management committee that has taken on the task of SEMP development. The committee had recently formed with the mandate to bring consistency to facility operations across the system and their reaction to the SEMP concept was very positive. The committee signed a commitment letter to develop a SEMP.

### Hospital E

In contrast to Hospital D, Hospital E is a system whose individual hospitals and regions operate with significant autonomy. The system's central administration executives have adopted a SEMP and allocated staff resources to its implementation in the form of a director-level position for energy management services. However, the nuts and bolts of implementation requires the buy-in





of many staff at the many hospitals, and so they will proceed through relationship-building rather than executive mandate.

The system's SEMP addresses both new construction and facility operations, although to date, the most progress has been made in the area of new construction and large capital investments.

The system has incorporated energy criteria into its budgeting process for capital expenditures over five million dollars. Its design and construction managers have committed to using integrated energy design and considering the results of life-cycle cost analyses in all decision-making. BetterBricks Integrated Design Lab staff and another technical advisor presented integrated design and life-cycle cost analysis concepts to the managers so that they might make an informed decision.

Since that decision by the design and construction managers, the market specialists, together with one of the contractors developing tools and materials, drafted an integrated design policy for adoption by the managers. The next steps in which the Hospitals Initiative team can provide support are to assist in writing integrated design construction guidelines and guidelines for life-cycle cost analysis, and then helping to build support for these guidelines within the organization.

Application of the SEMP to active new construction projects appears to be gradually gaining traction in the hospital system. An example at one end of the spectrum—evidencing some, but less than ideal influence—the Hospitals Initiative staff developed a relationship with the construction manager for a large facility representing one-third of the system's total projected construction budget. This relationship was established somewhat late in the design phase (although still in early schematic design, prior to design development) and, perhaps as a result, the construction manager has not fully embraced the Hospitals Initiative's message. Technical advisors have made presentations to this construction manager and other hospital decision-makers.

Representing a mid-point on the spectrum of SEMP influence on new construction, one of the design labs in the BetterBricks Lab Networks was able to review design plans for another construction project and is providing integrated design assistance to the project architect, although a fully integrated design approach is not appropriate for the small facilities.

As an example at the other end of the spectrum—evidencing high influence by the Initiative—the manager responsible for construction and facility operations for a third new construction project has recently contacted the team to assist him during the master planning stage, prior to schematic design. The Hospitals Initiative team's involvement has included a review of the RFP the facility is letting for architectural design services, to ensure that the integrated energy design capabilities the facility seeks are clearly described.

These three examples support the Hospitals Initiative team's assessment that the Initiative's influence on the hospital system's construction projects appears to be growing over time, with the latter project's early access of BetterBricks resources being the hoped-for outcome.



The Hospitals Initiative team's work with the facility given in the first example has generated "lessons learned" for the Initiative. The construction manager was persuaded to hold a design charette with the architect, which is partnering with the BetterBricks Design and Construction Initiative as a targeted firm. However, the architect has more than one office, and its branch office is working on the new facility, not its corporate office, which has been most involved with, and enthusiastic about, BetterBricks.

The hospital construction manager took a "wait and see" approach to the design charette and did not set goals for it; the architect conducted a charette on broad sustainability issues, with little focus on energy, and even less elaboration of specific energy-efficient design strategies to potentially meet energy performance goals. As a result, the construction manager told the Hospitals Initiative team that he was unimpressed with the charette and its lack of applicability to the decisions he faces.

From this experience, the Hospitals Initiative team identified the need to clearly promote *energy* design charettes, rather than simply "design charettes." And the team noted how the outcome illustrates the complexity of their mission. Even in hindsight, it was difficult for the team to imagine how they might have influenced how the charette was conducted, given that the primary relationship is between the architect and the construction manager, and BetterBricks was not fully integrated as part of the team.

Relating to the considerable autonomy among the regions (and hospitals) comprising this healthcare system, the region most recently brought into the system through a merger had independently completed SEMP development (with market specialists' support) just prior to the merger. This region is moving ahead with its plan, obtaining executive approval from each of region's hospitals, and integrating the plan into that of the SEMP of the larger organization, which includes region- and hospital-specific goals.

The region's plan (now integrated into the system-wide plan) focuses on building operations, as no new construction is planned. The market specialists are hopeful that the level of agreement and coordination among the region's facility managers/directors will serve as a model for the facility management staff in the rest of the hospital system. The region's facility managers are starting to benchmark their facilities using *Facility IQ™*, the Avista Advantage (now Advantage IQ, Inc.) facility energy assessment program, and to implement some efficiency projects.

## Hospital F

Hospital F is a community-based hospital. The hospital staff initially expressed strong interest in a SEMP, and much work has been completed in support of SEMP development. In addition, the hospital has just hired a master planner for a new building, making the time ripe for extending the SEMP process into the organization. However, staff turnover led to a slowdown in SEMP-related activity. As a consequence, the market specialist recently decided to take a more aggressive role in preparing the SEMP; he anticipates SEMP approval will likely come in early 2007.



The market specialist secured executive commitment (November 2005), completed an organizational assessment (February 2006), and conducted a SEMP planning meeting (June 2006) that included the hospital's chief executive officer. A technical advisor conducted an analysis of building operations, which has been well received; the report estimated energy savings opportunities could reap 1,000,000 kWh annually. Hospital staff conducted an ENERGY STAR benchmarking assessment, yet methodological problems have precluded its completion.

The SEMP process initially focused on operations, not new construction; the market specialists hope it can be expanded to new construction, as the hospital is embarking on the construction of a new patient tower and possible office complex.

Irrespective of the setbacks, the Hospitals Initiative has accomplished an important step at the hospital. The hospital asked the market specialist if BetterBricks could provide specifications for integrated design capabilities it could include in its RFP for architectural services. The team is able to meet this request and, further, hopes to encourage the hospital to allow a technical advisor to review the proposals it receives. Similarly, at the hospital's request, BetterBricks plans to offer commissioning resources for the hospital to consider as it hires the project engineer.

It was the consensus of the BetterBricks Hospitals Initiative team at an October 2006 meeting of market specialists that additional support, along with engaging hospital decision-makers and key staff in renewed organizational buy-in, is likely to succeed at this hospital.

### Hospital G

Hospital G is a community-based hospital. The hospital facility manager has executive approval to develop a SEMP and is working closely with the market specialist to do so. The market specialist has completed an organizational assessment of the hospital and reviewed with the chief executive officer the SEMP template and how it meshes with the hospital's strategic plan. A facility assessment is being conducted by a technical advisor from the BetterBricks Building Operations team. Staff at a design lab in the BetterBricks Lab Network will assist the hospital's architects in designing a new medical office building.

The hospital's facility manager also serves as the 2006 president of the one of the region's four state societies for healthcare engineering. The Hospitals Initiative team's work with the manager has led to training opportunities with the society (discussed in the section *Status of Program Support Activities*).

### Hospital H

Hospital H is a community-based hospital. In 2006, market specialists met with the chief executive officer, the vice president of facilities, and the facility director, and have received an indication of interest in a strategic energy management plan. The organization agreed to conduct



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an energy performance benchmark of the hospital's main campus as a first step, a process that is underway. Staff turnover stalled the momentum mid-year.

### Hospital I

Hospital I is another community-based hospital. The market specialist has worked with the healthcare organization for over a year. The hospital is planning to renovate an existing facility; the market specialist has established a relationship with a contact at the firm under contract with the hospital to design and construct the facility. Technical advisors from the BetterBricks Lab Network have also met with hospital and contractor contacts, and BetterBricks has been invited to be a part of the project team. The contractor plans to involve the BetterBricks Lab Network when the basic designs for the footprint and shell for the renovation, as well as the project budget, are approved by the hospital organization.

### Hospital J

Hospital J is a teaching hospital. Its utility arranged a meeting with the hospital's manager responsible for energy to introduce the Hospitals Initiative. BetterBricks and the utility have reviewed with hospital staff the SEMP process and explored their interest in engaging BetterBricks and utility services to develop a strategic approach to energy management. The hospital manager will arrange a follow-on introductory meeting with facility management staff.

### Hospital K

Hospital K, a community-based hospital, is the only hospital to date for which the Hospitals Initiative team has decided to suspend active SEMP support-services. The experience illustrates the necessity of broad-based support for a SEMP to ensure its successful development. A team, not a single individual, is needed to develop a SEMP, and the team members cannot be limited to facilities staff.

The experience with the hospital has clarified an issue documented in MPER #1, namely how can the Hospitals Initiative team judge when to stop putting resources into a slow-moving hospital? The team assessed the progress and likely developments at the hospital; a consensus was reached that the hospital's actions were communicating that it was not in position to move forward with a SEMP at this time. The market specialist delivered a letter to the hospital giving an overview of how the hospital might best proceed, identifying the BetterBricks resources, and asking them to call on BetterBricks when they are committed to creating and implementing a SEMP.



## STATUS OF PROGRAM SUPPORT ACTIVITIES

### Technical Advisors

Whereas the market specialists are consultants to hospitals—the vertical target market, the technical advisors are experts in Design and Construction and Building Operations—the cross-cutting markets (see Figure 1 in Chapter 1). To date, the Building Operations technical advisors have played the larger role, although both groups have worked with hospitals in each state.

The market specialists describe the development of a SEMP as a data-intensive, data-driven activity. In order to provide clear goals, direction, and a baseline, the SEMP requires that current building operations practices be documented, facilities' energy consumption be benchmarked, opportunities for efficiency upgrades be identified, and energy efficiency cost and savings estimates be quantified. Similar investigation and analysis is needed in support of any planned or early-stage new construction activities.

The technical advisors are experts in these activities. They both directly conduct these activities and consult to the market specialists and hospitals as hospital and/or utility staff conduct these activities. At times, technical advisors assist in or coordinate the training of hospital staff charged with these activities.

Market specialists have called on technical advisors from the BetterBricks Lab Network to consult on new construction projects. Technical advisors have led integrated energy design charettes, consulted on specific design strategies and features, contributed to the development of request for proposals issued by hospitals soliciting design teams, and reviewed submitted design team proposals. In the latter half of 2006, there have been two occasions where hospitals in the very earliest stages of new construction (pre-design) have called in technical advisors. Thus, there is increasing awareness and acceptance among targeted hospitals of the beneficial role technical advisors can play in new construction.

The BetterBricks Initiative is also working with private-sector building operations and design and construction firms, although these activities are just getting off the ground. With respect to the Hospitals Initiative, one technician at a targeted Building Operations firm has accompanied a technical advisor in an assessment of facility operations and one targeted Design and Construction firm has led a design charette for a construction project. These are important first steps, although the market specialists caution these actions had limited influence on the targeted contractor firms and, in the case of the design charette, on the hospital as well.

### Tools and Materials

BetterBricks is developing tools and materials to play three roles in support of the Hospitals Initiative. One, these items are used by the market specialists in their work with hospitals; two, they are used by hospitals working on developing and implementing SEMPS with the assistance of market specialists; and three, they are intended to be the vehicles through which hospitals not



working with market specialists can design and implement SEMP. Thus, when the Initiative has ended and market specialists are no longer working with hospitals, it will be the Initiative's tools and materials, as well as the actions of market actors—such as architects and building operations firms—influenced by the Initiative, that foster strategic energy management planning in the region.

Table 8 provides the Hospitals Initiative's tools and materials developed, under development, or conceptualized to date. These have been developed in support of the Initiative's hospital-level goals (see Appendix A). The tools and materials listed in the table are compiled into a set called the *Strategic Energy Management Planning How-To Guide*.

The financial guide, *Guide to Optimizing Hospital Facility Investments*, listed in Table 8, is geared to facility managers and includes detailed information on a variety of financial analysis tools, approaches to evaluating the viability of projects, and ways to approach the chief financial decision-makers with project proposals. One market specialist commented that the guide's content is "right on target." Another market specialist has delved into the guide with the facility managers he is working with and reports it was "extremely well received" by them. He has "walked" facility managers through the PDF guide, explaining how to use it and how it relates to their facility, as well as potential hospital funding sources the facility managers might access. He believes, "Once a few people use it, then word of mouth kicks it," so he is optimistic other facility managers in his state will learn of and refer to the guide as it is mentioned in association meetings and presentations.

The *Design and Construction Guide* (also listed in Table 8), has gone through several iterations, with variations in implicit or explicit audience, tone, and content. The Hospitals Initiative manager has contracted with a firm to conduct a final rewrite, with an anticipated completion date of end-of-year 2006.

The market specialists report relying heavily on the energy practice assessment tool (also referred to as the organizational assessment tool) and the SEMP template (both listed in Table 8) as they work with hospitals to develop SEMP. The market specialists describe both tools as very useful. The Hospitals Initiatives manager has requested feedback on these tools; at the November meeting the market specialists provided preliminary comments and planned to provide more detailed feedback. The preliminary comments included a noting of some redundancy in the assessment tool and a desire to have all SEMP-required information that is best obtained during the assessment clearly called out in the tool.





Table 8: Hospitals Initiative Tools

TOOL	GOAL* SUPPORTED	DESCRIPTION	STATUS
Energy Practice Assessment Tool	1	Tool for assessing current organization practices relating to energy management and use	Done
ENERGY STAR Eligibility Rulesets for Benchmarking Hospital Spaces	1	Information required to be eligible to receive an energy performance rating on EPA's <i>Portfolio Manager</i>	Done (EPA document)
Executive Presentation for Initial Buy-In	2	Suggested approach for presenting benefits of SEMP to get go-ahead for development	In progress
Articles on How to Get Executive Attention	2	Published articles (non-NEEA)	Done (two articles)
Case Study Overview	2	Hospital success stories—key features / benefits (10 existing facilities, 7 newly constructed)	In progress
SEMP Template and Workplan	3	Template for creating hospital-specific SEMP	Done
Sample Executive Presentation	4	Suggested approach for presenting a newly developed SEMP to executives for approval	In progress
<i>Getting the Most Out of Your Facility Investments</i>	5	Brochure describing benefits of life-cycle cost analysis of investments	Done
<i>Economic Analysis Tool Overview</i>	5	Brochure comparing financial analysis tools and their benefits	Done
<i>Guide to Optimizing Hospital Facility Investments</i>	5	100-page guide available at <a href="http://BetterBricks.com/hospitals">BetterBricks.com/hospitals</a>	Done
“How to” Piece on Purchasing for Hospitals	6	Demonstrates the value of making purchasing decisions based on the total cost of ownership	Sketch; anticipated by end of 2006
Equipment Purchasing Guidelines and Specifications	6	Links to <i>Purchasing Specifications for Energy-Efficient Products</i> provided by the Federal Energy Management Program; includes model language for procurement specifications	Done
<i>Design and Construction Guide</i>	6	Guidelines for designing and constructing highly energy-efficient hospitals	Draft; anticipated by end of 2006
Energy Accounting Tools and Training Resources for Facility Professionals	6	Summary of energy accounting tools for use by facilities staff; List of training programs for facilities staff	Done
<i>Fifteen O&amp;M Best Practices for Energy-Efficient Buildings**</i>	6	Provides a link to a site that describes the O&M practices	Done

\* See Appendix A for a list of the goals.

\*\* This document serves as an interim tool until completion of a hospital-focused O&M Guide produced by BetterBricks.



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## Education and Training

The Hospitals Initiative has been supported by the BetterBricks Professional Education manager and contractors.

Seven one-to-two hour seminars have been presented a total of eleven times since April 2006 in all four Northwest states and in “webinar” (seminars conducted on the Web, with interactive capability) format.<sup>6</sup> The topics include strategic financial analysis, the “CEO perspective” (conducted by a former hospital CEO), integrated design, energy use in hospitals, and lighting and daylighting. Included among the presenters are BetterBricks Integrated Design Lab staff, other BetterBricks technical advisors, and Hospitals Initiative market specialists. Education venues have included the meetings of the Oregon Society for Healthcare Engineering and the Integrated Design Labs. Trainings at OSHE have met OSHE requests for specific topics to be presented.

The Hospitals Initiative and Professional Education managers have also directed the development of a five-module education program for hospital facility managers that culminates in SEMP development.<sup>7</sup> With each module four hours long, it is designed to be conducted over a series of months, ideally under the auspices of the state healthcare engineering associations. To date, the Hospitals Initiative team has not attracted interest in the training series and attributes this to the time commitment required to complete the series.

The education program has been developed as a key element of a strategy to spread strategic energy management planning to hospitals beyond those with whom the market specialists are working closely. The Hospitals Initiative theory posits that hospitals will adopt strategic energy management planning as they become aware of it, aware of its benefits (which are modeled by the market leaders with whom the market specialists are working and publicized by BetterBricks), and aware of how to do it. Education and training are the vehicle by which hospitals that are not working with market specialists can learn how to conduct strategic energy management.

The five-module education program was developed by contractors to the Professional Education manager, who also serve as the market specialists for Washington State. Their credentials include their experience with the Washington hospitals engaged in the Hospitals Initiative, their development of the successful Building Operators Certification training (a seven-day course series), and other instructional design and delivery work (including past BetterBricks

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<sup>6</sup> Appendix B provides a listing of these events, developed curricula, and planned course development.

<sup>7</sup> Module 1: *Managing It By Measuring It! Effective Use of Facility Assessment Tools*; Module 2: *Navigating the Financial Playing Field to Win Your Facility Projects*; Module 3: *Getting to Yes! Strategic Energy Management Planning for Facilities Managers*; Module 4: *Putting It All Together: Assembling the SEMP for Your Executive Management Team*; Module 5: *Peer Exchange: Successes and Challenges with Strategic Energy Management Programs*.





Professional Education). The contractors developed the five-module SEMP training under the direction of the Hospitals Initiative and Professional Education managers. According to the market specialists from other states interviewed for this MPER, they were not called upon to help set direction for the training series.

As a result of the disinterest in the education program, the Professional Education manager has created abbreviated training sessions from each of the four-hour modules that can be conducted in one to one-and-one-half hours.<sup>8</sup> One of these, on strategic financial analysis, is included among the list of those seminars that have been presented since April. Education opportunities appropriate for staff of small hospitals are in the offing, yet no dates have been set for course development.

The BetterBricks Hospital Initiative team gathered for the October market specialists meeting had an opportunity to receive training from, and comment on, two of the abbreviated training modules—*Strategic Financial Analysis* and *Successfully Selling Energy Efficiency: Strategic and Tactical Approaches*—as well as the presentation *Design and Construction of High Performance Hospitals*, which was developed by the Hospitals Initiative manager, BetterBricks product and service contractors, and technical advisors.

The Professional Education manager intends that most, if not all, market specialists and technical advisors working with hospitals have the information they need to deliver the abbreviated training modules; and while the four abbreviated sessions shown in Appendix B are complete, they continue to be revised as feedback on them is received.

Market specialists viewing the training modules noted that, in addition to group training, the modules contain information and graphics that will be useful to them in their one-on-one work with hospital staff.

As a result of relationships the Hospitals Initiative team has forged with members of the Washington State Society of Healthcare Engineers (WSSHE) and the American Society of Healthcare Engineers (ASHE), team members are pursuing opportunities to develop or co-develop energy efficiency training for the organizations' members. ASHE has initiated its hospital *Energy Efficiency Commitment* (E2C) campaign in the summer of 2006. (Recall that the ASHE president is the Hospital B engineering manager, with whom the regional market specialist has been working closely.)

## Marketing

The Hospitals Initiative theory begins with market specialists and technical advisors assisting targeted hospitals to develop and implement SEMP. In support of its work with these targeted

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<sup>8</sup> See Appendix B.



hospitals, the Initiative is developing tools and materials, and education and training resources that can be used by non-targeted hospitals to develop and implement SEMP. But how will these non-targeted hospitals become aware of and inspired to pursue SEMPs? Initiative marketing activities, along with education and training, are designed to play key roles, extending the compelling SEMP story beyond the reach of market specialists and educational activities.

The marketing manager is focused currently on two areas. One area of focus is to work with the Hospitals Initiative manager and support her in the development of overall messaging, a communications platform, and hospital-sector tools and materials. As a second focus, BetterBricks marketing is identifying the SEMP stories that will be communicated out to the broader healthcare market through various marketing channels.

According to the program logic, success stories will be key to influencing the broader market. Yet, in addition, the hospital team sees value in publicizing what's involved in the SEMP process—the steps, the key players, the need for plans to be data-based. The Hospitals Initiative team anticipates that success stories of SEMP plans and energy savings in operations and new construction will inspire hospitals to seek SEMPs, and the stories of the ins-and-outs of SEMP development and implementation will inspire hospitals to continue with the process, even when it appears to be faltering or surprisingly complex.

In the near-term, the marketing manager is working with the Hospitals Initiative manager to refine the message of the business case and the communications platform, to develop collateral useful to the marketing specialists, and to develop and publicize case studies and success stories. Once the first wave of targeted hospitals have some experience with SEMP implementation, the marketing manager will shift focus to extending the Initiative's reach beyond targeted hospitals. Thus, marketing is intended to be a primary vehicle for stimulating market transformation.

For this strategy to succeed, the hospital market needs to be one in which decision-makers are influenced by the activities of other decision-makers. The market specialists, marketing manager, and industry advisors associated with the Hospitals Initiative (and this evaluation) agree that hospital decision-makers are highly influenced by their peers' activities. And current market conditions (refer to the section *Industry Trends*, in the next chapter) support the observation that hospitals are fiercely competing for market share.

Part of the effort to publicize success stories involves garnering media coverage where healthcare decision-makers will see what leaders in their industry are accomplishing. The 2006 *BetterBricks Awards* in Boise and the Puget Sound involved direct outreach to the healthcare market and resulted in winners in the building operations and owners categories. Both events generated local business and healthcare press coverage for the winners, which included staff from two hospitals working closely with the Hospitals Initiative. In addition to the winners coverage, chief-level executives came to the event to support their facilities staff, which reinforces the connection and support of these two target audiences.



The BetterBricks marketing manager conducted market research, finalized in June 2006, to get feedback on the Hospitals Initiative's messages and on recently developed print ads. The interviewed five chief-level executives and eight facility managers responded positively to the notion of strategic planning for investment and operations that address energy. Interviewed contacts also responded positively to the BetterBricks tag line: *Bottom line thinking about energy*. Contacts did not like the most prominent phrase in the print ads: *You can't be compassionate without being competitive*.

As part of the support to the Hospitals Initiative team, the marketing staff is collaborating on the development of collateral pieces and educational information the marketing specialists could leave behind with hospital staff to help start the conversation about strategic energy management planning and about the benefit of life-cycle cost analysis.

The marketing manager is also leading the development of a Web site landing page for hospital staff, planned for completion in 2006.

Marketing staff are working in partnership with the Hospitals Initiative staff to centralize market intelligence for the entire healthcare sector. The Hospitals Initiative manager will determine, with support from marketing staff, the materials to be on the healthcare-landing page when the redesign of the Web site is launched.

Finally, as part of the firm focus work with the BetterBricks Design and Construction effort, marketing staff have been working with firms that provide services to the healthcare sector. BetterBricks marketing works to publicize the Initiative's accomplishments in the healthcare sector for both their peers and potential clients to see. For example, BetterBricks marketing worked to publicize the work of Mahlum Architects in its design of the Providence Health & Services Newberg facility, which attained a Gold LEED rating.

### Utility Involvement

All of the market specialists report working closely with the staff of utilities and public benefits administrators serving the hospitals engaged with the Initiative. (Representatives of utilities and public benefits administrators will be interviewed for MPER #3.) The market specialists meet with utility/administrator staff, present the Hospitals Initiative, learn about utility/administrator efficiency program offerings (and attempt to stay current with program changes), and encourage staff to accompany them on visits with hospitals. Utility staff have accompanied BetterBricks technical advisors as they have assessed facility operations for some hospitals and utility staff have alerted market specialists to opportunities at hospitals.

Market specialists' believe that NEEA needs to partner in the field with the utilities. Further, the market specialists think the Hospitals Initiative would benefit from NEEA BetterBricks management forging a stronger working relationship with the utilities: "NEEA could take a much more pro-active role. They should know what the utilities are doing. It's clumsy that the market specialists are the utility contacts."



# 5

## INITIATIVE PROGRESS / MARKET PROGRESS ASSESSMENT

### HOSPITAL-SPECIFIC GOALS, INDICATORS, AND ACCOMPLISHMENTS

Table 9 describes the four hospitals the team anticipates will have reached the milestone of executive approval of the SEMP by the end of 2006. The team anticipates that three additional hospitals will reach this milestone in 2007 (possibly the first half of the year). The percentage of regional beds reported in the table was obtained from market share data provided by the program manager (generated July 2005).

**Table 9: SEMPs Anticipated**

HOSPITAL	SEMP APPROVAL (ANTICIPATED)	BETTERBRICKS INVOLVEMENT BEGAN	PERCENT OF REGIONAL BEDS
Hospital System	2004	2003	15%
Hospital System	2007	Spring 2006	9%
Hospital System	2006	Summer 2005	4%
Community-Based Hospital	2006	Summer 2005	1.4%
Community-Based Hospital	2006	Summer 2006	1.2%
Community-Based Hospital	2007	Fall 2006	0.5%
Community-Based Hospital	2007	Early (Winter) 2005	0.5%
<b>Total: 3 Hospital Systems, 4 Community-Based Hospitals</b>	—	—	<b>31%</b>

In addition to the initiative-level activity items discussed in Table 9, the Hospitals Initiative manager developed goals and activity indicators to more concretely track individual hospital organizations on the path that starts with considering a SEMP and ultimately ends with fully implementing it. The manager refers to this as the “SEMP Scorecard”. The goals are as follows (Appendix A provides the associated indicators):

- ➔ *Goal 1:* Gain initial organizational support for strategic approach
- ➔ *Goal 2:* Assess energy-related practices; benchmark facility
- ➔ *Goal 3:* Develop strategic energy management plan
- ➔ *Goal 4:* Obtain organizational approval of plan and commitment of resources
- ➔ *Goal 5:* Implement financial practices (e.g., life-cycle costing)



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→ *Goal 6:* Implement business practices

- 6A: Implement purchasing practices
- 6B: Implement enhanced design and construction practices
- 6C: Implement improved facility operations practices
- 6D: Implement facility upgrades
- 6E: Actively manage energy commodity

→ *Goal 7:* Monitor, track, and improve performance

As of October 2005, Goals 1 through 3 have been met for each of the four hospitals/systems anticipated to have a SEMP approved by the end of 2006, as shown in Table 9.

Progress indicators 3 and 4 of Goal 4, above (presenting a SEMP implementation plan to executives, and obtaining budgetary and resource authorizations—see Appendix A), will be attained with the acceptance of the SEMPs.

The hospitals vary (and will continue to vary) in the extent to which they are meeting Goal 4. Progress Indicators 1 and 5 (see Appendix A), which describe obtaining commitment from each key decision-making group in the organization and drafting performance goals and reporting protocols for staffs within the organizations.

The first hospital to sign a SEMP has taken several years to develop organizational commitment throughout its autonomous regions. SEMP activities at this hospital system recently met a milestone with the construction managers accepting the use of integrated design and life-cycle cost analysis. SEMP buy-in is still needed among the system's facility managers.

SEMP buy-in is more complete among decision-makers for the other hospitals in Table 9, as the SEMPs themselves were developed with both executive and managerial support. The market specialists had more experience when they developed these SEMPs and these hospital systems are not as complex as that of the first to adopt a SEMP. Certainly, the four community-based hospitals in Table 9 have more simple organizational and decision-making structures than do the three hospital systems.

## ASSESSMENT OF ACCOMPLISHMENTS

The Hospitals Initiative has developed a series of inter-related goals, objectives, activity indicators, and market progress indicators to provide guidance and determine progress. The long-term goals and 2010 objectives were approved by the NEEA Board in July 2005 as part of the 2006-08 funding renewal. The long-term goals are shown in Table 1 of Chapter 1. In support of the Initiative's goals, the BetterBricks senior manager specified objectives to be realized by 2010 and a list of 2006 activity indicators to demonstrate progress toward the objectives. The 2010 objectives and the 2006 activity indicators are shown below in Table 10, as well as the status, as of October 2006, of the extent to which the indicators have been achieved.



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Table 10: Hospitals Initiative 2010 Objectives, 2006 Indicators, and Status

2010 OBJECTIVES	2006 INDICATORS	INDICATOR STATUS AS OF OCTOBER 2006
<b>Seventy-five percent of Northwest hospital decision-makers are aware of the specific benefits available from new and existing high performance hospitals.</b>	Develop and begin to deploy marketing collateral, ads, events, and public relations targeting decision-makers.	Marketing collateral and ads are still under development; limited events and public relations activities have occurred.
	Market specialists are adept in business planning, messaging, financial analysis methods, energy management practices, and change management.	Marketing specialists express confidence in these skill areas and/or are working with the program manager to bolster skills in specific identified areas.
<b>Hospitals representing 40% or more of the beds in the region approve and implement energy management plans that change business practices, including three or more of the largest multi-hospital systems and three or more community-based hospitals within each state.</b>	Initiate strategic energy management planning educational series with hospital associations.	OSHE will co-sponsor a Webinar series to begin on December 7, 2006.
	Two to three hospitals (in addition to the first hospital to adopt a SEMP) develop energy management plans addressing energy-related business practices and project opportunities.	Three additional hospitals are anticipated by market specialists to have executive-approved SEMP's by year-end.
<b>Forty percent of those with design and construction management responsibility are capable of managing change in energy-related business practices.*</b>	Identify and begin to develop/ implement specific products and educational curricula.	Products and educational curricula are under development; some products and curricula are in use.
	The first hospital that adopted a SEMP follows through, as evidenced by specific changes in design and construction and procurement business practices.	The hospital's construction managers have agreed to use integrated design and life-cycle cost analysis in their new construction projects.
<b>Forty percent of facility managers are capable of managing change in energy-related business practices for facility operations.*</b>	Identify and begin to develop/ implement specific products and educational curricula.	Generic materials on O&M best practices are available, but need a hospital-specific O&M guide; an educational module on O&M in hospitals is needed.
	The first hospital that adopted a SEMP follows through, as evidenced by specific changes in facility operating, upgrade, and procurement practices.	Changes in business practices varies across the hospital's managers, with some (especially on the east side of the Cascades) clearly on board; yet, there is not consistent implementation of agreed-upon practices throughout the system.

\* Change management capability includes: 1) commitment of adequate financial and technical resources; 2) commitment of all departments; 3) executive support; and 4) business and technical information.



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## PROGRESS TOWARD PROGRAM OBJECTIVES

This section assesses rate of progress toward program objectives from the perspectives of interviewed contacts.

**Objective 1: By 2010, 75% of Northwest hospital decision-makers are aware of the specific benefits available from new and existing high-energy-efficiency hospitals.**

### Discussion:

- ➔ Due to the large number of small hospitals (per Table 8, 174 are single-site hospitals with fewer than 300 beds) and the large number of decision-makers (all hospitals have multiple decision-makers and the large hospitals can have dozens), the goal of 75% of decision-makers encompasses a very large number of individuals.
  - Contacts doubt the Initiative will be able by 2010 to make 75% of all Northwest hospital decision-makers aware of the benefits.
  - However, contacts believe the Initiative will be able by 2010 to make the decision-makers *associated with 75% of regional beds* aware of the benefits.

**Objective 2: By 2010, hospitals representing 40% or more of the beds in the region approve and implement energy management plans that change business practices, including three or more of the largest multi-hospital systems and three or more community-based hospitals within each state.**

### Discussion:

- ➔ This objective includes two sub-objectives: 40% or more *approve* a plan; 40% or more *implement* a plan.
- ➔ The sub-objective of 40% or more beds associated with an approved plan by 2010 appears attainable. As shown in Table 9, the Hospitals Initiative team anticipates SEMP's will be signed in 2007 (likely by the middle of the year) for hospitals comprising 31% of the region's beds.
  - A SEMP has been approved by the region's largest multi-hospital system; contacts anticipate SEMP's will be signed at two other large regional systems in 2007.
  - The goal of three community hospitals in each state seems achievable; however, contacts note that the attainment of this goal is predicated on sufficient market specialist resources to engage twelve or more community hospitals in SEMP planning, so that at least 12 develop and approve SEMP's.



- Field experience to date suggests it typically takes 18 months to two years or more for a hospital to attain sufficient buy-in throughout its organization to adopt a SEMP.
- ➔ The sub-objective of 40% or more beds associated with an *implemented* plan by 2010 is less clearly attainable, owing to the lack of precision surrounding the goal itself: what constitutes plan implementation?<sup>9</sup>
- Does plan implementation indicate every element of the plan is in force, or does it mean the specified operational energy savings have been obtained, as well as any specified new construction savings?
- ➔ Regardless of whether SEMP implementation is defined in terms of actions or results, the SEMP currently anticipated to be adopted by mid-2007 will barely achieve full implementation by 2010, and these SEMP account for 31% of the region's beds.
- The SEMP underway have horizons of three to five years. Thus, the plans anticipated in Table 9 will generate budget appropriations for the 2007-2008 fiscal year; the plans' savings estimates will not be attained in full for three to five years after this point (i.e., 2010 through 2012), or even longer, if predicated on construction projects that have yet to be completed by that time.
- ➔ Energy savings generated by hospitals that have adopted SEMP will be influenced by the ability of market suppliers to provide SEMP hospitals with appropriate tools and materials. This, of course, is the basis for NEEA's efforts in the cross-cutting Design and Construction and Building Operations markets. However, this relationship means that the rate at which the cross-cutting BetterBricks initiatives achieve their objectives will influence the rate at which the Hospitals Initiative can achieve its objectives.
- As an example, a construction manager who is designing a large new facility had the project architect hold a design charette. While the Hospitals Initiative team encouraged a charette be held, the architect was responsible for its conduct. Subsequently, the construction manager complained the charette did not generate much useful information or decisions on specific energy efficiency strategies. (See Chapter 3 for more detail.)

**Objective 3: By 2010, 40% of those with design and construction management responsibility are capable of managing change in energy-related business practices.** The

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<sup>9</sup> NEEA's approved 2007 Operations Plan adjusted several components of the Initiative's objectives concerning market penetration and timing. The approved plan states, "In 2009 the following market changes will be in place...Decision makers in the following markets implement energy-efficient building practices related to design and construction and building operations:...25% of floor space in healthcare (hospitals).





CSI Project Description quantifies the outcome of “managing change” in design and construction as at least 25% more energy-efficient than buildings designed to baseline levels. This objective is discussed in tandem with Objective 4.

**Objective 4: By 2010, 40% of facility managers are capable of managing change in energy-related business practices for facility operations.** The CSI Project Description quantifies the outcome of “managing change” in facility operations as reducing energy use by an average of 10% or more compared to baseline levels.

**Discussion:**

- ➔ Attainment of Objective 2 does not in itself assure attainment of Objectives 3 and 4. Thus, it is more difficult to gauge the rate of progress toward meeting these goals.
  - Objectives 3 and 4 refer to 40% of hospital *staff*, whereas Objective 2 refers to 40% of hospital *beds*. (See discussion under Objective 1 about the difficulties in gauging progress toward influencing large numbers of people.)
  - The hospitals anticipated to have SEMP’s signed by mid-2007 differ in the extent to which the plans impact new construction and building operations. (See Chapter 3, *Initiative Status*.) And even among plans that address both facets equally, implementation may start with one facet before the other
  - Further, this MPER is unable to assess the savings that will be associated with targeted hospitals’ SEMP implementation.
  
- ➔ With the above caveats in mind, hospitals associated with 31% of the region’s beds (as shown in Table 9) appear to be on track to saving energy by 2010 through changed design and construction practices, changed building operations practices, or both. However, it is doubtful that these hospitals will have, by 2010, attained the full degree of savings promised by their SEMP’s, since the SEMP’s themselves have three-to-five year horizons.



# 6

## PROCESS EVALUATION

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This chapter discusses key findings related to the Hospitals Initiative’s implementation processes and procedures.

### THE HOSPITALS INITIATIVE TEAM

A recommendation from MPER #1 (see Chapter 1) was that Hospitals Initiative activities would benefit from a team approach, including regular team meetings.

Contacts report significant progress in this area. Contacts report a better relationship between NEEA and its contractors, better program leadership, and faster development of program supports. In the words of one market specialist, “It’s been a real success story since last October [when the interviews for MPER #1 were conducted].” Another said, “The program manager has done a great job, a remarkable job, keeping us apprised and posted.” A third said, “The program manager has taken leadership and done a dynamite job. She treats people with respect, she’s smart, and she knows how to get things done.”

The consensus among all team members is that communication and decision-making have improved. Communication includes both information NEEA provides to the contractors, as well as NEEA’s solicitation of contractors’ views. Examples of increased communication include the participation of NEEA’s marketing manager in the twice-monthly telephone meetings between the program manager and the market specialists, soliciting feedback on draft tools and materials (guides, ad copy, educational pieces), and the institution of regular (approximately three times a year) in-person meetings including the Hospitals Initiative team members, the BetterBricks senior manager, and the cross-cutting initiative managers. Conducting regular in-person meetings was a specific recommendation of MPER #1.

Both the market specialists and the contracted education and training (E&T) developers expressed appreciation for the opportunity offered by the October market specialists’ meeting to give and receive feedback on educational pieces underway. Both groups—especially the contracted E&T developers—said they would like such opportunities for discussion to occur at key junctures in the development process (outset, midpoint), rather than at the draft stage, as occurred at the meeting.

The current E&T development process begins with the creation of a *Course Outcome Guide*. This document, which identifies the audience and expected outcomes, goes to the relevant Initiative manager for team comments. A lesson learned this past year is that questions of marketplace desire for the E&T piece, as well as an optimal delivery venue, must be addressed before starting development. The BetterBricks Professional Education manager reports his team strives for an integrated development process that involves all relevant parties, both early on and



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throughout the process, but due to the pressures of competing priorities, the degree of integration has fallen short of this goal to date.

NEEA obtained market feedback in June 2006 on executive and facility manager perspectives on energy management, key concerns, and reactions to draft marketing materials. Few of the interviewed contacts expressed more than a vague recollection of the study, nor could the majority of contacts describe any “take away” points from the study. Included among these contacts is the BetterBricks marketing firm. Similarly, the interviewed market specialists had not been apprised that the previous MPER #1 (including a baseline study of facility managers) was available on the Web site. Both of these examples illustrate a situation where the Hospitals Initiative is developing good market intelligence, yet not putting a process in place to ensure this knowledge is made known to its team members.

Yet on the other hand, the Hospitals Initiative manager seeks input from market specialists more often than she receives it. The market specialists and other BetterBricks contractors have an allotted number of hours in a month to attain their objectives. There is a vast amount of BetterBricks development underway and many players involved. A substantial amount of time is required for relevant parties to provide input to each of the tools and materials under development, not to mention contributing to the refinement of program concepts; further, it falls to the manager to assess the feedback received and chart a course of action. Thus, integration, while both ideal and necessary for market success, is expensive to attain.

## COORDINATION OF BETTERBRICKS INITIATIVES

In many cases, the Hospitals Initiative team has been very satisfied with the field support they have received from BetterBricks technical advisors. The Hospitals Initiative manager described the facility assessment/scoping reports as having been very well done and “hugely valuable” for helping the market specialists determine energy savings potential at customers’ facilities. Market specialists praise the work technical advisors have conducted for their hospitals. In the words of one, “I can’t say enough about the Building Operations technical advisors. They do great work.” Some market specialists have been invited by architectural firms to make presentations on energy efficiency to the firm’s hospital design team.

At the same time, the Hospitals Initiative team members have stated they would prefer for the assessment reports to devote more attention to business/ behavioral opportunities, while the technical advisor doing most of the assessments reports a lack of direction from the Building Operations Initiative manager regarding the desired focus of the assessments and the role to be played by market specialists.

Hospitals Initiative team members have also reported some communication problems between market specialists and technical advisors. One problem is the coordination of activities for multi-state hospital systems. Contacts were uncertain as to whether the technical advisor should be drawn from the state where the hospital is headquartered (the basis of market specialist assignment) or the state where the facility is located. One market specialist was displeased with



the involvement of a technical advisor who considered his activities to be between him and the client and inappropriate to share with the market specialist.

Perhaps most significantly, the managers of the individual initiatives and of the BetterBricks design labs have neither received clear direction nor evolved an approach to how they are to interact and the degree to which they support each other. The lack of clarity at the managerial level perhaps led to the situation described where a design lab technical advisor refused to apprise the market specialist of his work at a hospital.

To date, the Hospitals Initiative manager has worked closely with the BetterBricks Design and Construction manager. Yet it has fallen to the Hospitals Initiative tool and materials development contractors and Initiative Manager to do the research and work in the absence of input from the BetterBricks Lab directors, who have focused almost exclusively on the technical aspects of integrated design.

The Hospitals Initiative manager expressed frustration that formulating the business proposition has so far fallen to her and the Design and Construction manager. She is concerned that the design lab staff may not be comfortable making the business argument to clients and is further concerned that there be alignment between what she and the Design and Construction manager have developed for hospitals with the business case being developed by the lab for BetterBricks-targeted A&E (architect and engineering) firms. She has had to respond, in the absence of consensus agreement from the staff of the BetterBricks Lab Network, to questions posed by hospital construction managers and other higher-level hospital financial decision-makers about the benefits and costs of integrated design, and is concerned about consistency within the total BetterBricks effort.

Similarly, the Hospitals Initiative team lacks specific concrete examples of what enhanced O&M means for hospitals and what technical support offerings will be available for targeted hospitals beyond the building scoping phase. To date, the BetterBricks Building Operations manager has focused on materials of a broader nature for the Web site. The Hospitals Initiative team has not received clarification from the Building Operations team as to which materials under development will be useful to hospitals.

The Hospitals Initiative manager had anticipated that her team would have a significant role in determining the presentation of content, but not in the content development. The other initiative managers, in turn, are responding to the needs of their targeted market actors and clients, and are unclear as to the extent they are expected to develop hospital-specific content. Indeed, one of the initiative managers has also expressed frustration at the lack of clarity in practical terms as to who drives the content for materials at the intersection of two initiatives.

The decision remains to be made regarding who will determine the hospital-specific tools and materials to be developed and who will provide the content, such as for a training module and a guide to enhanced O&M for hospitals.



The market specialists have been selected based on their ability to conduct high-level sales activities and make extremely complex sales at prominent institutions with varying audiences, from the facility level to the executive suite. They have not been selected based on their technical expertise in hospital design and construction or facility operations. They must be provided in a timely manner with the tools, materials, and information that will give them credibility and make them successful. The need for additional facts and information, described in the subsequent section, *Tools and Materials*, reflects the current disconnect between the various BetterBricks initiatives.

In general, there is confusion and inefficiency in who is supposed to capture and make available to the hospital market specialists the technical information they need. There are multiple parties who are or could be involved: the Hospitals Initiative manager; the tool and materials development team for hospitals; the hospital market specialists themselves; the Building Operations Initiative manager; the Building Operations technical advisors; the Design and Construction Initiative manager; the BetterBricks Lab Network staff; and the marketing team, including the marketing manager and her contractors. A related question that also needs resolution is how much technical information the specialists need to do their jobs effectively.

## TOOLS AND MATERIALS

### Content

As noted, NEEA contracted with the market specialists on the basis of their likely ability to successfully conduct complex, high-level sales. As discussed subsequently, the Hospitals Initiative's experience to date confirms the importance of relationship-building to involving hospitals in the Initiative. To support them in these relationships, market specialists have a need for fact-based information they can readily share with hospital staff. Suggestions included easy-to-access information on first costs and operating costs, as well as on financial returns, rigorous descriptions of successes, and solid, up-to-date research findings.

As examples, two pieces of information presented at the October market specialists' meeting attracted a lot of interest. One was a simple explanation of why a condensing boiler is the low-cost boiler alternative, both in terms of first-cost and life-cycle cost, yet very few facilities are using them. Comments offered included: "Why have I never seen this before?" and "Can we get a set of perhaps five examples like this?"

Another set of information about which the market specialists expressed considerable interest was the details embedded in a slide in the *Design and Construction of High Performance Hospitals* presentation. The slide was dense, with small type, showing four data tables, each with about ten or so rows of text ending with a one-to-five star rating. The slide presented an assessment of the extent to which research has backed up claims of various benefits of energy-efficient hospital design and operations. The many rows of small text and overlapping tables clearly was intended to convey the image of "a lot of stars"—that is, a lot of research support for claims about benefits—an intention confirmed by the presenter when asked about the details. Yet



the market specialists were eager for the details—just what claims are backed by significant research support, what claims are backed by fewer studies. It’s the details—the facts—that they clamored for.

Market specialists’ desire for “facts” is consistent with baseline findings of facility managers’ assessment of the support they need for energy-efficiency improvements. The open-ended responses were roughly equally describing a need for information and a need for organizational support. The comments about information included needs for data and software showing paybacks, savings estimates, results from comparison shopping, information on what other hospitals are doing, and external validation of facility recommendations. The comments about organizations included needs for more time, money, management support, and staff cooperation.

These findings are also consistent with previous NEEA research with architects, who also stated the lack of good information or the ability to cover efficiency-related research and design costs as major impediments to energy-efficient design.

### Format

Market specialists are pleased with the tools and materials NEEA is putting into place and credit the Hospitals Initiative manager with being “able to get the job done.”

Even so, virtually all interviewed contacts (contractors and staff alike) describe NEEA’s process for getting tools and materials in the field as unusually long, compared with their experiences with organizations of all kinds, both large and small, for profit and nonprofit: “Things take an incredibly long time.”

Market specialists report embarrassment that tools and materials NEEA promised two years ago to make available to state hospital associations for their small hospitals are not even in draft stage. Market specialists feel this situation strains, to greater or lesser extent, their relationship with the individuals to whom those promises were made.

The Hospitals Initiative manager has turned to her own team of tool and materials development contractors to meet the Initiative’s needs. As a consequence, the Initiative’s expenditures in this area have exceeded the budget and the manager’s hours have exceed the standard work week. The Market specialists are coping with NEEA’s protracted development process by creating their own tool set. In the words of one market specialist, “I’m not encumbered by their processes. I’d be waiting three years if I were.” Market specialists are creating their own sets of facts-based information and marketing supports from drafts NEEA has provided on works-in-progress. For example, market specialists are taking slides from the education materials and using them in one-on-one settings to provide individualized support and training to the hospital staff they are working with.

For working with hospital staff, market specialists report needing a simple presentation of facts and tools, not glossy formats or in-depth reports. “I need the required facts in my hip pocket.”



As an example relating to tools, market specialists find the SEMP template and organizational assessment tools to be useful. However, the documents are lengthy and lack a succinct summary that links the two. “I’m flipping back and forth between the two documents, trying to track everything I need to learn from staff during the SEMP planning meeting.”

Contacts describe NEEA as aiming “to get it right,” rather than aiming to get it done—done satisfactorily, of course, but done nonetheless. Shorter pieces that over time create a large portfolio are both faster to finalize and, for most applications, easier to use.

On the other hand, contacts also recognize that the BetterBricks Initiative has been, to use a colorful expression, laying the asphalt while the car is barreling down the highway. The team’s understanding of the market and its response to Initiative objectives and methods is continually evolving. The concepts to be conveyed and the approaches taken by tools and materials can quickly appear to be “not quite right,” as the team has new experiences and develops new interpretations of what is needed to be most effective. These real concerns slow the finalization of tools and materials.

Evaluation findings strongly suggest these issues transcend the Hospitals Initiative manager, whom market specialists credit with having made considerable progress in getting them needed tools. Instead, the difficulties appear to arise from the twin factors of a lack of clarity on responsibilities and the initiatives (described previously), and on a NEEA-wide focus on analysis, deliberation, and the re-tracing of past steps.





# 7

## FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

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### SUMMARY AND ASSESSMENT OF FINDINGS

NEEA continues to make substantial progress in the Hospitals Initiative. It appears that the Initiative will meet its 2010 objective of having SEMP in place at multi-hospital systems and community hospitals that collectively comprise 40% of the region's hospital beds.

The other 2010 objectives are not measurable, referring either to decision-makers instead of beds and or to SEMP "implementation" without defining what criteria measure whether a SEMP has been fully implemented. However, the Hospitals Initiative appears to have made sufficient progress to attain some degree of SEMP implementation at close to 40% of beds in the region. As SEMPs have planning horizons of three to five years, even assuming full implementation of each adopted SEMP, the SEMP objectives will not be met for 40% of *beds* until 2011 or 2012. This evaluation is not intended to assess the degree of savings associated with the SEMPs, yet the Hospitals Initiative team requires each SEMP's O&M objectives to target a minimum energy savings of 10%.

The initiative is on track to largely attain four of the seven 2006 activity indicators defined by the BetterBricks senior manager (see Chapter 5). These four goals include approved SEMPs in place at four hospitals, commitment to life-cycle cost analysis by the construction managers at the first hospital to adopt a SEMP, development of skills among market specialists, and initiation of educational materials development.

The Hospitals Initiative is unprecedented in the degree to which it has involved senior executives—chief executive officers, chief financial officers, and governing groups—in energy efficiency. Executives at each of the targeted hospitals have seriously entertained the concept of strategic energy management planning and have authorized the development of such plans. Although the program theory requires executive commitment, only the events of the last year or so have confirmed that it is attainable. The market specialists have forged the relationships necessary to attain executive support.

Furthermore, a number of hospital staff with whom the market specialists are working have prominent positions in their state and national organizations and have begun talking to their organizations' memberships about energy efficiency.

Finally, market specialists and the marketing manager are confirming through their experiences with hospitals that hospital managers are highly influenced by their professional peers. The team reports observing that hospital contacts are interested in public recognition and are aware when their peers receive such acknowledgement.



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The Hospitals Initiative experience illustrates that success rests on two foundations: relationships and facts. These are discussed in the next two subsections.

### Relationships, Relationships, Relationships

To borrow a slogan from the real estate profession and adapt it to the current discussion, contacts credit all program achievements to date to *relationships, relationships, relationships*—the relationships the market specialists, supported by technical advisors, have formed with hospital staff and, even more importantly, have facilitated among hospital staff.

Consider the case at the first hospital to adopt a SEMP. As an outgrowth of a long-standing relationship between NEEA (and the energy efficiency community in general) and the hospital's energy resource manager, a SEMP was drafted (see MPER #1). Although the hospital's senior management adopted the SEMP and elevated the role of resource management within the organization, the position has no "command and control" authority; two years after SEMP adoption, the manager is forging—with extensive assistance from NEEA—the relationships needed to implement the SEMP.

Contacts believe that hospitals need to not only be aware of the types of benefits strategic energy planning can bring, and the savings magnitude of these energy and non-energy benefits—awareness that success stories and seminars and such are able to induce—but hospitals also need to be aware of the benefits that they specifically might attain at their unique facilities. This understanding is generated and conveyed by market specialists and technical advisors working closely with the hospital.

The Hospitals Initiative arose out of the recognition that, typically, the groups within a hospital organization most directly responsible for the energy consumption of buildings and equipment are not in communication with the groups that decide on the buildings and equipment. To the extent the groups are in communication, they are focused on the facility's output (quality of patient care) and not its inputs (resources). Yet it is the experience of interviewed contacts that organizations are the manifestations of the relationships among the individuals; information and tools play a role, but are not transformative. Entering into relationships (NEEA with the hospital) and changing relationships (internal to the hospital) appear to be the drivers of program successes to date.

It is a significant credit to the Hospitals Initiative team and the initiative development work NEEA has undertaken that relationships are being forged that are resulting in SEMP development, approval, and implementation.

The critical role of relationships underscores an important characteristic of the BetterBricks effort: *It takes time*. The Hospitals Initiative team has learned that even at the most receptive of organizations, it takes considerable time to change business practices.



The importance of relationships underscores the Hospitals Initiative’s challenge to move from targeted hospitals to wider market acceptance and transformation. All parties recognize NEEA does not have the resources to work intensively with a majority of the market.

All contacts agree that their experiences do not contradict the program’s market transformation theory; they simply don’t provide evidence to support it. Market change to date has not occurred through the mechanisms of awareness and access to tools; market change to date has resulted from relationships. All contacts are eager to see what will happen in the market after the early adopters begin reaping success from strategic energy management planning.

### Facts, Facts, Facts

Although relationships are key, they are one of two pillars of market change. The Hospitals Initiative team members emphasize that: SEMP development is data-intensive; SEMP adoption depends on making an unequivocal case for the economic and non-economic benefit of strategic energy management planning; and SEMP implementation—especially in new construction, but also in facility operations—depends on a clear understanding of highly technical material.

Getting “the facts” into the hands of Hospitals Initiative team members remains a challenge, as illustrated in Table 8, *Hospitals Initiative Tools*, by the number of items still under development.

### Scope of Undertaking

The preceding discussions of the twin BetterBricks pillars of relationships and facts suggest the large scope of the BetterBricks undertaking. There is much development work to be done at the organization-specific level (e.g., a specific hospital), the sector-specific level (e.g., hospitals and healthcare institutions), and at the general level (e.g., the capabilities of the BetterBricks Lab Network). The discussion in Chapter 6—*Coordination of BetterBricks Initiatives*—indicates confusion exists regarding which BetterBricks manager is supposed to take the lead in specifying and developing information and materials at the juncture of two initiatives (i.e., technical information for hospitals). Considerable development work clearly remains for the Hospitals Initiative.

In the broader context of BetterBricks, this is important to note because, among the various initiatives, the Hospitals Initiative is the furthest ahead, has made the most progress with its targeted organizations, and has developed the most information, tools, materials, and educational/training pieces.



### Perfection Is Elusive and Illusory, Timeliness Is Real-World, and Interaction/Iteration Will Generate the Best Results

Contacts strongly encourage NEEA senior management to adopt a culture of quick-turnaround, one that is willing to commit to what it knows, acknowledge its conditionality, and iterate to improve results.

Only through the process of quickly getting input and feedback from the staff in the field (both market specialists and technical advisors) can NEEA refine its activities. In some cases, field staff will be able to anticipate market response. In other cases, field staff will obtain market response while using the tools and materials with hospitals and their advisors. In all cases, a fast-turn around, multiple-generation approach to product development is critical to moving forward, learning from the market, and meeting the needs of hospitals and the field staff that serve them.

Key to this approach, it is important for NEEA to recognize that it will not be possible to develop the definitive word on a subject, as that implies *one-size-fits-all*, which contacts report is clearly not the case. The market specialists are already meeting their clients' needs by using a *mix-and-match* approach, drawing together the elements needed. Focused, small-scale tools and materials are most quickly developed and most easily customized for the application.

## CONCLUSIONS

**Conclusion 1:** The Hospitals Initiative is making considerable progress, working on SEMP adoption at hospitals comprising 31% of the region's beds.

**Conclusion 2:** Hospitals Initiative team members are working well together and program supports are sufficient to enable hospitals to consider and commit to SEMP. Six hospitals and hospital systems have executive approval of, or commitment to develop a SEMP.

**Conclusion 3:** BetterBricks comprises many initiatives that overlap and would benefit from improved coordination. In particular, further improvement is needed in coordinating and directing the work of technical advisors at targeted hospitals. Currently there is no clear direction as to how the technical advisors are to interact and the degree to which they are to support each other and the Hospitals Initiative's market specialists.

**Conclusion 4:** The initiative does not have the business processes in place to deliberately develop and produce market-ready tools and materials in a timely manner. Examples include hospital owners' guides for life-cycle costing and design and construction. It has consistently taken much longer than anticipated to produce such materials and there has been confusion about the roles BetterBricks staff in different areas are supposed to play in material development.

**Conclusion 5:** The Hospitals Initiative's 2010 objectives are not fully measurable as stated. Functional definitions of key terms need to be developed, as some currently are subject to interpretation. For example, a 2010 goal is to have hospitals representing 40% or more of beds in



the region approve and implement energy management plans. It is unclear, however, whether the word *implement* means every aspect of the plan, a fixed portion of it, or something else.

**Conclusion 6:** The Initiative is working with the region’s largest hospitals and hospital systems and is on-track to be actively working with hospitals comprising 40% of the region’s beds by 2010. Assuming all of these hospitals go on to fully implement their SEMP, the 40% market-share goal would be attained through the one-on-one client relationships of the market specialists. Consequently, the Initiative is unlikely to need to reach many hospitals in addition to the ones with which it is actively working in order to meet its objectives.

**Conclusion 7:** Hospitals face significant market challenges—most of which are consequences of how they are reimbursed for services—that constrain staff time and attention, and threaten hospital viability. Yet hospitals are receptive to the BetterBricks message and are influenced by their peers.

**Conclusion 8:** The market transformation theory is strong regarding the adoption and implementation of SEMP by hospitals with which BetterBricks is working directly, but it is weaker with respect as to why and how these actions will be repeated by hospitals that have no direct involvement with the Initiative team.

**Conclusion 9:** Relationships are critical to making progress in the market. Contacts credit all program achievements to date to relationships—the relationships the market specialists, supported by technical advisors, have formed with hospital staff and, even more importantly, have facilitated among hospital staff.

**Conclusion 10:** SEMP development is data-intensive; SEMP adoption depends on making an unequivocal case for the economic and non-economic benefit of strategic energy management planning; and SEMP implementation depends on a clear understanding of highly technical material. Getting “the facts” into the hands of Hospitals Initiative team members remains a challenge.

## RECOMMENDATIONS

**Recommendation 1:** The BetterBricks senior manager should convene a series of meetings with the initiative managers to directly address issues of coordination between the various initiatives. Of immediate need to the Hospitals Initiative is improvement in how the work of technical advisors is coordinated and directed.

**Recommendation 2:** BetterBricks management should develop internal processes that will allow the quick and efficient production of market-ready tools and materials. This is critical to keep pace with the market’s demands for information and methods, as stimulated by the BetterBricks marketing and market specialists.



**Recommendation 3:** NEEA should revise the 2010 objectives to ensure they are measurable, including defining all objectives in terms of beds and defining how SEMP *implementation* will be evidenced.

**Recommendation 4:** If the 2010 objective of SEMP *implementation* is intended to mean full implementation, the objective is unlikely to be attained prior to 2012, and thus the objective's date should be revised. If *implementation* has a different meaning, then the objective should be re-written to be more specific, per Recommendation #3.

**Recommendation 5:** Because the 2010 objectives for 40% of market share are likely to be met (or roughly met, by 2012) through the actions of healthcare organizations the Hospitals Initiative team is working with directly, NEEA might begin to consider whether such an achievement would constitute "market transformation" in the absence of SEMP adoption and implementation by hospitals not working directly with the Initiative team.

**Recommendation 6:** BetterBricks should continue to seek out and work with hospital market leaders and pursue its plans to publicize their efficiency successes, as hospitals are highly influenced by their peers. This is particularly important given our finding that market change to date has resulted from relationships. BetterBricks management should consider this finding in light of the market transformation theory and the Initiative's eventual need to move from targeted hospitals to wider market acceptance and transformation where the current resource-intensive relationships will not be feasible. Management should determine how current relationships can be used to generate self-sustaining momentum in the market using existing market actors.





# APPENDICES

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**APPENDIX A: GOALS & PROGRESS INDICATORS FOR TARGETED HOSPITALS**

**APPENDIX B: EDUCATION AND TRAINING EVENTS**



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**BETTERBRICKS HOSPITAL INITIATIVE MPER #2**

APPENDICES



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**BETTERBRICKS HOSPITAL INITIATIVE MPER #2**



# GOALS & PROGRESS INDICATORS FOR TARGETED HOSPITALS

Table A-1 and A-2 provide the Hospitals Initiative’s goals and progress indicators, as provided by the program manager. Table A-1 provides Goals 1 through 4—the SEMP development goals.

**Table A-1: SEMP Development Goals**

GOAL	INDICATOR 1	INDICATOR 2	INDICATOR 3	INDICATOR 4	INDICATOR 5
<b>1. Gain Initial Organizational Support for Strategic Approach</b>	Key Corporate Executives (CEO, CFO, COO) have expressed a willingness to commit personal time to Goal 2&3 efforts	Key Corporate Executives (CEO, CFO, COO) have expressed a willingness to direct Key Corporate Staff to commit personal and departmental time to Goal 2&3 efforts	Key Corporate Staff (Energy Managers, Finance, and Regional and Hospital Executives) have been directed to commit personal and departmental time to Goal 2&3 efforts	Key Regional Staff and Key Individual Hospital staff have expressed a willingness to commit personal and staff time to Goal 2&3 efforts, and have so directed their staff	Key Medical Directors (MDs, Nursing, etc.) are aware of and supportive of Goal 2&3 efforts
<b>2. Assess Energy-Related Practices; Benchmark Facility</b>	Organizational Assessment has been completed using the Organizational Assessment Tool at the Corporate Level	Appropriate additions to the Organizational Assessment have been completed at Regional and Individual Hospital levels	All key facilities have been benchmarked	Significant opportunities to improve energy-related business practices have been identified at the corporate level	Significant opportunities to improve energy-related business practices have been identified at the individual hospital level
<b>3. Develop Strategic Energy management Plan (SEMP)</b>	Energy management vision and guiding principles have been developed and documented	The business case has been developed and documented	Goals and objectives for a strategic energy management plan have been developed and documented	A timeline, ROM implementation budget, and responsibilities have been developed and documented	A business proposition has been developed and documented
<b>4. Obtain Organizational Approval of SEMP and Commitment of Resources</b>	Lead staff whose support / buy-in is critical (financial management, purchasing/ procurement, construction, building ops, etc.) have been identified, the plan discussed, and their support gained	With organization's financial staff, appropriate budget documents (organization-specific) have been drafted to cover SEMP implementation	SEMP Implementation plan has been presented to key executive(s) and executive decision-making bodies as necessary	Budgetary and resource authorizations have been obtained from the organization for SEMP implementation	Staff responsibilities, performance goals, and reporting protocols for energy management have been established and documented within the organization



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Table A-2 provides Goals 5 through 7—the SEMP implementation goals.

**Table A-2: SEMP Implementation Goals**

GOAL	INDICATOR 1	INDICATOR 2	INDICATOR 3	INDICATOR 4	INDICATOR 5
<b>5. Implement Financial Practices</b>	Consideration of energy efficiency is a documented part of the budgeting process for capital and operations projects	An overall budget for energy efficiency measures has been approved and funded for the current budget cycle	The financial methods and decision process specifically requires the use of LCCA and a consistent "Hurdle Rate"	An LCCA tool and approach has been selected and adopted formally	An LCCA training plan has been approved, and all key staff have been trained
<b>6A. Implement Purchasing Practices</b>	Supply chain management policies have been developed and implemented for all energy-using equipment and services	Efficiency specifications have been developed and implemented for all centrally-purchased equipment that is routinely replaced (e.g., lights, motors, computers, etc.)	Efficiency standards for services related to design and construction have been developed and implemented	Efficiency standards for equipment and services related to operations and maintenance have been developed and implemented at the facility level	Implementation of purchasing practices related to energy efficiency are routinely evaluated and corrective action is taken as needed
<b>6B. Implement Enhanced Design &amp; Construction Practices</b>	The Early Collaboration / Integrated Design Process has been implemented as a policy for all new construction projects	Energy performance benchmarks or standards that minimize total cost of ownership have been established for all new construction projects	financial analysis methods (Goal 5) and procurement policies/procedures (Goal 6A) have been implemented for all new construction projects	Advanced design technical practices (to include daylighting, energy recovery, VAV, 3-D design, & commissioning) have been implemented as a policy for all new construction projects	An optimized turnover to the Owner's Staff has been implemented as a policy for all new construction projects (includes training, punch list/ warranty coordination, benchmarking, and charting actual building performance vs. design performance)
					Continued



GOAL	INDICATOR 1	INDICATOR 2	INDICATOR 3	INDICATOR 4	INDICATOR 5
<b>6C. Implement Improved Facility Operations Practices</b>	Benchmarking Results (Goal 2) have been used to identify all underperforming facilities and/or systems	Improved O&M practices to optimize current systems and equipment have been implemented; minor capital investments have been made where appropriate	A staff training program in enhanced building operations has been approved and implemented	A preventative maintenance program that specifically addresses the root causes of poor energy efficiency has been implemented	Service provider contracts have been reviewed and optimized to better support in-house staff responsibilities and maintain an enhanced level of operating performance
<b>6D. Implement Facility Upgrades</b>	Facility or equipment upgrade opportunities are assessed on a regular/ongoing basis	All projects are implemented where LCCA (Goal 5) justifies the investment	Lost benefit of energy savings are considered if/when making budgetary decisions to postpone facility upgrades due to financing constraints	Outside service providers are contracted where no in-house expertise exists or timelines necessitates contracting	Actual facility upgrade performance is charted against facility upgrade designed performance
<b>6E. Actively Manage Commodity</b>	Energy commodity pricing and consumption are regularly monitored to minimize utility costs and exposure to market risks	Open market savings, group purchasing, and term contracts are regularly considered as tools to minimize utility costs and risks	Cogeneration and other on-site generation/distribution opportunities are regularly considered and pursued	Practical, alternative, and interruptible fuel sources and prices are regularly considered	The organization is an active participant in the energy/utility regulatory process
<b>7. Monitor, Track, and Improve Performance</b>	All facility benchmarks are updated at least annually using ENERGY STAR® or other similar programs	Standard tools for tracking energy use and accounting have been implemented at all key facilities	Facility energy performance is (will be) tracked over time (multi-year)	Monitoring & Verification (M&V) protocols have been established and implemented at all key facilities	M&V and Tracking data is regularly reviewed to improve processes and performance





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# EDUCATION AND TRAINING EVENTS

Table B- 1: Education and Training Events May through November 2006

DATE	TOPIC AND PRESENTER	LOCATION
05/18/06	<i>Strategic Financial Analysis</i> by Terry Egnor (Microgrid)	Oregon Society of Healthcare Engineers Bend, OR
06/15/06	<i>Hospitals &amp; Healthcare: High Performance Building through Integrated Design</i> by Doug Bors (Sophometrics)	Energy Trust Webinar
06/28/06	<i>The Morphology of Energy Use in Hospitals</i>	Webinar to the Integrated Design Labs to support their work in hospitals
10/03/06	<i>Lighting for Health Care Facilities</i> by Michael Lane (Lighting Design Lab)	Integrated Design Lab Boise, ID
10/10/06	<i>Daylighting in Healthcare</i> by Christopher Meek (Integrated Design Lab of Puget Sound)	Integrated Design Lab Puget Sound Seattle, WA
10/17/06	<i>The Integration of Daylight and Electric Light in Healthcare</i> by Eric Strandberg (Integrated Design Lab of Puget Sound)	Integrated Design Lab Puget Sound Seattle, WA
10/18/06	<i>Lighting for Health Care Facilities</i> Integrated Design Labs	NorthWestern Energy Billings, MT
10/27/06	<i>Healthcare Administration Expectations for Facilities Management</i> by Ray Crerand (BetterBricks Hospitals Initiative)	Oregon Society for Healthcare Engineering Fall Conference Newport, OR
10/31/06	<i>Lighting for Health Care Facilities</i> by Edward Bartholmew (Lighting Design Lab)	Washington State University Spokane South Campus Spokane, WA
11/07/06	<i>Lighting for Health Care Facilities</i> by Edward Bartholmew (Lighting Design Lab)	Lighting Design Lab Seattle, WA
11/08/06	<i>Lighting for Health Care Facilities</i> by Michael Lane (Lighting Design Lab)	World Trade Center Portland, OR



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Table B-2: Educational Modules for 1-1 ½ Hour Sessions

TITLE	DESCRIPTION
<b><i>Energy Benchmarking and Assessment Tools: Opportunities for Improving Performance and Earning Recognition</i></b>	This session will introduce participants to important data collection tools for managing energy. Topics include an overview of energy accounting, its value for benchmarking and ongoing monitoring, and assessment tools for understanding energy-related business practices. Recognition opportunities through ENERGY STAR® will be discussed.
<b><i>Strategic Financial Analysis: Tools and Methods</i></b>	This session will introduce participants to financial analysis methods for decision-making. Financial methods will be presented at an overview level with emphasis on understanding the value of tools that capture total cost of ownership and operation. Case examples will be used to illustrate application of financial analysis tools to new construction and facility upgrade decisions at Providence Newberg and Mercy Medical.
<b><i>Successfully Selling Energy Efficiency: Strategic and Tactical Approaches</i></b>	This session will engage participants in a short, warm-up activity to illustrate the difference between tactical and strategic approaches to energy management. Major areas of strategic importance to hospital executive leadership will be reviewed with the objective of exploring how facility energy projects can be aligned with the organization's strategic goals.
<b><i>Roundtable: Construction/Facility Manager and CFO perspectives on Energy Management Priorities</i></b>	There is emerging evidence of a strong connection between the physical environment of the hospital and the well being of the patient and the hospital staff. This panel will present evidence of this connection, describe new innovations in hospital design that capitalize on this phenomenon, as well as describe the business case for adopting these strategies in hospital construction projects. Panelists might include BetterBricks Integrated Design Lab representative, hospital energy manager and/or construction manager, utility representative, and a skilled facilitator.

Table B-3: Planned Modules for 1-1 ½ Hour Sessions

TITLE	PLANNED TIMING
<b><i>Integrated Design of High Performance Hospitals</i></b>	Fall 2006
<b><i>Hospital Operating Performance</i></b>	2007
<b><i>Energy Management Overview &amp; Success Stories</i></b>	2007

