



Chicago Green Healthcare Initiative (CGHI)

Facility Manager Peer Exchange
February 15, 2013





Agenda

- January Meeting Recap 10 min
- Strategic Energy Master Plans 30 min
- Prioritization Tools 5 min
- Structuring/Motivating Green Teams 30 min
- Retro-Commissioning Time Permitting
- Announcements 10 min



Options to Recognize Achievements and Further Support Efforts

- Mayoral / Chief Sustainability Officer recognition/media event
- Executive level engagement / information session conducted by peer(s).
- Capitalize a revolving loan fund
- Zero interest revolving loan fund
- Additional rebates for energy efficiency – “bonus”
- Partial funding of deeper energy assessments (ASHRAE Level II)
- Funding for better measurement capabilities (sub-metering)
- Energy saving guarantees for retrofits
- Strategic Energy Master Plan Support
- Leverage Tax Increment Financing (TIF)
- Others?

	BONUS AMOUNT	KWH REDUCTIONS
TIER 1	\$20,000	250,000 - 500,000
TIER 2	\$35,000	500,001 - 1,000,000
TIER 3	\$60,000	1,000,000+



Leverage Tax Increment Financing

Hospital	In TIF?
Chicago Reed MHC	Yes
Hartgrove Hospital	Yes
Jackson Park	Yes
Loretto	Yes
Mercy	Yes
Mount Sinai	Yes
Res - St. Elizabeth	Yes
RML Specialty Hospital	Yes
Rush	Yes
Sacred Heart Hospital	Yes
Saint Anthony Hospital	Yes
Saint Bernard Hospital	Yes
Schwab Rehab Institute	Yes
South Shore Hospital	Yes
Stroger Hospital	Yes

Hospital	In TIF?
Advocate - Illinois Masonic	No
Advocate - Trinity	No
Chicago Lakeshore Hospital	No
Holy Cross	No
Jesse Brown	No
Kindred Lakeshore	No
Kindred North	No
LaRabida Children's Hospital	No
Lurie Children's	No
Methodist Hospital	No
Northwestern Medical	No
Norwegian American Hospital	No
Rehab Institute of Chicago	No
Res - Med Center	No
Res - St. Joseph	No
Roseland Community Hospital	No
Swedish Covenant Hospital	No
Thorek Hospital	No

Hospital	In TIF?
Kindred Central	No* (but right at border)
Res - Our Lady of the Res	No* (but right at border)
Res - St. Mary	No* (but right at border)
Shriners Chicago	No* (but right at border)
U of Chicago	No* (but part of education campus is in)
U of Illinois in Chicago	No* (but part of education campus is in)
Vanguard Weiss	No* (but parking structure is in one)

Comparing multiple financial metrics can strengthen case and support better decision making.



Hospital ABC					
	Project 1 Description	Project 2 Description	Project 3 Description	Project 4 Description	
Project Numbers					
Total Project Cost	-\$100,000	-\$38,686	-\$85,045	-\$43,940	
Rebates	\$25,000	\$16,892	\$49,233	\$7,000	
Project Cost after Rebates	-\$75,000	-\$21,794	-\$35,812	-\$36,940	
Annual Savings	\$20,000	\$16,800	\$33,824	\$2,241	
Financial Metrics					
Simple Payback (Yrs)	3.75	1.30	1.06	16.48	
Net Present Value of Project	\$101,871	\$125,772	\$261,091	-\$16,426	
Internal Rate of Return	33.7%	336.4%	1701.4%	-9.7%	
Net Present Value of Savings	\$175,041	\$147,035	\$296,030	\$19,613	
Yearly Return on Investment	23.34%	67.47%	82.66%	5.31%	
Cost of Delay (5 Years)	\$201,158	\$162,847	\$330,484	\$27,105	
Net Patient Revenue Equivalent					
Rebates (Loss if not leveraged)	\$1,250,000	\$844,600	\$2,461,650	\$350,000	
Project	\$5,093,527	\$6,288,612	\$13,054,564	-\$821,282	
Total (Loss + Project)	\$6,343,527	\$7,133,212	\$15,516,214	-\$471,282	

Comparing multiple financial metrics can strengthen the case and support better decision making.



Hospital ABC											
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
Project 1 Description											
Project Cost	-\$100,000										
Natural Gas Rebate	\$25,000										
Electric Rebate	\$0										
Total Cost	-\$75,000										
Savings	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	
Net Cash Flow	-\$55,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	
Cost of 5 Year Delay											
Project Cost	-\$100,000	-\$105,000	-\$110,250	-\$115,763	-\$121,551	-\$127,628					
Natural Gas Rebate						\$25,000					
Electric Rebate						\$0					
Savings	-\$20,000	-\$20,000	-\$20,000	-\$20,000	-\$20,000	\$20,000					
Net Cash Flow	-\$20,000	-\$20,000	-\$20,000	-\$20,000	-\$20,000	-\$82,628					
NPV - Retrofit Now	\$36,992										
NPV - Wait 5 Years	(\$164,167)										
Cost of Delay	\$201,158										

Assumptions	
Hospital Name	Hospital ABC
Operating Margin	2.0%
Discount Rate	2.5%
Interest Rate	3.5%
Construction Cost Increase	5%

31	Summary	Project1	Project2	Project3	Project4	Assumptions
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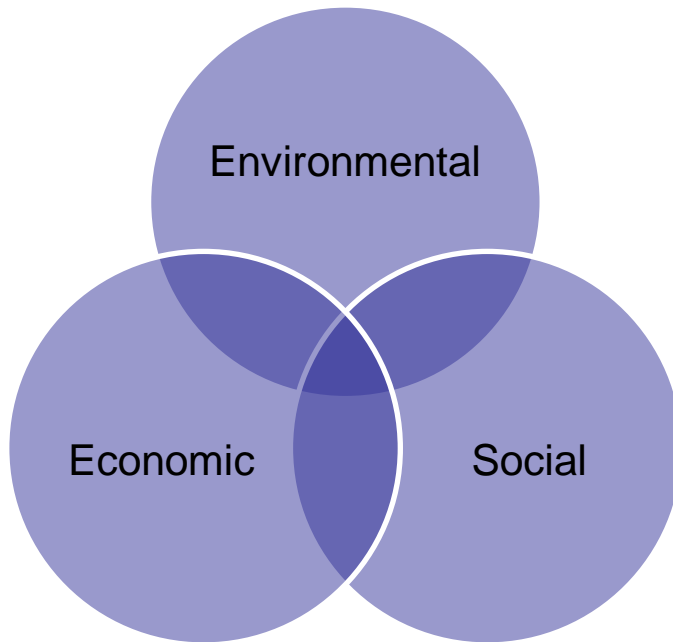


Return On Investment Project Calculations

Number/Metric	Shriners Hospital: Linkage-less Burner Controls	Northwestern Hospital: Kitchen Demand Control Ventilation
Project Numbers		
- Total Project Cost	-\$38,686	-\$85,045
- Rebates	\$16,892	\$49,233
- Project Cost after Rebates	-\$21,794	-\$35,812
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NOTE:
Energy Efficiency projects are exceptionally low risk.

The goals of the green/sustainability team and energy plan could/should be aligned.



Green / Sustainability Teams

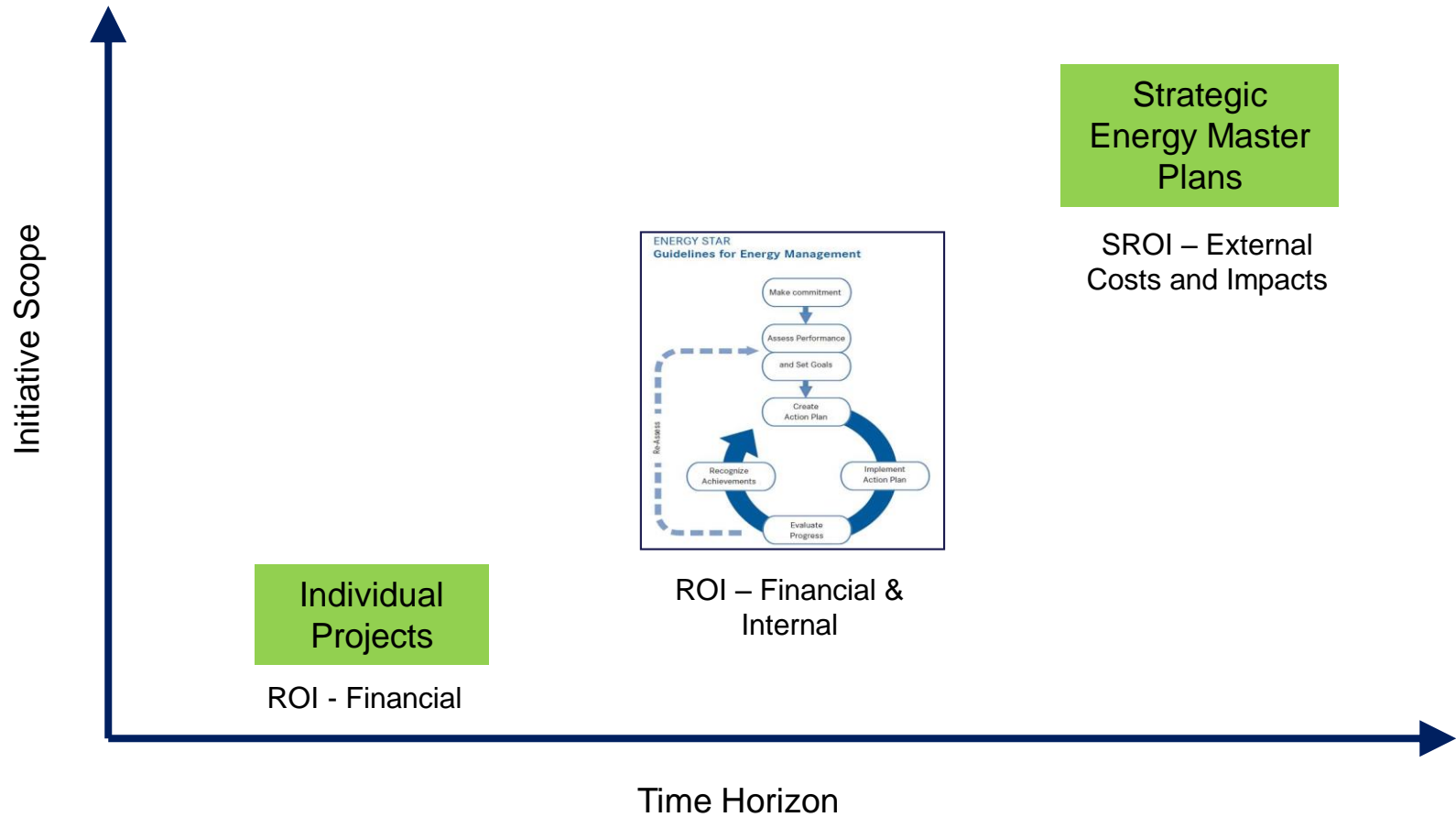
Strategic Energy Master Plan



Strategic Energy Master Plans

Setting the general context for SEMP conversations

Conceptual Framework



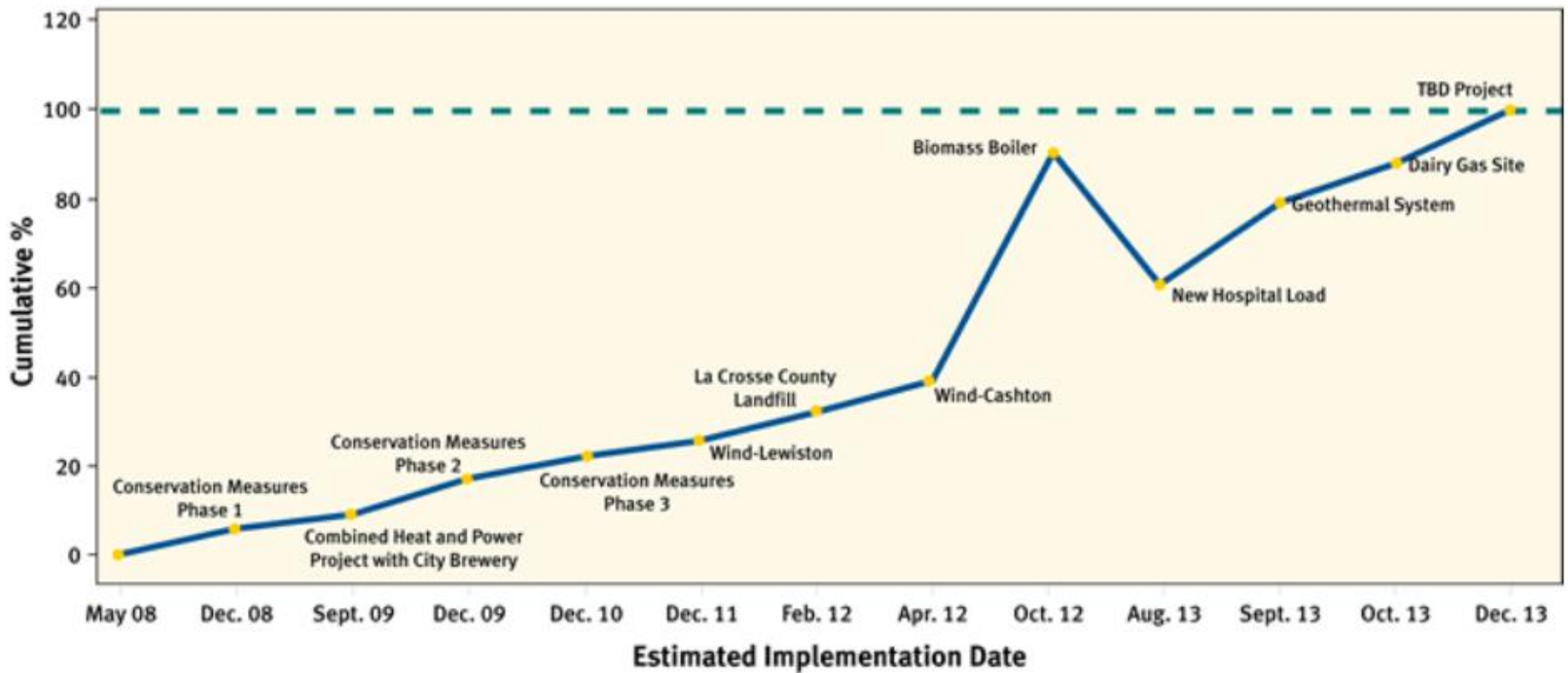
Gundersen Lutheran's Strategic Energy Master Plan

Energy Independent by 2014 (among other things)



Gundersen's Road to Energy Independence

Percent Fossil Fuel Energy Use Offset





Strategic Energy Master Plans ...

- Encourage a long-term system-wide approach rather than project-only
- Align with Hospital mission, long term sustainability goals, climate change projections, and/or others
- Establish guiding principles for energy management
- Formalize energy consumption reduction
- Create agreed upon goals and metrics for measurement
- Provide a funding commitment



Components of a Strategic Energy Master Plan

- Energy Conservation Measures
- Energy Forecasting
- Environmental Compliance
- Financial Incentives
- Renewable Technologies
- Energy Procurement
- Energy Source Diversification
- Distributed Cogeneration
- Unplanned Utility Outage
- Key Performance Indicators



Components of a Strategic Energy Master Plan (cont.)

- **Energy Conservation Measures**
 - List of energy-conservation measures

- **Energy Forecasting**
 - Cost and reliability
 - Renewable energy on grid
 - Consumption escalation rates

- **Environmental Compliance**
 - Short term and expected future environmental compliance issues
 - Air, water, solid waste, noise, etc.
 - US EPA regulations – Climate Change

- **Financial Incentives**
 - State, federal, and utility rebates, incentives, and tax credits
 - Possible additional applicability when diversifying energy sources

- **Renewable Technologies**
 - Solar PV/Thermal, wind, biomass, geothermal, hydrogen fuel cells, etc.



Components of a Strategic Energy Master Plan (cont.)

- Energy Procurement
 - Current time horizon?
 - Aggregation?
- Energy Source Diversification
 - Peak Demand Usage
 - Gas-fired vs. electric chiller during peak hours?
 - Mitigate long-term financial operating risks associated with unexpected price increases, energy market volatility, etc.
- Distributed Cogeneration
 - Constant electric and thermal loads
 - Price gap between electricity and natural gas
- Unplanned Utility Outage
 - Emergency power approaches?
 - Perspectives on grid reliability?
- Key Performance Indicators
 - BTUs / Sq. Ft / Yr.
 - \$ / Sq. Ft / Yr.



Benefits for Executives, Patients, and Medical Staff

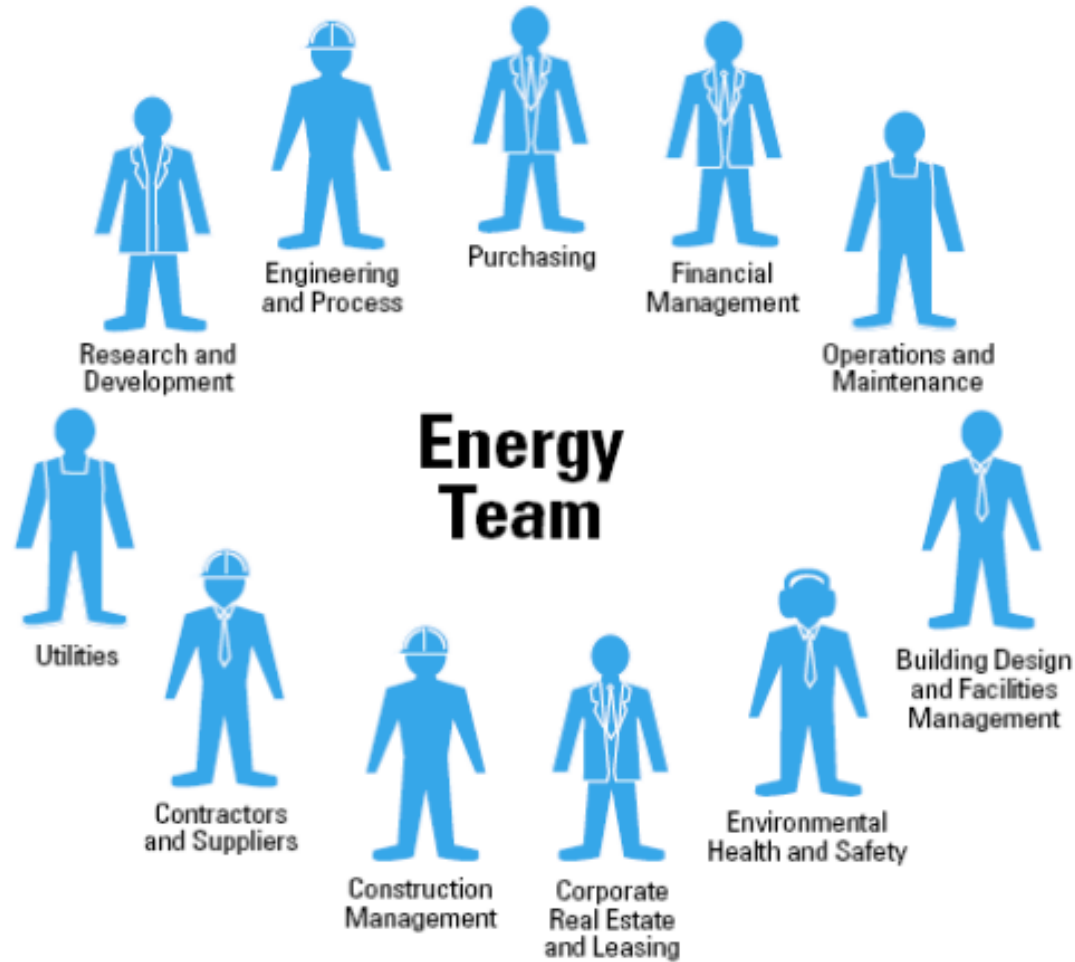
- **World-class patient care and happy staff**
 - Facility design and operations for best care, comfort, and safety
 - Optimal indoor air quality, temperature control, lighting
 - Day-lighting and views for healing and productivity
- **Environmental leadership**
 - Carbon foot print reduction
 - A framework to also improve sustainability
- **Bottom line savings**
 - Cost reduction
 - Smart investments: Potentially high returns with low risk



Benefits for Facility Staff

- **More time** due to reduced firefighting and work orders
- **Executive support** on resources and capital
- **Personal recognition** for the important work you do
- **Professional growth** from training programs
- **Increase input** into new construction and renovation

Potential Energy Team Members



Gundersen Lutheran – Lewiston Wind Energy Project

Mission

- Direct tie to Gundersen's mission of improving the health of the communities it serves
- Fossil fuels linked to serious diseases
- Reduce health impact of energy use

Project

- 4.95 megawatts
- Gundersen is paid for energy created
- Money generated and money saved passed on to patients in the form of lower healthcare costs

Economic Sustainability
Local jobs



Gundersen Lutheran – Cashton Wind Energy Project

- In partnership with Organic Valley
- 5 megawatts of energy

Economic Sustainability
Local business



Testa Produce – South Side of Chicago

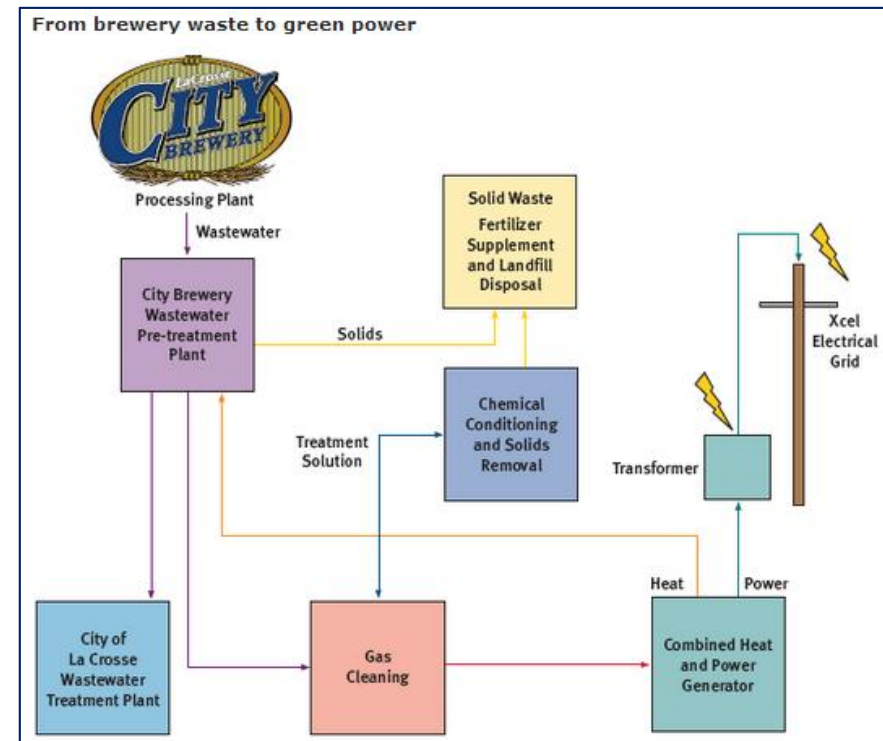


Gundersen Lutheran and City Brewery Combined Heat and Power Project



Economic Sustainability Local business

- Uses waste biogas discharged from City Brewery
- Electricity to grid. Heat to City Brewery
- Generates 3 million kWh / year
- 10% of GL's electricity use



Gundersen Lutheran's Child Care Center

- Solar Thermal
- Educate Staff and Community
- Spreads the word and makes a difference in the community
- Teaches kids early on to do these renewable energy projects
- Multiply by many community members

Social Sustainability
Engaging Community





SEMP Template Resources

- Executive Presentation Template
 - [http://www.betterbricks.com/graphics/assets/documents/Tool_4.1 - Executive_SEMP_Pres_FINAL.ppt](http://www.betterbricks.com/graphics/assets/documents/Tool_4.1_-_Executive_SEMP_Pres_FINAL.ppt)
- Request For Proposal Template
 - http://www.greenribboncommission.org/downloads/Strategic_Energy_Master_Plan_RFP.pdf
- Plan/Report Template
 - [http://www.betterbricks.com/graphics/assets/documents/Tool_3_1 - SEMP_Template.doc](http://www.betterbricks.com/graphics/assets/documents/Tool_3_1_-_SEMP_Template.doc)



Strategic Energy Master Plan Resources

- Gundersen Lutheran
 - <http://www.gundersenenvision.org>
- 10 Steps to a Strategic Energy Plan
 - <http://www.buildings.com/article-details/articleid/3504.aspx>
- Duke Energy
 - <http://members.questline.com/presentations/20120523DukeEnergyPESWebinar.pdf>
- American Hospital Association – Energy Target Setting
 - <http://www.sustainabilityroadmap.org/strategies/targetenergy.shtml#.URLYE2egu-0>
- Better Bricks
 - <http://www.betterbricks.com/healthcare/benefits-story>
 - <http://www.betterbricks.com/healthcare/how-get-there>
 - <http://www.betterbricks.com/healthcare/case-studies>
 - <http://www.betterbricks.com/healthcare/tools-resources>
- Energy Star
 - http://www.energystar.gov/index.cfm?c=guidelines.guidelines_index
 - <http://www.energystar.gov/ia/business/industry/NavigatingEnergyManagement.pdf>
- Legacy Health
 - <http://www.psr.org/chapters/oregon/health-care-without-harm/sustainable-hosp-docs/4210-lydon-presentation.pdf>
- Peace Health
 - https://www.premierinc.com/safety/topics/sphere/downloads/Implementing_StratEnergyMgmtPlan_PeaceHealth.pdf



Prioritization Tools

Why Use Them?

To maintain consistency and keep yourself from bouncing from one task to another with no rhyme or reason.

Prioritization Tools

- Grid Analysis
 - Decide between several options and taking different factors into account.

Factors:	Cost	Board	Storage	Comfort	Fun	Look	Total
Weights:	4	5	1	2	3	4	
Sports Car	4	0	0	2	9	12	27
SUV/4x4	0	15	2	4	3	4	28
Family Car	8	10	1	6	0	0	25
Station Wagon	8	15	3	6	0	4	36

- CARVER Matrix
 - Determine which task is most important at a given time.

	CARVER Factors						
Options	Criticality	Accessi- bility	Return	Vulner- ability	Effect	Recogniz- ability	Total
Write a book	5	3	3	1	5	3	20
Start a blog	2	5	2	5	4	4	22
Run a marathon	2	4	3	1	4	5	19
Make new friends	4	2	5	3	3	1	18

Prioritization Tools

- Paired Comparison Analysis
 - When you have no objective data on which to base decision
 - i.e. Marketing, new IT System, new piece of machinery

	Overseas Market (A)	Home Market (B)	Customer Service (C)	Quality (D)
Overseas Market (A)		A, 2	C, 1	A, 1
Home Market (B)			C, 1	B, 1
Customer Service (C)				C, 2
Quality (D)				

- Pugh Matrix
 - Evaluate alternatives against a baseline

	Baseline	Weight	A	B	C	D
Criteria						
1	0	2	+2	-2	0	+2
2	0	4	0	-4	0	+4
3	0	5	+5	+5	+5	+5
4	0	1	-1	0	0	+1



Prioritization Tool Resources

- How to Prioritize
 - <http://www.stevepavlina.com/blog/2007/05/how-to-prioritize>
- Grid Analysis
 - http://www.mindtools.com/pages/article/newTED_03.htm
- CARVER Matrix
 - <http://www.stevepavlina.com/blog/2007/05/how-to-prioritize>
- Paired Comparison Analysis
 - http://www.mindtools.com/pages/article/newTED_02.htm
- Pugh Matrix
 - <http://www.decision-making-confidence.com/pugh-matrix.html>
- Decision Tree
 - <http://www.mindtools.com/dectree.html>



Structuring and Motivating Green Teams

Sustainability concepts that lead to win-win results

Broader impacts through holistic thinking



Gains through evolutionary processes

"While we are proud of our 2011 progress and the quality level of our sustainability report, we recognize that **sustainability is a journey that we will never complete.**"

Peggy Ward, Director, Sustainability Strategy at Kimberly-Clark

Leverage through partnerships

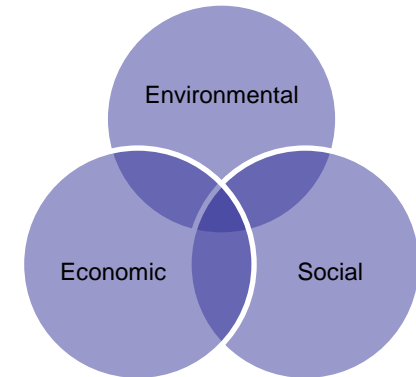
Academia	Industry
Government	NGOs

Successes with integrated approaches



What is the Scope and Goals of the Green/Sustainability Team?

- Improve health outcomes for patients, staff, and community
- Eliminate the cause of health issues
- Energy Reduction
- Waste Reduction
- Green Procurement
- Employee Education
- Community Education and Engagement
- Water Conservation
- Greenhouse Gas Reduction
- Local Economic Development
- Toxic Waste Reduction
- Local Organic Food
- Green Supply Chain
- Certification
- Many Others . .



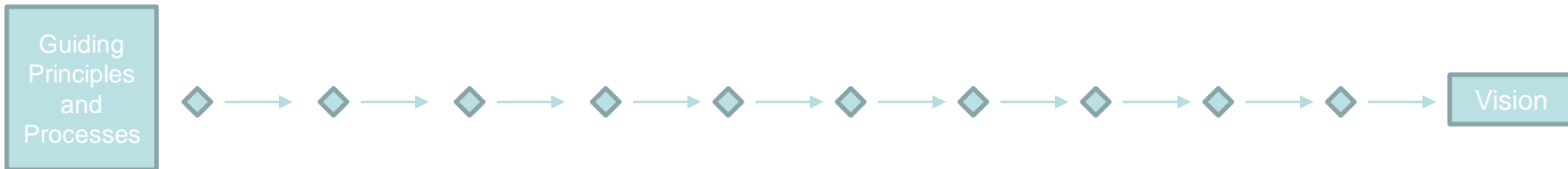
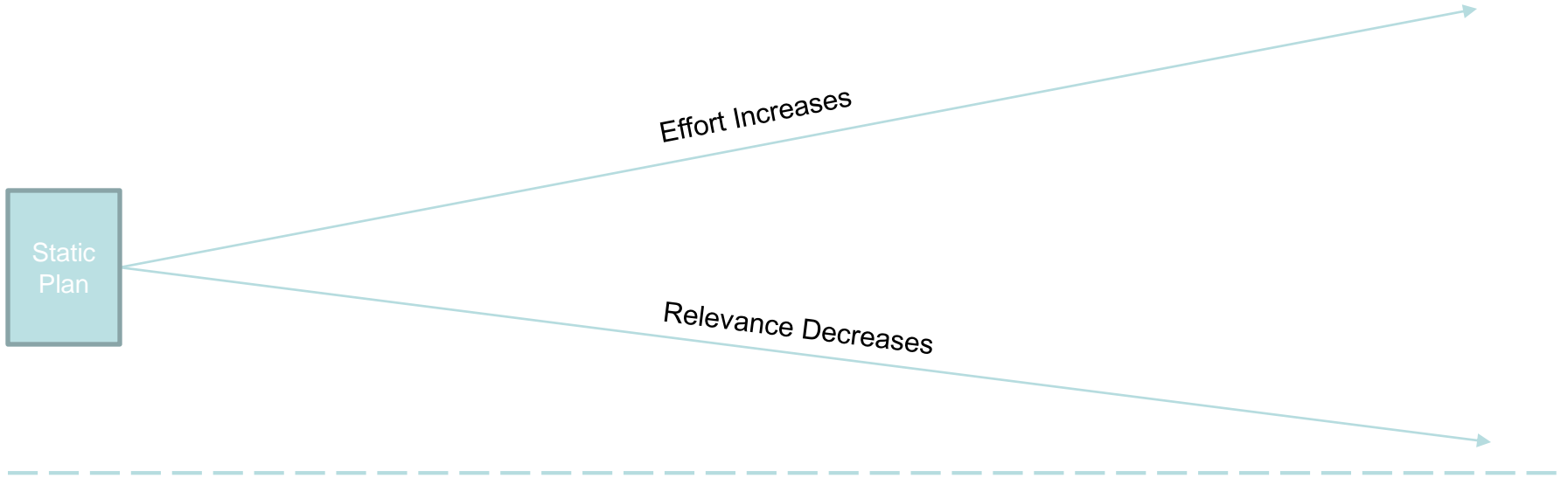
Scope, goals, and available resources define team and structure

Gains through evolutionary processes

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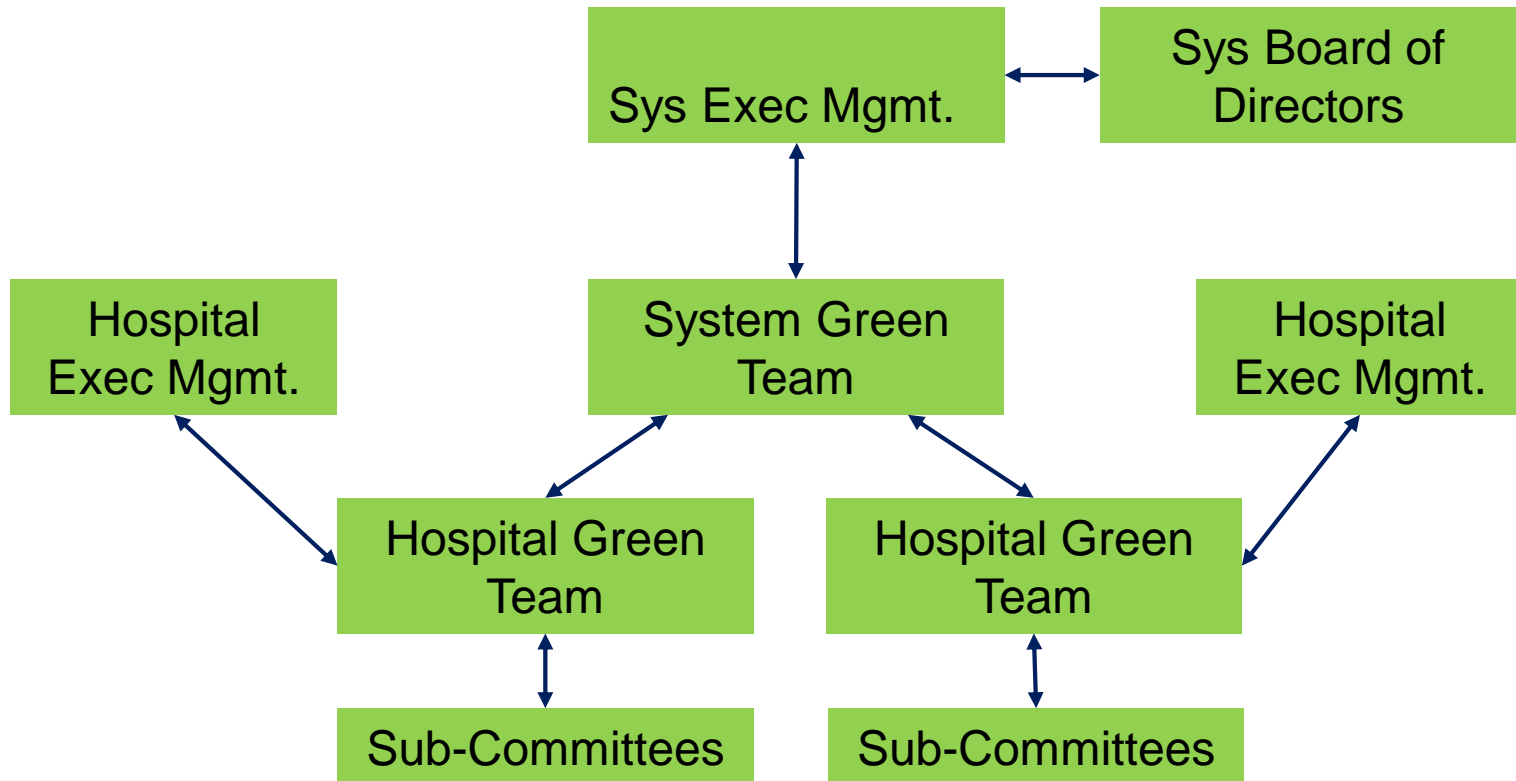
Two approaches to green team activities.



◆ Leverage processes to take advantage of opportunities and change.

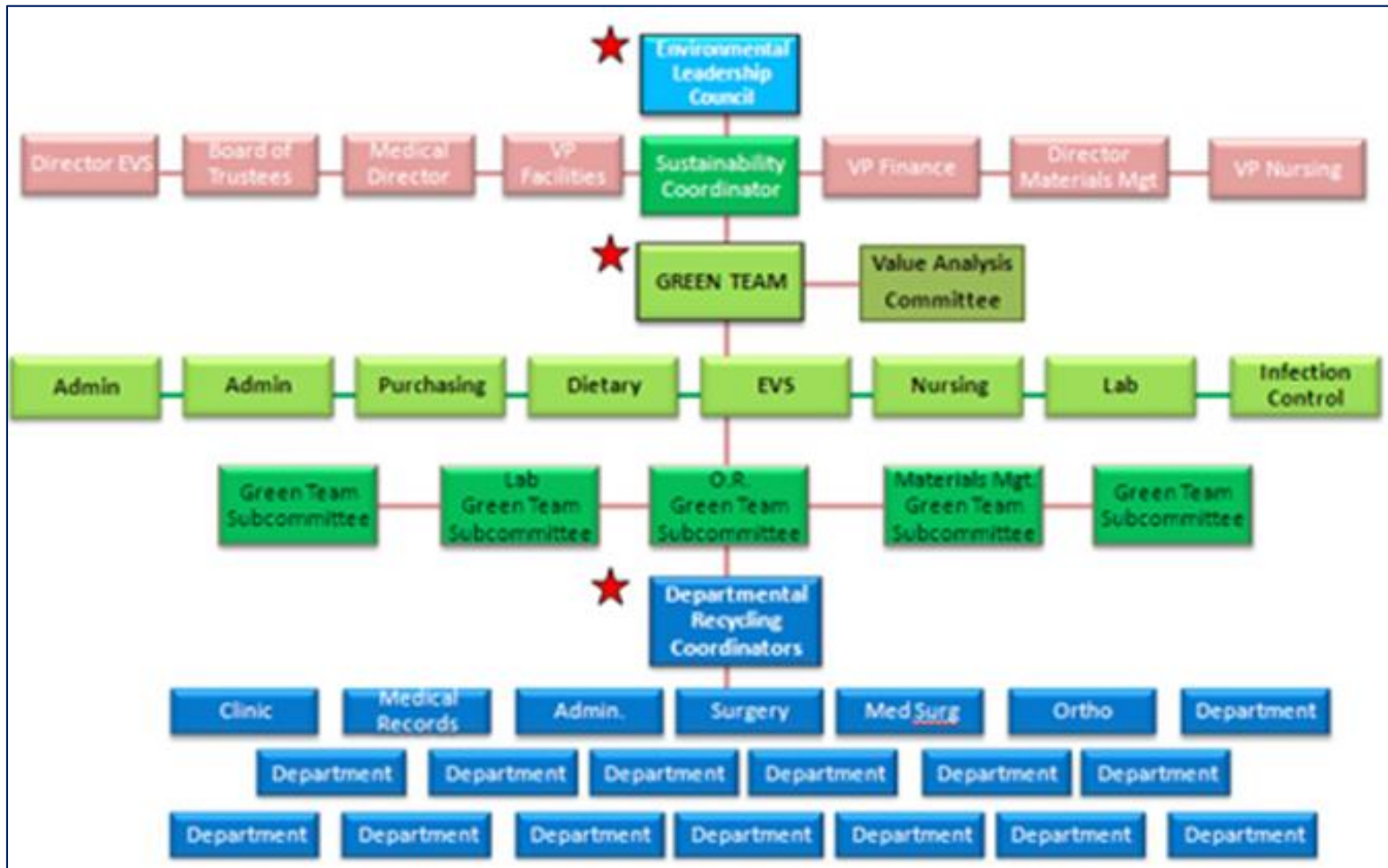
→ Implementation

Sample Green Team Reporting Structure within a Multi-Hospital System



Staff sub-committees around goals, functions, projects?

Potential Sustainable Green Team Infrastructure



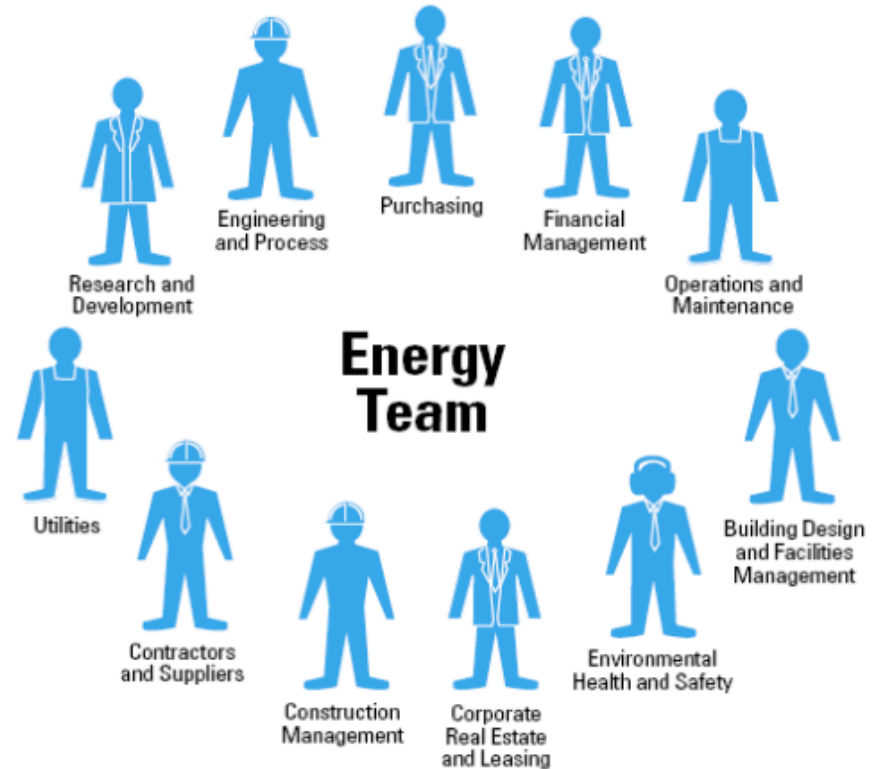


Potential Core Teams – Needed at all times

- Education Team
 - Staff, vendors, community, etc.
- Marketing / Public Relations Team
 - External communication
- Communication Team
 - Staff, vendors, community, etc.
- Data Team
 - Track and report progress
- Recognition Team
 - Recognize accomplishments

Potential Green Team Members

- Doctors
- Nursing
- EVS
- Nutrition
- Public Relations
- Marketing
- Information Technology
- Human Resources
- Foundation
- Industry / Service Providers
- Others



Beneficial to have members from various departments and levels, keep in mind the team's size to promote efficiency



Possible approaches to help motivate green team members

- Executive level support / integrated into core business
- Incorporated into job requirements and performance evaluation
- Select individuals that are committed to green at home and at work
- Recognize accomplishments
- Engage team in structured prioritization activities and goal setting
- Create an environment of creativity and keep an open forum
- Balance required and voluntary participation
- Conduct team building exercises
- Have participation project based / time constrained
- Meet with other green teams to brainstorm and problem solve



Green Team Resources

Abington Memorial Hospital

- <http://www.amh.org/aboutus/thinkgreen/green-team/>

AltaTerra Research Network

- http://c.ymcdn.com/sites/www.altaterra.net/resource/dynamic/blogs/20080721_144258_24980.pdf

American Hospital Association

- <http://www.sustainabilityroadmap.org/strategies/greenteam.shtml#.URqzCWc0wel>

Duke University

- <http://sustainability.duke.edu/action/greenworkplace/greenteam.html>

Energy Star

- http://www.energystar.gov/ia/business/challenge/bygtw/Creating_a_Green_Team.pdf

Green Biz

- <http://www.greenbiz.com/blog/2009/12/07/10-best-practices-building-green-teams>
- <http://www.greenbiz.com/sites/default/files/GreenBizReports-GreenTeams-final.pdf>
- <http://www.greenbiz.com/news/2009/05/05/how-build-green-team-first-step-sustainability>

The Green Economy Post

- <http://greeneconomypost.com/green-sustainability-teams-9406.htm>

Green Impact

- <http://greenimpact.wordpress.com/2009/10/26/bsr-2009-top-strategies-for-getting-employees-behind-sustainability/>

The Hospitalist

- http://www.the-hospitalist.org/details/article/232265/Go_Green.html

National Environmental Foundation

- http://www.neefusa.org/business/report_2009.htm

Practice Greenhealth

- <http://practicegreenhealth.org/pubs/toolkit/greenteam/CreatingEffectiveGreenTeams.pdf>



Announcements



Announcements

- Building Operators Certification Training
- ComEd Spring Bonus
- American College of Healthcare Executive Conference
 - March 11 – 14 / Hilton chicago



Thank You