

# University of Nebraska at Omaha Sustainability Navigation Session Summary

Prepared by: Clay G. Nesler  
Vice President, Global Energy and Sustainability  
Johnson Controls, Inc.

13 February 2007

Innovation Services





# **Needs Assessment**


Evaluation of sustainability needs based on relative importance and current satisfaction

# “Top Ten” Needs (based on gap analysis)

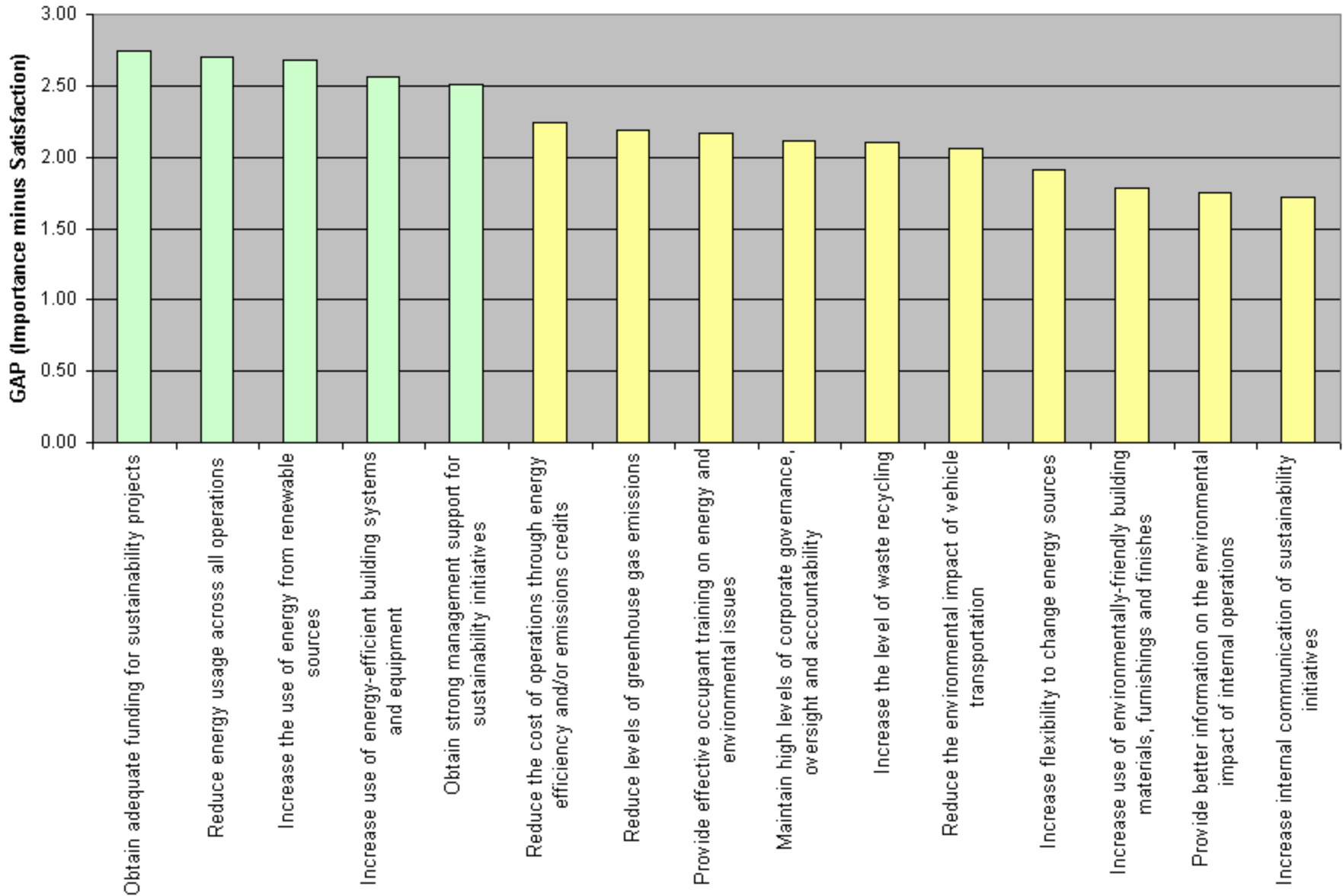
- Obtain adequate funding for sustainability projects
- Reduce energy usage across all operations
- Increase the use of energy from renewable sources
- Increase use of energy-efficient building systems & equipment
- Obtain strong management support for sustainability initiatives
- Reduce the cost of operations through energy efficiency and/or emissions credits
- Reduce levels of greenhouse gas emissions
- Provide effective occupant training on energy and environmental issues
- Maintain high levels of corporate governance, oversight and accountability
- Increase the level of waste recycling

# Needs Gap Analysis - Summary Table

Highest Priority  
Medium Priority

Environmental Stewardship					Social Responsibility			Economic Prosperity		
People	Facilities	Energy	Waste	Operations	Governance	Community	Workforce	Cost	Revenue	Investment
1 Maintain healthy indoor environments	6 Reduce the environmental impact of the building construction process	11 Reduce energy usage across all operations	16 Increase the level of waste recycling	21 Design, deliver and/or use products or services with reduced environmental impact	25 Maintain high levels of corporate governance, oversight and accountability	30 Increase levels of employee volunteerism within the community	35 Attract and retain a diverse workforce	40 Extend the effective life of equipment and assets	45 Increase the market value of facilities and property	49 Obtain strong management support for sustainability initiatives
2 Increase overall occupant satisfaction with the indoor environment	7 Reduce the environmental impact through proper site selection and development	12 Increase the use of energy from renewable sources	17 Reduce levels of sewer usage	22 Increase the eco-efficiency of internal (production) processes and/or operations	26 Reduce the risk of environmental litigation and penalties	31 Increase local support of organizations promoting diversity initiatives	36 Assure fair, consistent work standards across the organization	41 Reduce operating costs across the organization	46 Increase the revenue potential for facilities (e.g., higher rents)	50 Obtain adequate funding for sustainability projects
3 Increase occupant satisfaction with grounds and open spaces	8 Increase use of environmentally-friendly building materials, furnishings and finishes	13 Reduce levels of greenhouse gas emissions	18 Reduce the amount of solid waste	23 Increase eco-efficiency across the entire supply chain	27 Reduce the risk of environmental protests and activism	32 Support community efforts to provide training and education to under-represented groups	37 Improve employee training and professional development	42 Reduce the impact of energy cost volatility	47 Increase overall workforce productivity	
4 Provide effective occupant training on energy and environmental issues	9 Reduce the environmental impact of in-building operations (cleaning, pest management, maintenance)	14 Simplify/streamline the reporting of energy and environmental data	19 Reduce potable water consumption	24 Provide better information on the environmental impact of internal operations	28 Conform to environmental standards and policies on a global basis	33 Increase purchases from minority and women-owned businesses	38 Promote local economic development	43 Increase use of energy-efficient building systems and equipment	48 Attract new customers through sustainability initiatives	
5 Reduce the environmental impact of vehicle transportation	10 Reduce the environmental impact of site-based services (grounds, landscaping, irrigation)	15 Increase flexibility to change energy sources	20 Improve the management of storm water on-site		29 Provide effective external reporting of sustainability initiatives and impact	34 Obtain local/national recognition for sustainability leadership	39 Increase internal communication of sustainability initiatives	44 Reduce the cost of operations through energy efficiency and/or emissions credits		

# Highest Priority Needs (based on gap analysis)



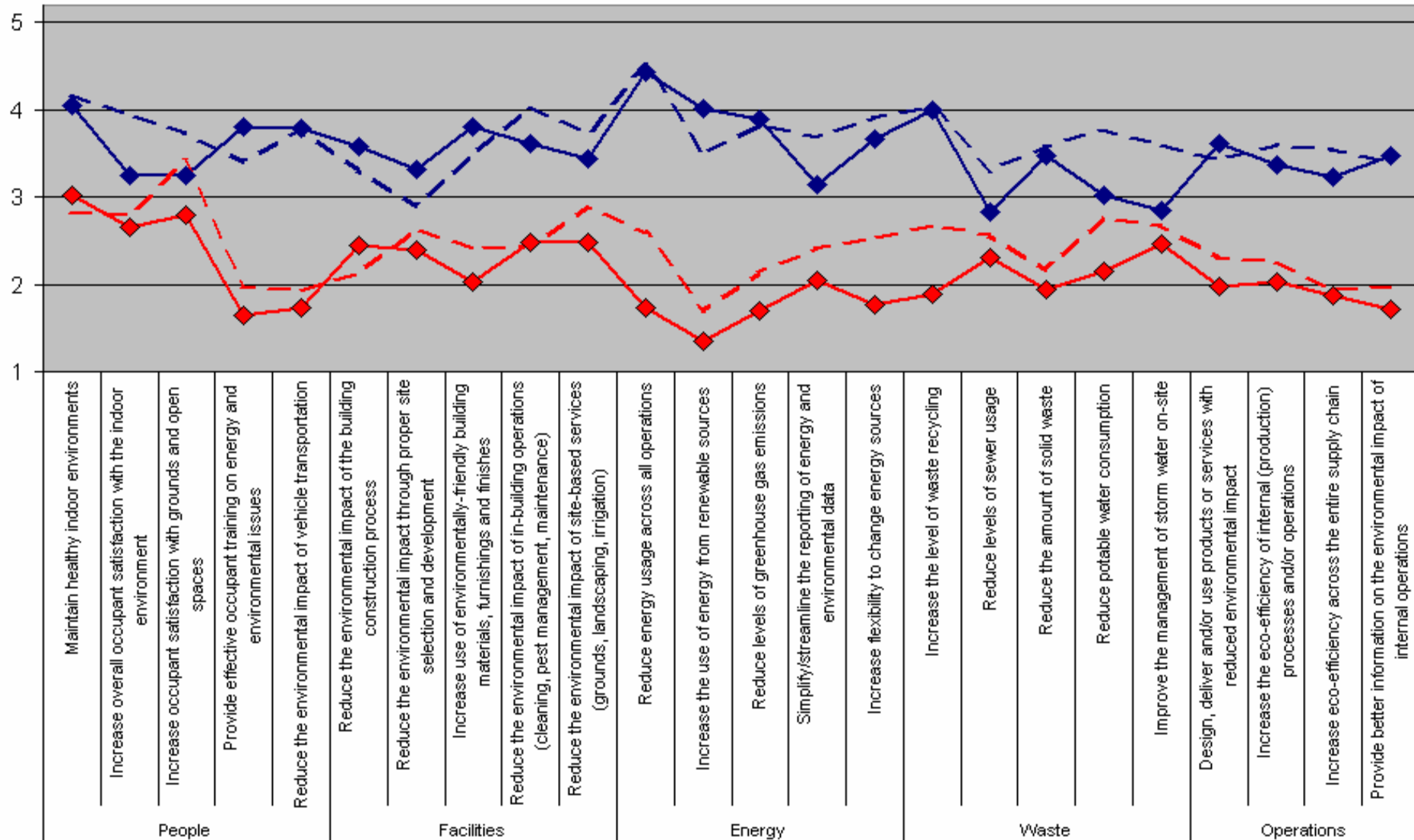
# Needs Assessment

UNO participants (n = 47)

Benchmark: Higher Education organizations (n = 12)

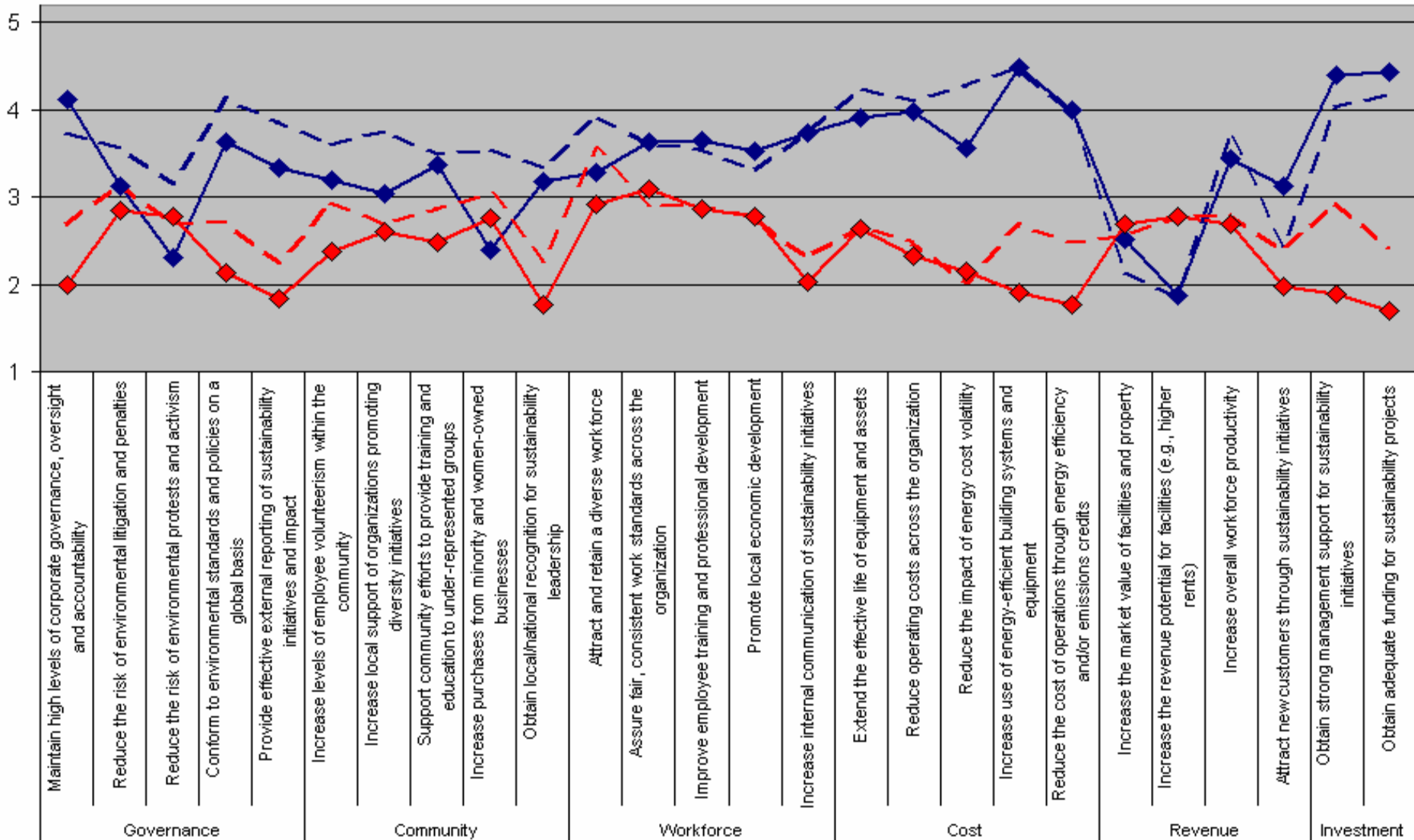
# Needs Analysis (Environmental Stewardship)

◆ Importance   
 ◆ Satisfaction   
 - - Importance (Benchmark)   
 - - Satisfaction (Benchmark)



# Needs Analysis (Social Responsibility, Economic Prosperity)

Importance Satisfaction Importance (Benchmark) Satisfaction (Benchmark)



# Needs Assessment

UNO Students (n = 17)

Benchmark: UNO Faculty and Staff (n = 30)

# “Top Ten” Needs (Students Only)

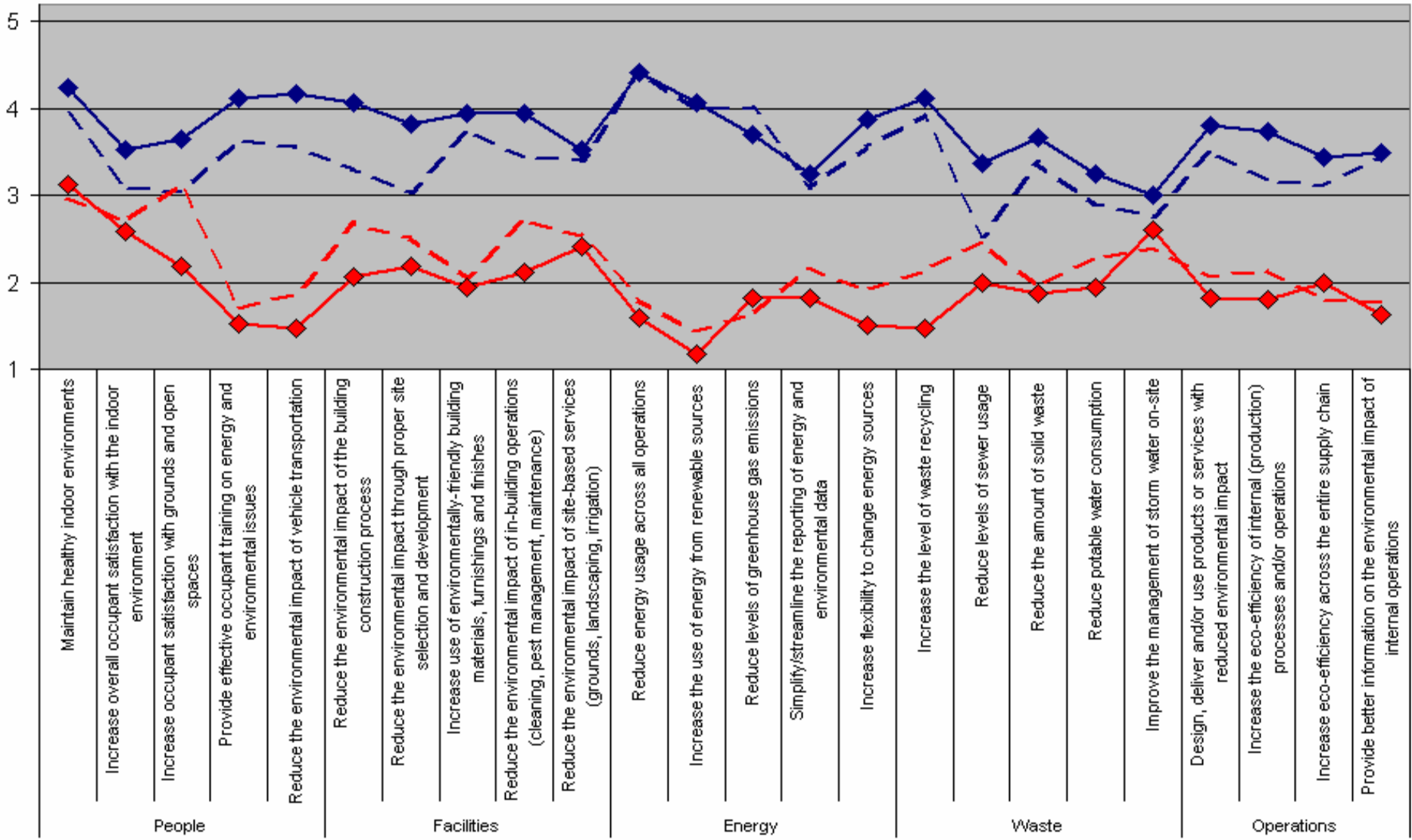
- Increase the use of energy from renewable sources
- Increase use of energy-efficient building systems and equipment
- Reduce energy usage across all operations
- Obtain adequate funding for sustainability projects
- Reduce the environmental impact of vehicle transportation
- Increase the level of waste recycling
- Provide effective occupant training on energy and environmental issues
- Reduce the cost of operations through energy efficiency and/or emissions credits
- Obtain local/national recognition for sustainability leadership
- Obtain strong management support for sustainability initiatives

# “Top Ten” Needs (Faculty and Staff Only)

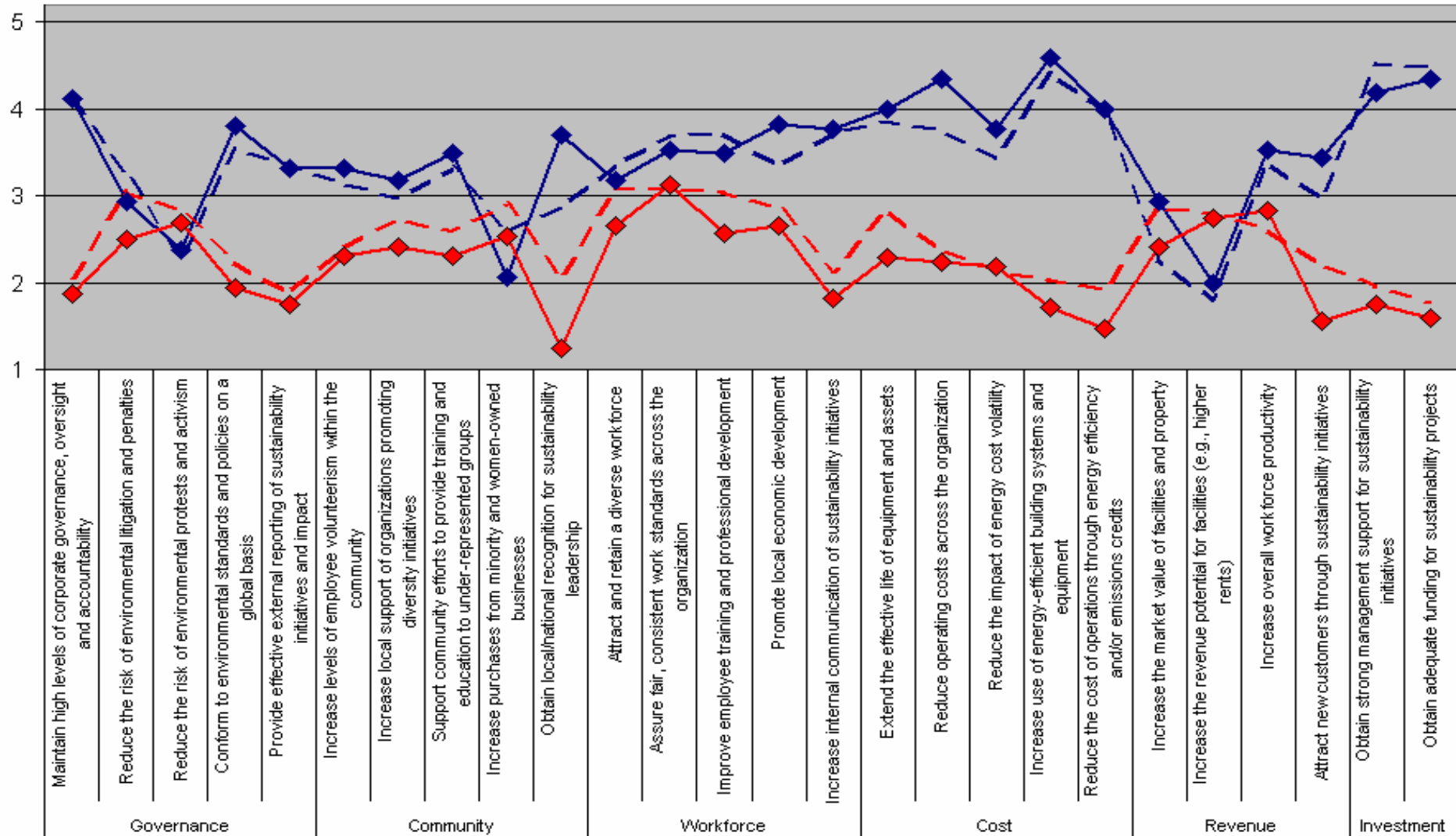
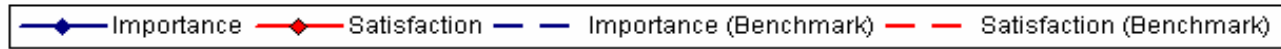
- Obtain adequate funding for sustainability projects
- Reduce energy usage across all operations
- Increase the use of energy from renewable sources
- Obtain strong management support for sustainability initiatives
- Increase use of energy-efficient building systems & equipment
- Reduce levels of greenhouse gas emissions
- Reduce the cost of operations through energy efficiency and/or emissions credits
- Maintain high levels of corporate governance, oversight and accountability
- Provide effective occupant training on energy and environmental issues
- Increase the level of waste recycling

# Needs Analysis (Environmental Stewardship)

◆ Importance   
 ◆ Satisfaction   
 - - Importance (Benchmark)   
 - - Satisfaction (Benchmark)



# Needs Analysis (Social Responsibility, Economic Prosperity)



# Practices Assessment


Evaluation of sustainability practices based on potential value and current effectiveness

# “Top Ten” Practices (based on gap analysis)

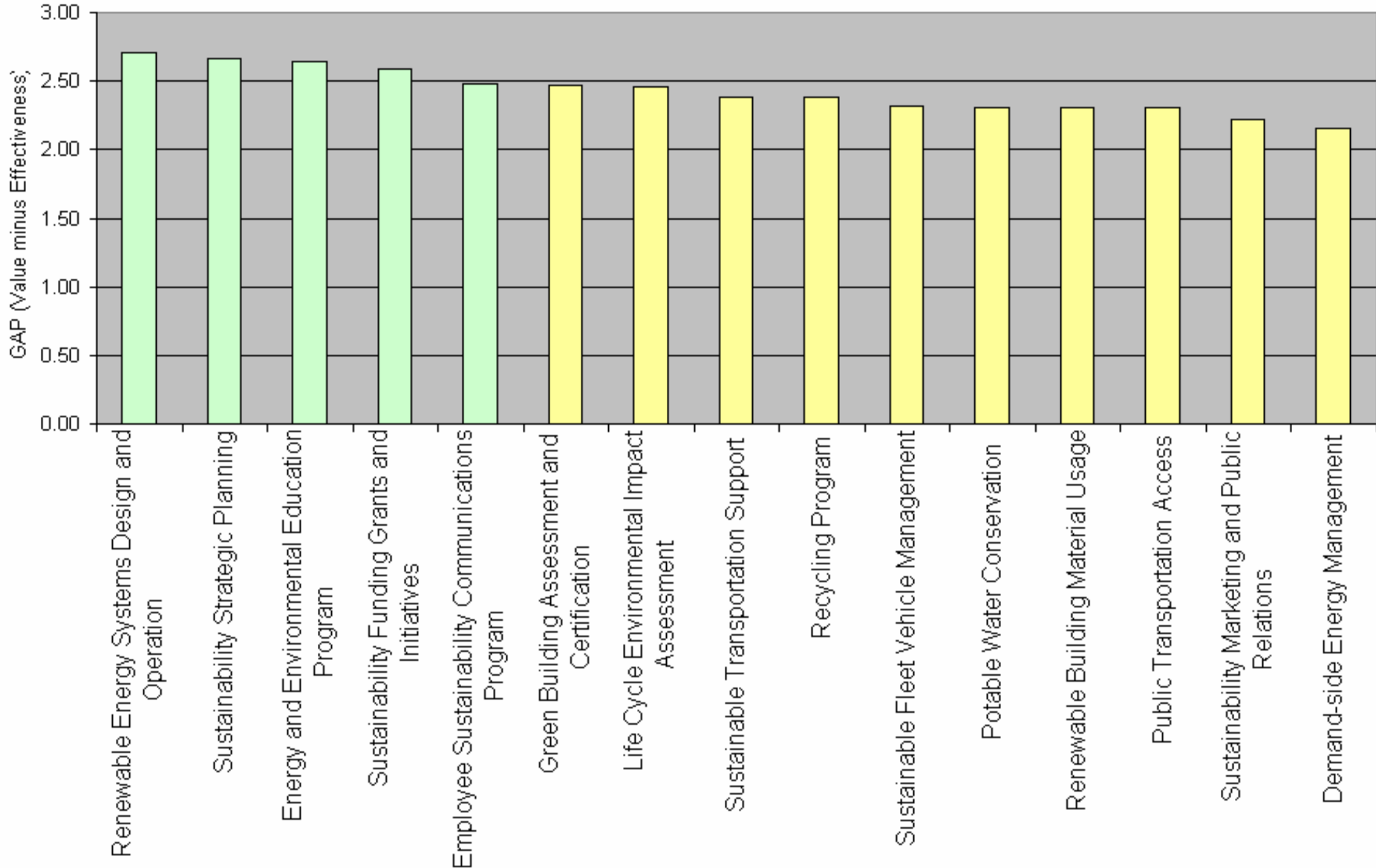
- Renewable Energy Systems Design and Operation
- Sustainability Strategic Planning
- Energy and Environmental Education Program
- Sustainability Funding Grants and Initiatives
- Employee Sustainability Communications Program
- Green Building Assessment and Certification
- Life Cycle Environmental Impact Assessment
- Sustainable Transportation Support
- Recycling Program
- Sustainable Fleet Vehicle Management

# Practice Gap Analysis - Summary Table

Highest Priority  
Medium Priority

Environmental Design				Operational Efficiency				Social Development		Management		
Site Selection	Site Design	Building Design	Building Construction	Technical Operations	Site Operations	Energy Management	Waste Reduction	Employee	Community	Strategy	Reporting	Products
1 Natural Habitat Protection & Rehabilitation	4 Carbon Sequestration	8 Lighting System Design	12 Renewable Building Material Usage	16 Indoor Environmental Monitoring and Control	20 Green Cleaning Products and Services	24 Demand-side Energy Management	28 Recycling Program	32 Workforce Diversity Program	36 Economic Development Program	39 Sustainability Strategic Planning	43 Global Reporting Initiative	47 Life Cycle Environmental Impact Assessment
2 Brownfield and Urban Site Development	5 Landscape and Site Design	9 Personal Comfort Control	13 Pollutant Source Reduction	17 Facility Operations and Maintenance Optimization	21 Sustainable Fleet Vehicle Management	25 Energy Performance Contracting	29 Waste System Audits and Analysis	33 Minority Workforce Development Program	37 Community Volunteer Program	40 Sustainability Marketing and Public Relations	44 Green House Gas Tracking and Trading	48 Environmental Supply Chain Management
3 Public Transportation Access	6 Light Pollution Reduction	10 Lifecycle Design and Cost Analysis	14 Construction Waste Management	18 Maintenance Management Systems	22 Sustainable Transportation Support	26 Building Automation	30 Potable Water Conservation	34 Workplace Safety Program	38 Supplier Diversity Program	41 Employee Sustainability Communications Program	45 Energy Analysis and Reporting	49 Green Products and Services
	7 Storm Water Management	11 Renewable Energy Systems Design and Operation	15 Building Materials Recycling and Reuse	19 Building Commissioning	23 Energy and Environmental Education Program	27 Distributed Power Generation	31 Waste Compacting and Disposal	35 Worker Rights Policy		42 Sustainability Funding Grants and Initiatives	46 Green Building Assessment and Certification	50 Green Product Certification

# Highest Priority Practices (based on gap analysis)



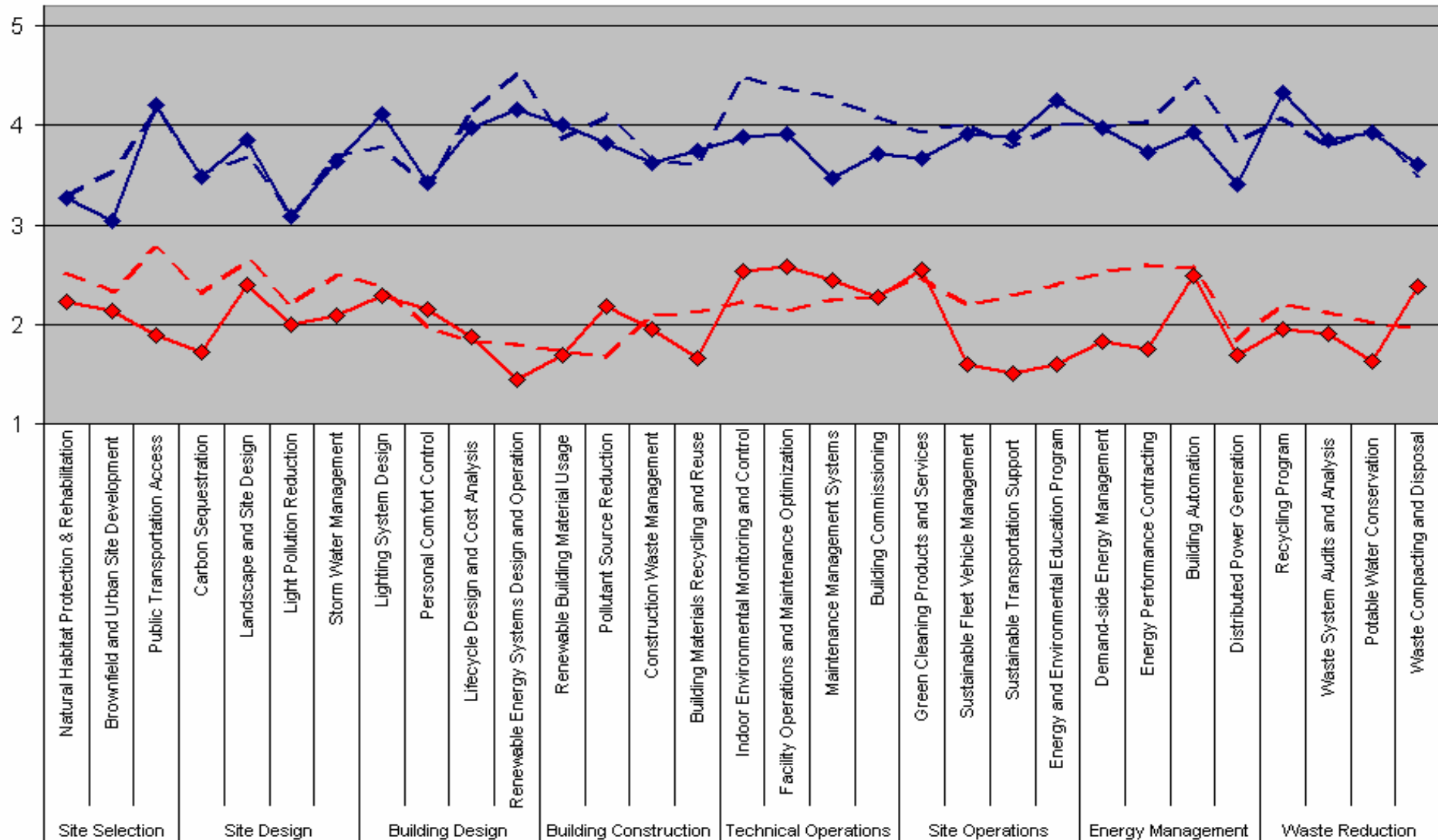
# Practices Assessment

UNO participants (n = 45)

Benchmark: Combined K12 & Higher Education organizations (n = 10)

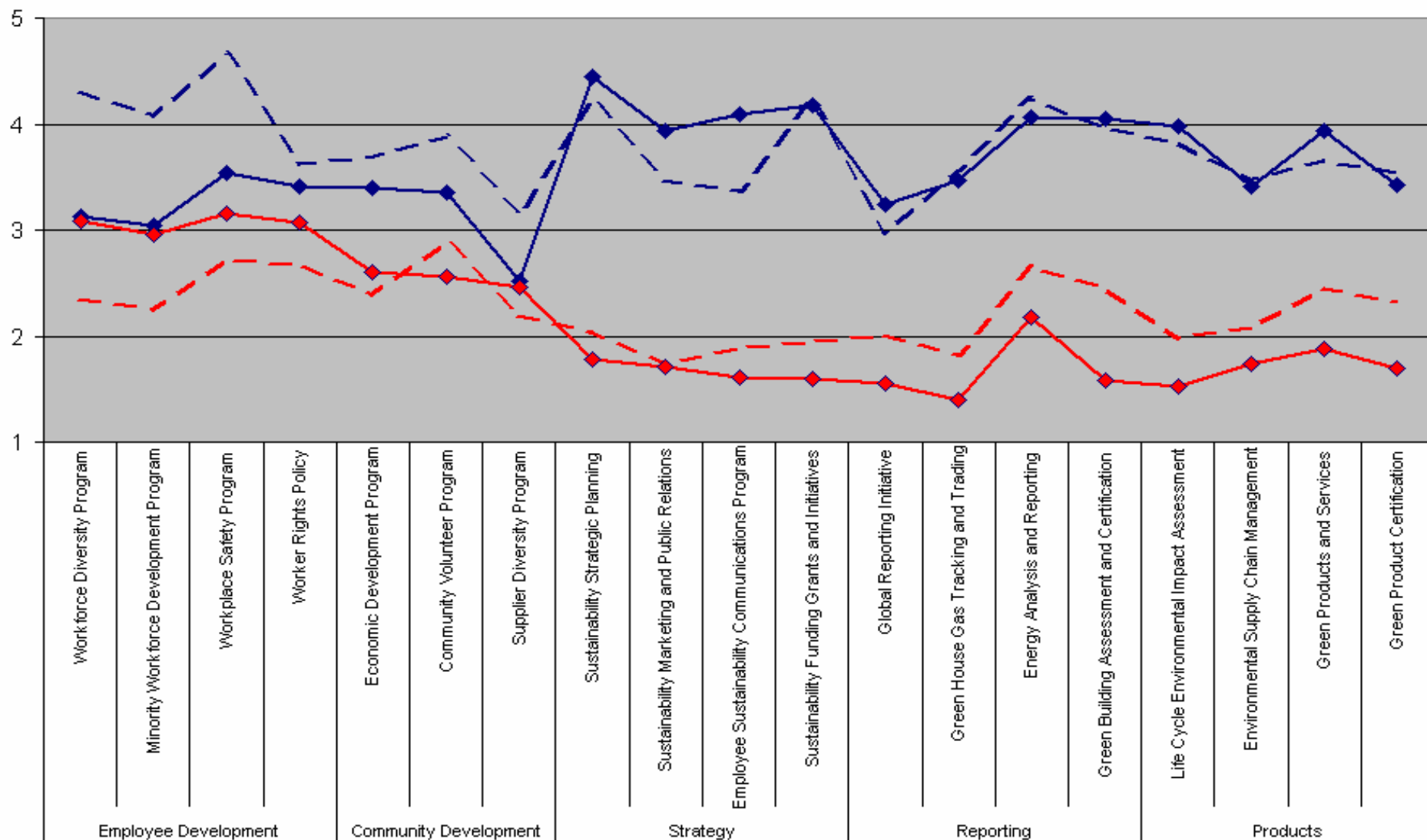
# Practices Analysis (Environmental Design/Operations)

Value Effectiveness Value (Benchmark) Effectiveness (Benchmark)

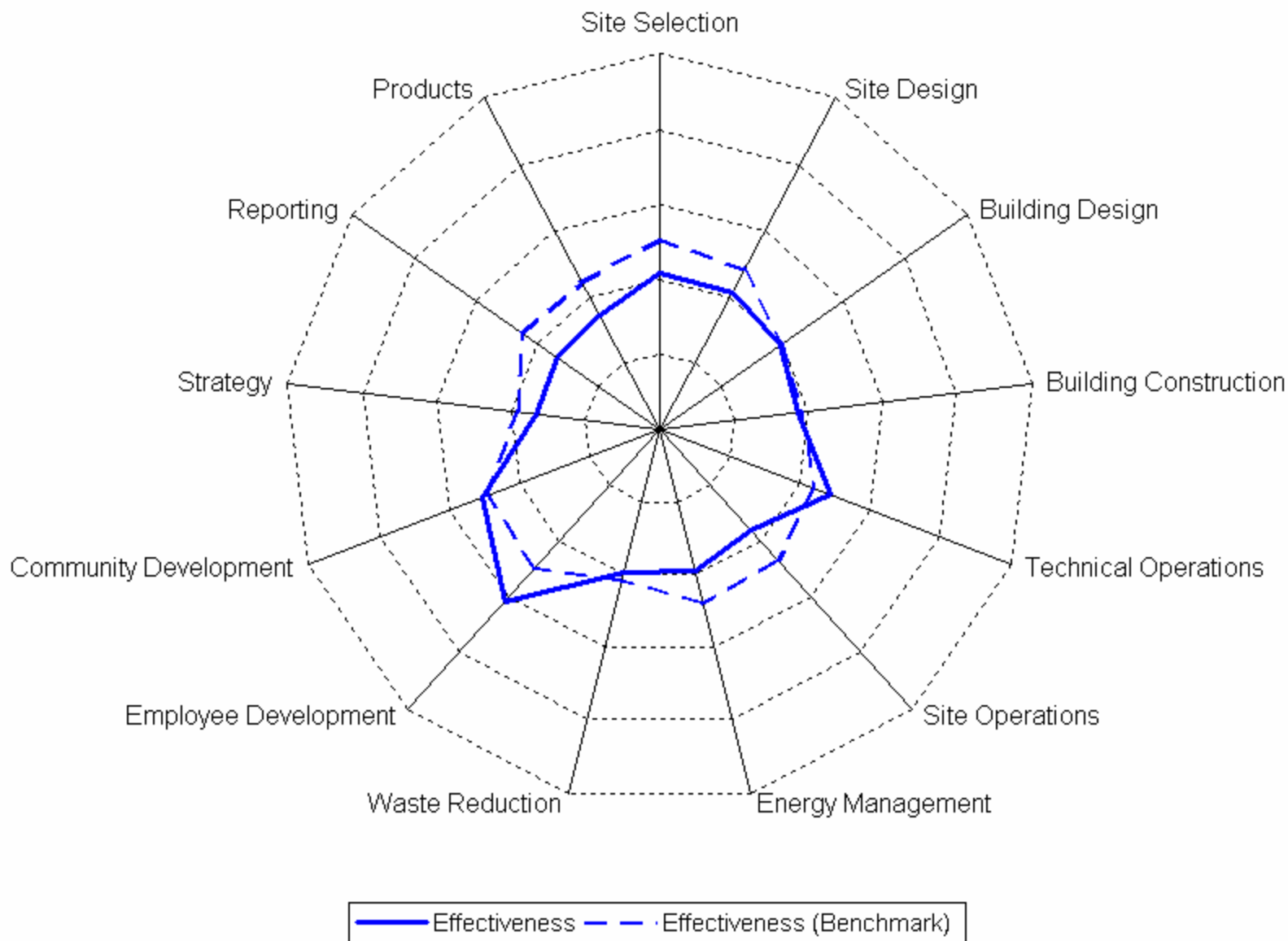


# Practices Analysis (Social Development/Management)

Value Effectiveness Value (Benchmark) Effectiveness (Benchmark)



# Overall Sustainability Practice Effectiveness



# Practices Assessment

UNO Students (n = 16)

Benchmark: UNO Faculty and Staff (n = 29)

# “Top Ten” Practices (Students Only)

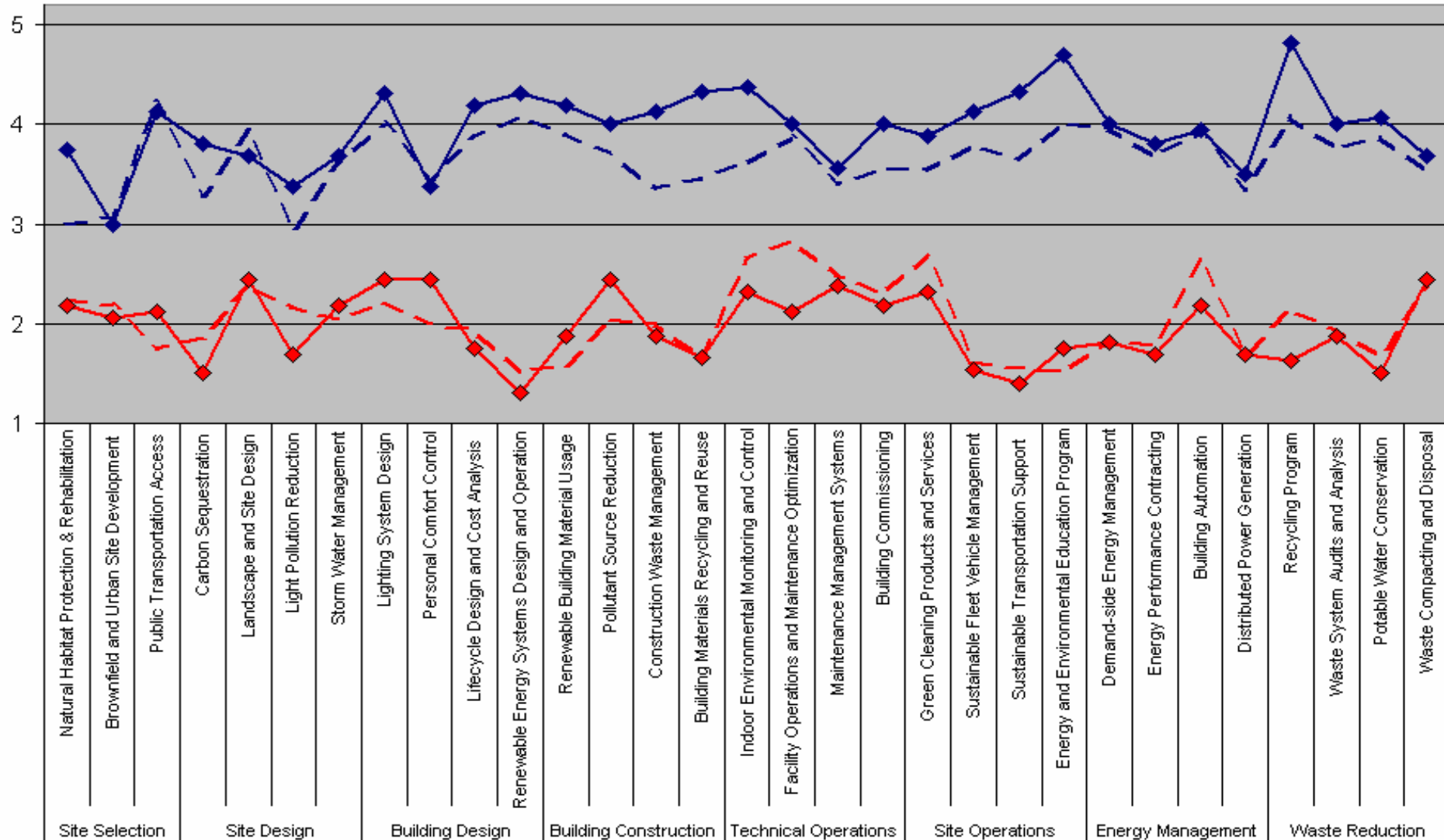
- Recycling Program
- Sustainability Strategic Planning
- Renewable Energy Systems Design and Operation
- Energy and Environmental Education Program
- Sustainable Transportation Support
- Green Building Assessment and Certification
- Sustainability Marketing and Public Relations
- Life Cycle Environmental Impact Assessment
- Employee Sustainability Communications Program
- Building Materials Recycling and Reuse

# “Top Ten” Practices (Faculty and Staff Only)

- Sustainability Funding Grants and Initiatives
- Renewable Energy Systems Design and Operation
- Public Transportation Access
- Energy and Environmental Education Program
- Sustainability Strategic Planning
- Employee Sustainability Communications Program
- Renewable Building Material Usage
- Life Cycle Environmental Impact Assessment
- Green Building Assessment and Certification
- Potable Water Conservation

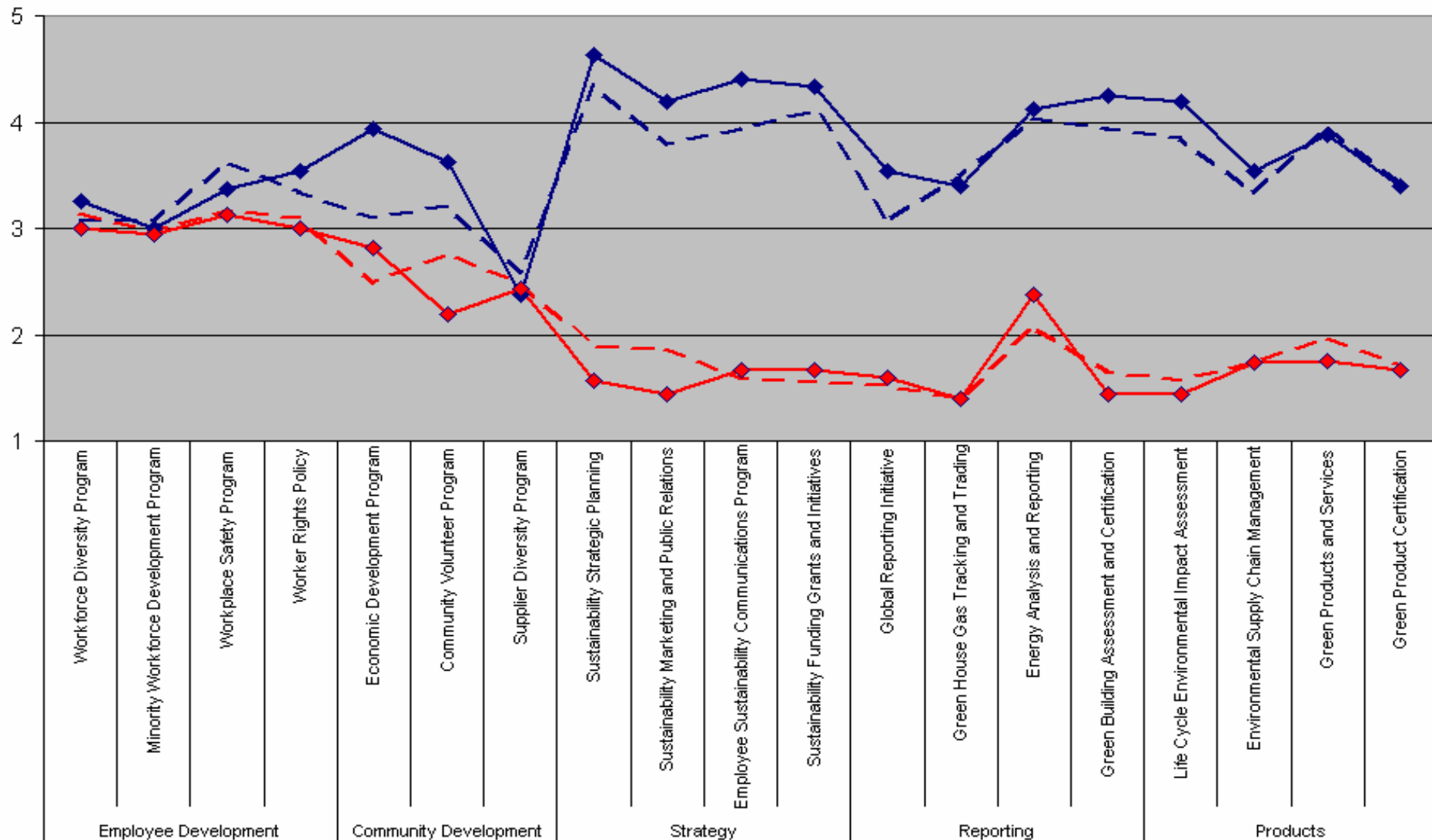
# Practices Analysis (Environmental Design/Operations)

Value Effectiveness Value (Benchmark) Effectiveness (Benchmark)

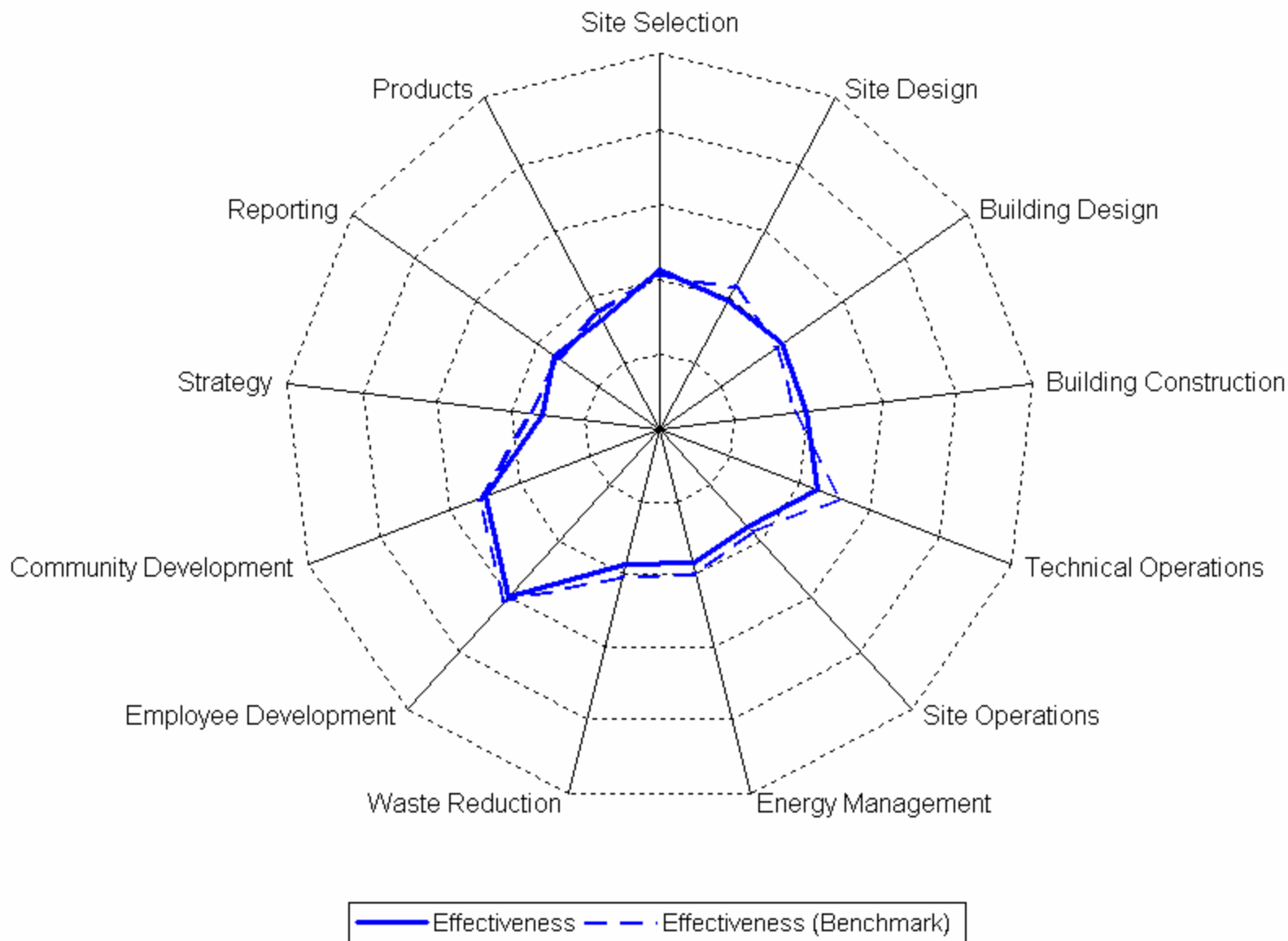


# Practices Analysis (Social Development/Management)

Value Effectiveness Value (Benchmark) Effectiveness (Benchmark)



# Overall Sustainability Practice Effectiveness



# Idea Generation

Brainstorming potential ideas and actions that address the highest priority sustainability needs

# Highest Priority Ideas (based on dot voting)

- Give tuition rebate for students that bicycle (8)
- Mandate LEED certification as minimum design for new construction and renovation (6)
- Create and deliver education program for Omaha and UNO community focused on Green Living (6)
- Need a commitment to sustainability from the president and administration (6)
- Develop purchasing quotas for green products (6)
- Incorporate solar energy (passive/active) in building design (6)
- Leverage private and public grants that already exist (6)
- Install lighting control and occupancy sensors (6)
- Focus on environmentally friendly suppliers, perform cost analysis and achieve purchasing power clout by entire U of Nebraska system (5)
- Solar power can supply enough energy to smooth the ebbs and flows of volatility (5)
- Develop park and ride partnerships with Metro Trans System (5)
- Report on savings already incurred as a result of sustainable practices (build financial case) (5)
- Educate people about how to do this (5)

# Increase use of energy-efficient building systems and equipment (1 of 2)

- Mandate LEED certification as minimum design for new construction and renovation (6)
- Create campus standard/policy for systems and equipment (3)
- Procure energy star certified lighting system – equipment (3)
- LEED certify UNO buildings
- Develop building design standards that meet or exceed Leed
- Leed certification for new construction on campus
- Spend 1% of construction costs on sustainable energy initiatives
- Require in contract specs
- Require new buildings to be LEED certified
- Provide adequate funding in building projects. Do not cut energy systems when construction budgets get tight

# Increase use of energy-efficient building systems and equipment (2 of 2)

- Remodel more buildings and upgrade equipment
- Building commissioning
- Energy-efficient systems require some level of Leed certification for all buildings
- Everything to the right [on the flipcharts]
- Conduct an energy-use audit campus wide
- Leed assessment of buildings
- Change to energy eff. Lighting in the library (biggest electrical usage on campus)
- Reduce use of smaller buildings and improve insulation in all current buildings
- Ask OPPD/look for other support for energy efficient capital costs

# Provide effective occupant training on energy and environmental issues (1 of 2)

- Create and deliver education program for Omaha and UNO community focused on Green Living (6)
- Create public education program for energy eff. And sustainability (3)
- Start young (3)
- Increase sustainability awareness to university funding sources, i.e. legislature and donors (2)
- Increase sustainability awareness with university leaders (1)
- Integrate sustainability into all staff training. As an integrated system not a side training (1)
- Offer brown bag lunches on sustainability topics
- Provide quarterly seminars on a variety of topics
- Conduct seminars with tractable data on relevant issues as well as action items

# Provide effective occupant training on energy and environmental issues (2 of 2)

- Get campus leaders to discuss options with faculty and students on what we can directly do
- Administer funding of employee training to op and main alternative technologies
- Training: - mandatory general educations requirement on environmental sustainability for students – mandatory yearly training for faculty / staff / admin.
- Obtain strong management sustainability
- Develop integrated sustainability education/training program – staff, faculty, community, students – conf. – seminars/brown bags – working session (small groups real issues)
- Add sustainability to generate as requirements being discussed now
- Integrate training
- Sustainability classes offered

# Obtain Strong Management Support for Sustainability Initiatives (1 of 2)

- Need a commitment to sustainability from the president and administration (6)
- Have senior management do this process (2)
- Recruitment of new chancellor should ask and evaluate based on sustainability (2)
- Engage bonus tactics at highest levels (include gov.) to create awareness and leadership action (2)
- Put sustainability in UNO's mission statement and design a degree and study focus program (2)
- Audit & report sustainability indicators (1)
- Get support from a state level. Senators & Governor. Then have adequate funding (1)
- Send staff to Leed seminars put on by USGBC (1)
- Develop alternative classes that explore environmental sustainability (1)

# Obtain Strong Management Support for Sustainability Initiatives (2 of 2)

- Management support - create a sustainability implementation management team (1)
- Create university forum (invited lecturers) on sustainability topics
- Provide data to show the benefits of incorporating such initiatives; cost / energy / political ...
- Obtain signatures for ER UNO petition for the Tallpires Declaration
- Put sustainability in UNO's and NU's strategic plan
- Present the results of this program to chancellors council
- Sustainability planning
- Implement policies that increase sustainability
- Create positions – promote – more entry level ops.

# Design, deliver and/or use products or services with reduced environmental impact

- Develop purchasing quotas for green products (6)
- Focus on environmentally friendly suppliers, perform cost analysis and achieve purchasing power clout by entire U of Nebraska system (5)
- Acquire 3<sup>rd</sup> partner certified environmentally preferable products (2)
- Create a task force to research environment-friendly products and suppliers (2)
- Use recycle products from Office Depot
- Provide lists of eco-friendly options
- Learn more about determining the “greenness” of products – educate all of us
- Train employees – identify sources of goods
- Require energy efficient appliances and implement recycling
- Waste/recycle management
- Products/services buy locally produced “green” products
- Increase amount of recyclable items and bio plastics

# Reduce the Impact of Energy Cost Volatility

- Incorporate solar energy (passive/active) in building design (6)
- Solar power can supply enough energy to smooth the ebbs and flows of volatility (5)
- Move from natural gas heating to electrical heating
- Lobby groups – let utility companies know what they can do to change
- Expanded course schedule in Spring and Fall – fewer choices Summer and Winter
- Supplement grid with wind power

# Reduce the Environmental Impact of Vehicle Transportation (1 of 2)

- Develop park and ride partnerships with Metro Trans System (5)
- University to use only hybrid or electric vehicles (3)
- Promote car pooling / biking (2)
- Build more housing for students to reduce the amount of vehicle traffic on campus (2)
- Provide tuition offset for car pooling (2)
- Eliminate parking at UNO (1)
- Work with city of Omaha to create a workable mass transit option (1)
- Use your bicycle when living within 5 miles (1)
- Promote car pooling
- Start a contest where the prize is a non-gas using vehicle
- Collaborate with city and MADA to find cost efficient/optimally (mutually) effective solutions

# Reduce the Environmental Impact of Vehicle Transportation (2 of 2)

- Educate students on the benefits of car pooling or public transportation (work with city trans.)
- Provide incentives for UNO community to use public trans system
- Implement a four day work/class schedule
- Purchase or outsource campus transportation to better vehicle emissions (i.e. Hybrid, Hydrogen, Electric, etc.)

# Reduce Levels of Green House Gas Emissions (1 of 2)

- Give tuition rebate for students that bicycle (8)
- Partner with MAT to improve public transportation (3)
- Increase use of energy from renewable resources (1)
- Improve transportation options to and between campuses match to class schedules (1)
- Encourage car pooling or reduce the number of motor vehicles used on campus (1)
- Do so by reducing all of electricity through motion sensors
- Supplement student cost for bus transportation, If they park in designated areas close to their residence
- Encourage carpooling public transit to reduce number of cars on campus

# Reduce Levels of Green House Gas Emissions (2 of 2)

- Implement an energy usage program which offers benefits (i.e. increased finances) for energy reduction
- Change rolling stock and small engines to more efficient, less gas use
- Use less energy in lighting, buildings ops.
- Reduce green house gasses – promote alternative transportation options – Incentives?
- Purchase sustainable power and TM experiments to provide an example for the community
- All new building to have solar and ground water heat pumps

# Increase the Use of Energy from Renewable Sources

- Purchase “green” energy from OPPD (4)
- Begin to implement equipment that uses renewable sources as primary power (3)
- Small scale vertical axis wind turbines on roofs (1)
- Buy energy (%) from renewable source (green tag) (1)
- Increase renewable energy – solar panels on building roofs (or other new technologies)(1)
- Put a small wind generator / photovoltaic system on campus (with/through PKI)
- Incorporate PV panels – especially in critical use areas (communications)
- Become a green partner with OPPD
- Purchase renewable or try experimental energy products

# Obtain Adequate Funding for Sustainability Projects

- Leverage private and public grants that already exist (6)
- Report on savings already incurred as a result of sustainable practices (build financial case) (5)
- Research credits and grants available for green projects (2)
- Use our contacts with OPPD to help support sustainability projects – renewables or preview energy use
- Fund a petition from energy savings
- Get federal money to provide grants
- Apply for local government grants to implement sustainable systems
- Have staff who looks for and helps students acquire funding
- Require portion of all grants to show sustainability impact
- Funding – great writing!
- Ear mark percentage of annual appropriations for sustainability projects
- Ask students, faculty or staff to support their favorite eco – friendly initiative.

# Reduce Energy Usage across all Operations

- Install lighting control and occupancy sensors (6)
- Educate people about how to do this (5)
- Temperature setback / set-up based on occupancy sensor in private offices (1)
- Lower classroom ambient temperature in winter and increase in summer
- Educate staff and have campaign for education
- Change lights to CFL's
- Meter energy use at point of use device
- Reduce energy usage – energy audit, educational promotion of results and alternatives
- Install lighting monitors in rooms so lights don't remain on for long periods
- Distinguish b/w needs, wants and desires
- Classroom / student aware ness of achieve

# Reduce the Cost of Operations through Energy Efficiency and/or Emissions Credits

- Use real time energy information system to inform public (7)
  - Show the cost of it because not many people can make sense of Wattage usage
- Make real-time energy use viewable to building occupants (7)
- Compare energy consumption to a benchmark for similarly building types
- Turn computers and lights off when not in use
- Better seal doors and windows in buildings

# Other Ideas/Actions (1 of 2)

- Fulfill our responsibility as an institution of higher education to educate and set an example within our community (4)
- Create awareness by publishing energy savings techniques (3)
- Native landscaping (3)
- Focus UNO as part of the UN system as the university that focuses on environmental issues. Make UNO the leader of the UN system in green building and green business (2)
- Recycling at all waste receptacles (2)
- Bike trails / mass transit (1)
- Have a class at UNO in sustainability that can substitute common classes such as science/eng. electives (2)
- With “high tech” purchases, examine energy impact
- Provide more recycling stations/bins on campus

## Other Ideas/Actions (2 of 2)

- Use task lighting
- Involve campus experts in our own projects
- Increase recycle containers, particularly for plastic and paper. Emphasize their use
- When renovating facilities, donate salvageable materials to Joslyn Castle Institute
- Establish a rental seg-way human transporter service between the campus and remote sites
- More grass and less impervious material on campus
- Raise money from donor for energy related projects like we do for academic/athletic issues
- Create on-site wetland habitat (no sport fish) water quality, drain control

## **Top Ten Needs**

- Increase use of energy-efficient building systems and equipment
- Reduce the cost of operations through energy efficiency and/or emissions credits
- Obtain adequate funding for sustainability projects
- Reduce the environmental impact of vehicle transportation
- Increase the use of energy from renewable sources
- Reduce energy usage across all operations
- Reduce levels of greenhouse gas emissions
- Reduce the environmental impact through proper site selection and development
- Obtain strong management support for sustainability initiatives
- Attract and retain a diverse workforce

## **Top Ten Practices**

- Renewable Energy Systems Design and Operation
- Sustainability Strategic Planning
- Energy and Environmental Education Program
- Sustainability Funding Grants and Initiatives
- Employee Sustainability Communications Program
- Green Building Assessment and Certification
- Life Cycle Environmental Impact Assessment
- Sustainable Transportation Support
- Recycling Program
- Sustainable Fleet Vehicle Mgmt

## **Top Ideas and Actions**

- Give tuition rebate for students that bicycle (8)
- Mandate LEED certification as minimum design for new construction and renovation (6)
- Create and deliver education program for Omaha and UNO community focused on Green Living (6)
- Need a commitment to sustainability from the president and administration (6)
- Develop purchasing quotas for green products (6)
- Incorporate solar energy (passive/active) in building design (6)
- Leverage private and public grants that already exist (6)
- Install lighting control and occupancy sensors (6)