



ENVIRONMENTAL HEALTH & ENGINEERING



EH&E PATHWAYS TO SUSTAINABILITY SERVICES PROGRAM

EH&E PATHWAYS TO SUSTAINABILITY SERVICES DESCRIPTION:

Background

While there are key initiatives to be incorporated into a campus sustainability program, there is no one correct formula for success in all institutions. Numerous factors, including campus culture, values, and finances, as well as organizational structures, will act to drive each institution along their own unique path. With the same goals in mind, the structure of a sustainability program at a large, centralized urban campus with extensive research laboratories and a residential student population will vary significantly compared to a community college with an active extension school and a largely commuter-based student population, or a rural liberal arts college. Data that compares colleges and universities' energy usage can serve as the basis for the development of a sustainability initiative, but data alone cannot address the unique use-patterns, circumstances, and capital planning requirements of any individual college campus.



EH&E's Program Expertise – Campus Building Performance

Over 80% of a typical campus carbon footprint can be attributed to the energy consumed by its buildings. Achieving the right balance between building performance, occupant needs, and energy consumption requires thoughtful data analysis and stakeholder input. EH&E's Building Science group includes over sixty dedicated professionals in their fields—professional civil, mechanical, chemical, and fire protection engineers. Our professionals offer expertise in building commissioning, ventilation systems, energy management, and building-related health issues. We excel in achieving the maximum performance from building systems, and specialize in high energy-utilization buildings such as those housing laboratory and research



operations. Our focus on performance ensures the right balance of energy use, indoor environmental quality, and equipment life.

Academic Program Development

EH&E's senior professional staff are intimately involved in the development and presentation of core courses within the Sustainability and Environmental Management curricula at Harvard University Extension School (<http://extension.harvard.edu/envr/>). EH&E's staff are experienced field personnel with a commitment to the unique culture, operations, activities, and infrastructure of higher educational institutions. They are highly knowledgeable in the wide range of possibilities available for campus sustainability programs.

EH&E's [Pathways to Sustainability Program](#) is designed to help colleges and universities define what sustainability means to them by working with each individual institution's administration, faculty and staff to define goals that are supported by cultural, financial and carbon-based metrics. We can integrate data from a variety of sources, such as facility condition assessments, energy studies and greenhouse gas inventories to assist the institution craft and implement the right plan for them.

Service offerings include:

- ▶ Green Gap Analysis
- ▶ Greenhouse Gas Inventory (Carbon Footprint)
- ▶ Sustainability Dashboard Metrics
- ▶ Sustainability Team Development
- ▶ Mission Statements, Goals and Objectives Development
- ▶ Development of Policies, Incentives and Strategic Plans
- ▶ Development of Climate Action Plans
- ▶ Establishment of Student Programs and Activities
- ▶ Sustainability Training and Group Facilitation
- ▶ Web-based Sustainability Program Management Support
- ▶ Energy Management and Building Commissioning
- ▶ Development of Innovative Financing Plans
- ▶ LEED® Project Management
- ▶ Green Building Standards and Specifications Development



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SUSTAINABILITY PROGRAM SERVICES:

Sustainability Program Assessment:

Green Gap Analysis

EH&E's Green Gap Analysis benchmarks your campus' sustainability performance with industry best practices, allowing a more informed and comparative approach to setting sustainability goals. The Green Gap Analysis will serve as a baseline for your program and help you chart your institution's best pathway forward.

The Green Gap Analysis evaluates:

- Building operations
- Landscaping and grounds
- Waste and recycling
- Dining
- Transportation
- Capital planning
- Finance
- Student life
- Procurement
- Co-curricular education
- Curriculum
- Faculty and staff development and training
- Research

Sustainability Metrics:

Greenhouse Gas Inventory (Carbon Footprint)

A greenhouse gas (GHG) inventory can be an important tool for understanding your campuses' environmental impact. By aggregating information from all campus operations that utilize fossil fuels, a GHG inventory provides a dynamic look at campus activities that contribute to climate change. Conducting a GHG inventory is the first step toward developing a greenhouse reduction strategy and can go a long way toward meeting your sustainability goals.

EH&E employs a GHG calculator that was developed based on the World Resources Institute and the Climate Registry's General Reporting Protocol for measuring and reporting greenhouse gases. We recognize that some institutions have already committed to the use of other GHG inventory tools, and can



incorporate the use of existing information into the overall assessment. These protocols are the standard by which most GHG inventories are conducted and permit “apples to apples” comparisons with peer institutions.

If you have already conducted a GHG inventory, EH&E can review your results, ensuring that they are accurate and consistent with the standards listed above.

☑ Sustainability Dashboard Metrics

In addition to GHG Inventories, there are other important sustainability indicators that are fundamental to understanding a campus’ environmental impacts. EH&E’s Sustainability Dashboard Metrics provide a convenient view of these indicators, allowing you set sustainability targets and track progress.

Some examples of Sustainability Dashboard Metrics include:

- ▶ Building Energy Performance
 - Normalized for temperature and weather
 - Energy use baselines
- ▶ Recycling Rates
- ▶ Food Waste and Composting Rates
- ▶ Water Use
- ▶ Commuting Rates
- ▶ Sustainability Policy Tracking
 - Sustainable Purchasing Rates
 - Green Power Purchasing Rates



Sustainability Program Development

Successful sustainability programs engage the right stakeholders, develop the right incentives, and have a clear focus in order to move forward. EH&E helps to develop the right sustainability pathway for you. We provide effective tools to steer your sustainability program in the right direction and provide support in fostering broad-based participation and institutional commitment.

☑ *Sustainability Team Development*

Sustainability is by its nature an interdisciplinary endeavor, touching all aspects of the campus, from operations and finance to academics. EH&E can help you develop a sustainability team to support your program and ensure participation from critical campus stakeholders.

☑ *Mission Statements, Goals, and Objectives*

A sustainability mission statement can align and focus your program. Creating smart goals and objectives will keep your program on track and allow you to measure progress over time. EH&E can help you develop streamlined mission statement, goals and objectives that are tailored to the individual needs of your campus.



☑ *Development of Policies, Incentives, and Strategic Plans*

Formalizing sustainability programs through policies and written plans is an important step in institutionalizing your effort. EH&E can work with you to develop the right policies and plans for your program in a way that's inclusive of important stakeholders.

Some sample policies and plans include:

- ▶ General sustainability principles
- ▶ Green building / design
- ▶ Energy conservation
- ▶ Sustainable landscaping
- ▶ Commuter choice
- ▶ Sustainable purchasing
- ▶ Recycling and solid waste management
- ▶ Sustainable food purchasing
- ▶ Indoor air quality management
- ▶ Green cleaning

☑ *Development of Climate Action Plans*

The American College & University President's Climate Commitment (ACUPCC) has successfully registered over 575 college and university presidents to commit to achieving "carbon neutrality." This commitment requires the development of GHG inventory and a comprehensive "climate action plan" that details how the campus will achieve their goal. EH&E can help develop this plan and ensure that the ACUPCC commitment is truly achievable.



☑ *Establishment of Student Programs and Activities*

Students are the heart of any campus, and their participation in sustainability programs can be significant. EH&E can facilitate student programs and activities that can directly support your sustainability program, while enriching campus life.

Sample programs include:

- ▶ Resource Efficiency Programs (REP); sponsoring student-led conservation programs in dorms
- ▶ Student competitions
- ▶ Earth day and other events
- ▶ Student-sponsored lecture series

☑ *Sustainability Training and Group Facilitation*

Sustainability is a new field that is rich with professional development opportunities. EH&E can offer expert training for students, faculty, and staff on your campus that will help raise the level of institutional capacity for sustainability efforts.

Sample training programs include:

- ▶ Sustainability charrettes
- ▶ Best practices exchanges and peer to peer workshops
- ▶ Life cycle costing training
- ▶ Green building and LEED® standards and practices training

☑ *Web-based Sustainability Program Management Support*

EH&E offers a truly unique array of web-based sustainability program management software solutions for college and university campuses. Unlike any other sustainability program management system, eH&E support sites are designed entirely on a Microsoft Windows® SharePoint® platform. SharePoint® allows us to eliminate the extensive (and expensive) programming necessary to build and maintain conventional sites. While EH&E provides direct expert support to the client



through the site content (templates, tools, organizational structure, and expert advice), the SharePoint® platform provides all needed functionality in an open and highly customizable format.

Other SharePoint® benefits include:

- ▶ Secure site hosting on any Microsoft server (intranet or EH&E extranet)
- ▶ Compatibility with your existing program files and documentation
- ▶ Fully customizable to adapt to your needs

Carbon Footprint Management and Engineering Expertise

EH&E helps you to implement projects that result in real conservation on campus. Our engineering team provides professional project management services that focus on maximizing campus efficiency and unlocking the conservation savings potential on campus.

Retro-commissioning as the first step in a campus sustainability strategy can reduce energy use in college and university buildings by 10% or more, making it an essential ingredient for meeting greenhouse gas reduction goals.

☑ *Energy Management and Building Commissioning*

Energy use in buildings at colleges and universities is responsible for the majority of campus greenhouse gas emissions. Energy conservation measures in buildings are therefore often the first projects undertaken by a sustainability program. The best way to approach energy conservation in buildings is to undertake an existing building commissioning process.

EH&E can troubleshoot heating, ventilating and air-conditioning (HVAC) systems in your buildings, reviewing the initial design and intent of the system, and determining if the system is operating according to design. We will also determine if the original design intent is still applicable for the current space usage, troubleshoot malfunctions and evaluate air quality and system performance. We'll then provide a full analysis



and recommendations for enhanced performance, equipment longevity, and potential energy savings.

☑ *Development of Innovative Financing Plans*

The best laid sustainability plans can fall short unless they have a strong financial backing. Fortunately, many sustainability efforts can be self-funding if the right finance and accounting practices are put into place. EH&E can work with you to establish innovative financing strategies that truly make the business case for sustainability.

Some financial concepts include:

- ▶ Revolving loan funds
- ▶ Use of utility conservation rebates
- ▶ Use of local, state, and federal grants
- ▶ Third-party financing

☑ *LEED® Project Management*

The United States Green Building Council (USGBC), a non-profit organization, developed the Leadership in Energy and Environmental Design (LEED®) program to create better buildings by optimizing a building's performance through examination of indoor environmental quality amongst other categories. Our wide-ranging LEED® expertise allows us to provide a variety of services to help clients maximize their LEED® rating and optimize building performance.

To help you achieve this we can provide the following services:

- ▶ Integrated design consultation
- ▶ Review site and building components
- ▶ Facilitate design, construction and operations team involvement in the process
- ▶ Provide guidance to project team with adhering to LEED® credit requirements and review impacts of modifications on sustainable design



(cont'd)

- ▶ Conduct energy modeling comparing the design to a base case in order to seek opportunities for energy optimization
- ▶ Design and implement construction IAQ management plans
- ▶ Act as a liaison with the USGBC and a conduit for interpretation of LEED® criteria
- ▶ Develop quantifiable performance measures for the construction process
- ▶ Provide building systems commissioning services to work in tandem with the LEED® process
- ▶ Coordinate and submit all documentation for certification
- ▶ Provide a web-based interface to facilitate the LEED® submittal process

Green Building Standards and Specifications Development

In addition to our LEED® services, EH&E supports the development of green building standards. We can provide the necessary tools for a green building program, including:

- ▶ Owner's project requirements
- ▶ Green design / construction team request for proposals
- ▶ Green building specifications, including materials, construction practices, and general requirements
- ▶ Materials tracking sheets
- ▶ Sustainable products database



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