
A Practical Guide to Promoting Sustainability in Your Work Environment

This Way to Sustainability Conference
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California State University, Chico

Goal & Approach

Goal

- Become a demonstration model for university offices on sustainable practices

Approach

- Evaluate all aspects of office operations for Regional and Continuing Education



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The Center for Regional and Continuing Education (RCE)

Our Mission Statement:

To strengthen and expand the resources of the University to meet lifelong learning needs

- Self-support administrative office within the University with entrepreneurial focus
- Marketing/outreach role
- Broad variety of instructional programs for degree seekers and working professionals, including distance education
- Conference and meeting management

Advantages of RCE

- As an entrepreneurial operation, we make strategic investments in operational improvements and look for ways to innovate
- We provide food and beverage services or contract for catering to support numerous events within the building
- We are the sole occupants of entire building which offers more control within the larger campus environment
- We created a kitchen/staff break room

How We Began

- Asked staff to think about operations and sustainable practices for all our functions
- Installed the first campus “serverator” – a self-contained climate controlled cabinet for multiple servers rather than add a sixth(!) concrete pad and air conditioning unit



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More sustainability changes

- Recycled printer cartridges and stopped purchasing new cartridges
- Printed recyclable content on all paper marketing pieces

More sustainability changes

- Replaced single use disposable items such as flatware, plates/bowls, and coffee mugs (mugs were extras from our first Sustainability Conference)



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Programming changes

- Applied ideas to comprehensive conference management operations

Conference operations

- Use more email and less paper mail
- Make two-sided copies
- Use recycled paper and vegetable-based inks
- Avoid goldenrod or fluorescent colored paper
- Use glossy paper only when it significantly improves publication quality
- Use an online registration system
- Use email confirmations whenever possible
- Recycle, compost, reuse, and seek ways to consume less and generate less waste
- Reuse plastic name badges
- Use reusable or recyclable signs
- Encourage speakers to limit or be sustainable in creating handouts
- Past materials and proceedings electronically
- Schedule meetings, classes, and events at times and locations that minimize the amount of energy consumed for air conditioning/heating and travel
- Consider using video-conferencing technology when appropriate
- Seek energy credits/offsets for major events that have significant energy impact

Conference marketing

- Print on recycled paper with vegetable-based ink
- Publish brochures and catalogs online
- Make materials self-mailers whenever possible and tab only when necessary
- Use mailing labels with water-based adhesives
- Use postcards to drive people to Web site

Conference food services

- Be as accurate as possible in quantity when ordering food and drink
- Serve cream and sugar and other condiments in bulk containers
- Request edible garnishes or go without
- Provide water in pitchers or large water bottle stations instead of individual bottles
- Donate consumable food to local food bank
- Use local and sustainable food products
- Prefer buffets over boxed lunches
- Provide event mugs and use them for coffee/water service
- Collect and donate mugs after the event
- Recycle paper, aluminum, and plastic
- Compost food waste
- Use cloth instead of paper napkins and cutlery instead of plastic utensils
- Eliminate the use of disposable items, especially Styrofoam

Conference transportation

- Educate attendees about public transportation and pleasant walking routes
- Encourage carpooling

Conference education & public relations

- Look for programming opportunities in sustainability and seek ways to integrate sustainability into existing courses and programs
- Inform management, stakeholders, sponsors, contractors, and the public about your successes
- Include information about sustainable practices in newsletters (electronic) and on the Web and in press releases
- Let event attendees know about the sustainability efforts so they can participate and learn from the experience
- Ask about sustainability initiatives in participant evaluations

Sustainability Audit Consultation

- Needed more systematic assessment
- Audit Tools Designed by Strategic Energy Innovations (SEI)
- Focused on four areas:
 1. Energy
 2. Water
 3. Materials/Waste
 4. Transportation

Evaluation Tools

- Audit forms (available electronically)
- Measuring equipment from SEI
- Trained Chico students in collection and application

Sample Audit Data Collection Sheet

CSU STUDENT SUSTAINABILITY AUDIT OF THE CENTER DATA COLLECTION SHEET

MATERIALS

1. What cleaning products does the custodial staff use?
Product Names
Ingredients
2. Where are the cleaning products stored?
3. Paper:
Printer: Get manufacturer's name and the description.
Copier: Get manufacturer's name and the description.
Pads: Get the manufacturer's name and the description
Tissue: Get manufacturer's name and description
Toilet Paper: Get manufacturer's name and description
Paper Towels: Get manufacture's name and description
Other: Get the manufacturer's name and the description.
4. Ink: Get manufacturer's name and description
5. Pencils and pens: Get manufacturer's name and description
6. File Folders: Get manufacturer's name and description
7. Markers: Get manufacturer's name and description
8. Poster Paper: Get manufacturer's name and description
9. Other Office Supplies: Get manufacturer's name and description

Sample Audit Data Collection Sheet (cont.)

10. Recycling:

Note the location of the recycling baskets.

Are the baskets clearly labeled?

11. Is there compostable waste in the trash baskets?
12. Is drinking water supplied? Yes No (If Yes, how?)
13. Where are chemicals stored?

ENERGY

1. Use the lighting Data Collection Sheet to record the lighting information.
2. Use the light meter to measure light levels in each office. Use the Map of the building to record light levels in different parts of the room under different switching conditions. Note whether or not the day lighting causes glare. Each time you collect this data note the time of day.
3. Use the watt meter to determine the plug loads of the appliances below when they are on and when they are off – CPU, monitor, printer, copier, dishwasher, microwave, refrigerator
4. Are the diffusers clean? YES No Yellowed? Yes No
5. Are the air filters clean? Yes No
6. Are light on when no one is using them? Yes No (If Yes where?)

WATER

1. Are the fixtures low flow? Yes No
2. Is the toilet low flow? Yes No
3. Are there waterless Urinals in the Men's Room? Yes No (If yes how many?)

Lighting Audit Form

Existing Lighting						
Area Description	typ	lamps/ fix.	Fixture watts	Fixture Quantity	Operating hours/day	Days/week
Main floor downstairs		37	info from Morgan	50	9.5	5
Debra's office		3	info from Morgan	7	11	5
Jeff's office		2	info from Morgan	2	9.5	5
Main floor upstairs		45	info from Morgan	58	9.5	5
Yuki's office		1	info from Morgan	panels	9.5	5
Conference room		2	info from Morgan	panels	9.5	5
Classroom		12	info from Morgan	36	9.5	5
Classroom and entrance way		7	info from Morgan	7	9.5	5
Kitchen and storage area		7	info from Morgan	14/21	9.5	5

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Energy – Lighting Recommendations

- Replace inefficient lamps with efficient ones (cut annual cost by 15%/year)
- PG & E offers rebates for retrofits
- Properly dispose light tubes and bulbs (handled by Facilities Management Services)
- Turn off lights when not in use

Annual and Life Cycle and Savings for 50 Computer Monitors

	50 ENERGY STAR Qualified Units	50 Conventional Units	Savings with ENERGY STAR
<u>Annual Operating Costs*</u>			
Electricity costs	\$510	\$1,566	\$1,056
Maintenance costs	\$0	\$0	\$0
Total	\$510	\$1,566	\$1,056
<u>Life Cycle Costs*</u>			
Life cycle operating cost (electricity and maintenance)	\$1,852	\$5,684	\$3,831
Purchase price for 50 unit(s)	\$15,950	\$15,950	\$0
Total	\$17,802	\$21,634	\$3,831
			0
			·
			0
			Simple payback of initial additional cost (years) [†]

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Summary of Benefits for 50 Computer Monitors

Initial cost difference	\$0
Life cycle savings	\$3,831
Net life cycle savings (life cycle savings - additional cost)	\$3,831
Simple payback of additional cost (years)	0.0
Life cycle energy saved (kWh)	32,478
Life cycle air pollution reduction (lbs of CO ₂)	49,854
Air pollution reduction equivalence (number of cars removed from the road for a year)	4.35
Air pollution reduction equivalence (acres of forest)	6.18
Savings as a percent of retail price	24%

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Annual and Life Cycle Costs and Savings for Printers

	4 ENERGY STAR Qualified Units	4 Conventional Units	Savings with ENERGY STAR
<u>Annual Operating Costs*</u>			
Electricity costs	\$227	\$448	\$221
Maintenance costs	\$0	\$0	\$0
Total	\$227	\$448	\$221
<u>Life Cycle Costs*</u>			
Life cycle operating cost (electricity and maintenance)	\$1,010	\$1,995	\$985
Purchase price for 4 unit(s)	\$2,515	\$2,515	\$0
Total	\$3,525	\$4,510	\$985
			0
			.
			0
			Simple payback of initial additional cost (years) [†]

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Summary of Benefits for Printers

Initial cost difference	\$0
Life cycle savings	\$985
Net life cycle savings (life cycle savings - additional cost)	\$985
Simple payback of additional cost (years)	0.0
Life cycle energy saved (kWh)	8,511
Life cycle air pollution reduction (lbs of CO ₂)	13,617
Air pollution reduction equivalence (number of cars removed from the road for a year)	1.19
Air pollution reduction equivalence (acres of forest)	1.69
Savings as a percent of retail price	39%

Energy – Appliances

Recommendations

- When replacing equipment/ appliances, always replace with energy efficient EnergyStar® appliances with a power save mode
- Turn off computers and monitors each night (explore options for total shutdown)
- Install power management software on computers
- Track down and eliminate phantom loads

Energy – HVAC Recommendations

- Winter: Lower thermostat settings
- Summer: Higher thermostat settings (Research indicates that energy savings are even greater, per degree, for raising air conditioner thermostat settings than for reducing heating levels)
- Replace dirty air filters
- Adopt daytime custodial services to overlap with office hours to reduce utility usage

Energy – Water Recommendations

- Insulate water heater pipes (tank should not be warm to the touch)
- Place signs in washrooms asking users to conserve water
- Let facilities management know about leaking faucets and broken landscape sprinklers
- Encourage sprinkler timers and moisture sensors for landscaping (support native and drought tolerant plantings)

Water Recommendations

- Install faucet aerators - you can cut water usage by as much as 40%

Materials – Carpet Recommendations

- If carpet is in good shape, add small rugs in high traffic areas to reduce uneven wearing
- When carpet needs replacing, replace with carpet tiles in heavily trafficked areas to avoid having to replace an entire roll
- Purchase carpet tiles from a natural materials vendor and/or one that recycles old carpet

Materials – Office Supply Recommendations

- Purchase sustainable office supplies and encourage suppliers (e.g., Office Max for the state) to obtain more sustainable products
- Review paper products: 100% post-consumer content, no chlorine bleach
- Pens/Pencils/Markers: non-toxic ink, recycled or biodegradable cardboard pens

Materials – Printing and Copying Recommendations

- Make double-sided the default for printing and copying
- Use one or more copiers in the office for draft copies – set up printer to re-use paper
- Print less and share documents electronically
- Where is that electronic office of the future?

Materials – Recycling and Reuse Recommendations

- Recycling and Recycled Paper – Recycle all paper products (thank you, CSU, Chico Associated Students!)
- Stock reusable items (e.g., coffee cups, water bottles)
- Encourage employees to bring lunch to work
- Vegetable Waste – install food collection bins such as worm bins or compost bins

Materials – Cleaning Products Recommendations

- Use green cleaning products (usually a collaboration with property/facilities management services)

“In our war on dirt and germs we may often actually be making things worse. Most of the conventional cleaning products we all grew up with are petroleum-based and have dubious health and environmental implications. Instead of opting for cleaning products that annihilate everything in their path, there are plenty of natural products and methods that keep a house clean and fresh-smelling without the toxic side effects.”

Waste

- Office paper
- Cardboard
- Aluminum
- Plastic
- Food Waste

What We Have Done

- Added additional recycle bins outside of classroom
- Eliminated disposable items
- Embraced Vermiculture (added a worm bin!)



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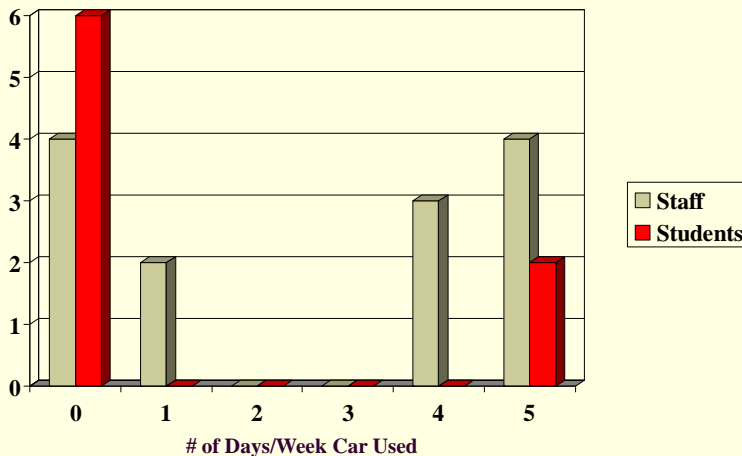


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Transportation Results

- Two staff walk to work each day, one walks three days a week
- Three staff members frequently ride their bicycles to work
- One uses public transportation

Transportation – Number of Days/Week Automobile Vehicles Used for Commute



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Transportation Recommendations

- Have office coordinate a car-pool and maintain a rides calendar
- Public transportation, walk, or bike
- Offer incentives for those using these options (University faculty, staff, and students can use Campus ID card to ride area buses)

Future Activities

- Cost/benefit analysis on additional changes
- Promote sustainable practices and communicate to the clientele we serve
- Life cycle analysis – applicable to many different products and applied to the top 20 items used in university settings
- Research computer shut-down processes
- Colusa Hall retrofit – LEED Certification Gold EB (explore Platinum options?)

Resources

- **California Integrated Waste Management Board (CIWMB)**
<http://www.ciwmb.ca.gov/>
Comprehensive index of resources, studies, and information on all waste streams
- **Center for a New American Dream's Institutional Purchasing Program. *Green Purchasing Policies.***
<http://www.newdream.org/procure/policy/index.php>
Lists purchasing policies by jurisdiction, product category, environmental attributes, and type of policy.
- **Strategic Energy innovations (SEI)**
<http://www.seiinc.org/>
Non-profit organization that conducts sustainability audits to meet energy efficiency goals.
- **Commission for Environmental Cooperation and the North American Green Purchasing Initiative. *Environmental Purchasing Policies 101: An Overview of Current Environmentally Preferable Purchasing Policies.* March 2004, 42 pages.** Available at
<http://www.cec.org/files/pdf//NAGPI%20Policy%20Paper2e.pdf>
Reviews more than 80 environmental purchasing policies from across North America to identify the most relevant policy components. Includes a recommended purchasing policy that incorporates the findings.
- www.thegreenguide.com
- www.treehugger.com
- **Scot Case. "Policy Updates Inspire Environmental Purchasing." *Government Procurement*, February 2004, 4 pages.** Available at
http://www.newdream.org/procure/Updates_Inspire_Env_Purch.pdf
Recommends successful strategies and policy elements to be included when developing or updating an environmental purchasing policy. Recommendations are based on a review of more than 80 purchasing policies nationwide.

Energy Resources

- Tube and bulb disposal information:

http://www.csuchico.edu/ehs/pdf/fluorescent_light_disposal.pdf

- Power Management software:

http://www.energystar.gov/index.cfm?c=power_mgt.pr_power_management

Materials Resources

- Environmentally friendly tissue, paper towel, and toilet paper distributors:

www.marcalpaper.com; www.seventhgeneration.com; www.atlantic.ca;
www.planetinc.com

- Environmentally friendly paper, file folders, and pads supply companies:

www.newleafpaper.com; www.treecycle.com; www.dolphinblue.com;
www.cleansweepsupply.com; www.greenlinepaper.com

- Environmentally friendly cleaning products:

www.traderjoes.com; www.ecover.com; www.aubreyorganics.com;
www.ecos.com; www.vermontsoap.com; www.drbronner.com;
www.bonami.com

- Recyclable pens, markers, pencils, and inks:

www.greenearthofficesupply.com; www.officedepot.com; www.reuels.com;
www.misterart.com; <http://www.greenerprinter.com/grp/jsp/inks.jsp>

Conference Services Resources

- Association for the Advancement of Sustainability in Higher Education (AASHE): <http://www.aashe.org>
- BlueGreen Meetings:
<http://www.bluegreenmeetings.org/HostsAndPlanners/index.htm>
- Sustainable Communities Network:
<http://www.sustainable.org/information/susevent.html>
- Sustainable Table: <http://www.sustainabletable.org/home>
- Sustainability Now: <http://www.sustainability.ca>
- US Environmental Protection Agency:
<http://www.epa.gov/sustainability>
- UO Sustainability Leadership Academy:
<http://duckhenge.uoregon.edu/io/article?id=182>

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Additional questions

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