

2008

# BEST PRACTICES



## UC/CSU/CCC Sustainability Conference Cal Poly San Luis Obispo, 2008

The **Best Practice Awards Program** is created by the UC/CSU/IOU Energy Efficiency Partnership Program and funded under the auspices of the California Public Utilities Commission



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# INTEGRATED WASTE MANAGEMENT PROGRAM

- Cal Poly San Luis Obispo
- Category: Innovative Waste Reduction
- Presented by Dennis K. Elliot, PE, CEM  
Manager of Engineering and Utilities



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# INTEGRATED WASTE MANAGEMENT PROGRAM

- Programs:
  - Recycling
  - E-Surplus
  - Composting
  - Organic Farm
  - Biodiesel
  - Zero Waste



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## CAL POLY COMPOST

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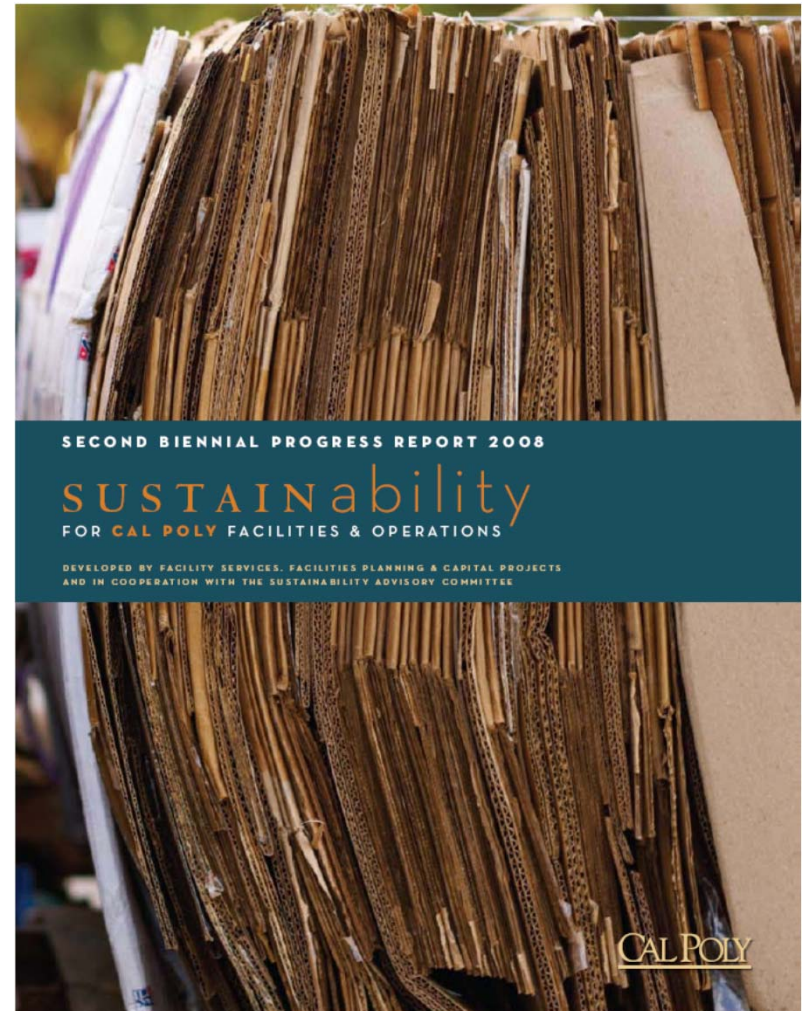
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# INTEGRATED WASTE MANAGEMENT PROGRAM

- Program results for 2007
  - 70% solid waste diversion rate
  - \$490K/yr avoided disposal cost
  - \$200K/yr income from sale of surplus, scrap and compost
  - \$200K/yr operating cost for staff time



# RECYCLING PROGRAM

- Participants: Facilities, Housing, Campus Dining, ASI, Corporation
- Blue bins in all offices, 32 to 96 gal blue wheelers, 1.5 yard bins
- Collection by custodial, recycling coordinator, and student assistants  
Pick up by local garbage co.
- Commingled paper, plastic, glass, aluminum
- Drop boxes for bulk paper, cardboard, scrap metal
- Other recycled items: printer cartridges, tires, concrete rubble, shredded documents, dairy sludge



# IMPROVEMENTS TO RECYCLING

- Student senior project:
  - Analyzed recycling container sizes, locations, and pickup routes for process optimization
  - Recommended change to 1.5 yard dumpsters wherever possible – balanced against custodial logistics and workers comp risks
  - Recommended elimination of trash cans in offices
- Garbage/recycling contract: Includes quarterly waste audit and process improvement meeting, promotes movement to alt fuel vehicles
- Faculty member pursuing grant for reverse vending machines



# E-SURPLUS PROGRAM


- Auction of surplus equipment on Public Auction website
- Generates \$10K/mo revenue
- 88 tons of materials sold in 2007
- Equipment, machinery, furniture, computers, A/V, miscellaneous
- Staffing: 0.5 FTE, plus student assistant help

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**Current Auctions for Cal Poly SLO**



**Current Auctions**

Past Auctions

| Auction | Title  | Time Left      | Bids | Current Price |
|---------|--|----------------|------|---------------|
| 272328  | Apple Power MAC G4                                       | 13 hrs, 50 min | 4    | \$46.50       |
| 272330  | Lot of Apple iMAC's (22)                                 | 13 hrs, 50 min | 5    | \$104.05      |
| 272332  | Lot of Apple Power MAC G4's (12)                         | 13 hrs, 50 min | 9    | \$127.50      |
| 272333  | (3) Apple eMac's   | 13 hrs, 50 min | 11   | \$47.00       |
| 272335  | Apple PowerPC G4   | 13 hrs, 50 min | 24   | \$61.00       |
| 272338  | Apple PowerPC G4 and Apple AirPort Wireless Base Station | 13 hrs, 50 min | 5    | \$31.00       |
| 272340  | Amsco Laboratory Autoclave                               | 5 days, 13 hrs | 0    | \$5.00        |
| 273058  | Lot of Dell Precision 530 Computers                      | 5 days, 13 hrs | 1    | \$5.00        |
| 273093  | Lot of Benq LCD Monitors                                 | 5 days, 13 hrs | 1    | \$5.00        |
| 273099  | 2 - Panasonic VHS Video Camera/Recorder                  | 5 days, 13 hrs | 1    | \$5.00        |
| 273101  | Elnita Sewing Machine Model 200                          | 5 days, 13 hrs | 4    | \$20.50       |

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# CAL POLY COMPOST

- Cal Poly Compost is an enterprise run by Farm Operations and students from the Organic Farm – generates \$45K/yr revenue
- Groundskeeping – grass cycling and xeriscaping reduce greenwaste by 380 tons/yr
- Landscape trimmings and green waste from the farm shop and crops units send 135 tons/yr to compost
- Campus Dining food waste – 277 tons/yr to compost
- Compost is sold to the general public and used on College of Ag Crops and the student run Organic Farm
- Compost is provided at no cost to non-profits such as churches, schools, community gardens



# ORGANIC FARM

- Student-run enterprise – over 15 part time student employees and over 20 volunteers
- 100% CCOF certified organic – 11 acres
- Over 300 subscribers receive a box of fresh seasonal fruits and vegetables weekly
- Utilized for instruction in 5 different undergrad courses in Crop Science and Agriculture
- Used for student research, senior projects, and masters thesis projects



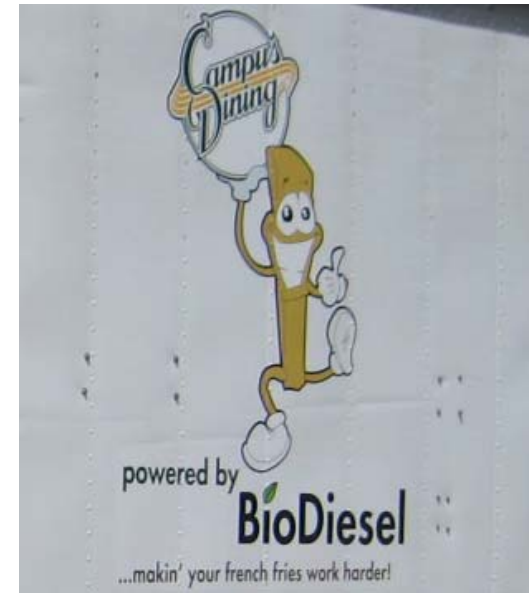
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# BIODIESEL

- Campus Dining
  - All waste oil sold to Salinas Tallow for biodiesel production
  - All diesel vehicles converted to B20, purchased locally from JB Dewar
- Cal Poly Biodiesel
  - Originated as a student club, elevated to academic program status
  - Interdisciplinary student team designed and built a self-contained portable biodiesel reactor
  - Ultimate goal - “close the loop” and produce biodiesel for use in the entire campus diesel fleet, including Facilities, Farm Ops
  - Planned capacity ~ 7,000 gal/yr



# ZERO WASTE

- Student Volunteer Organization
- Promotes and educates about recycling and composting
- Works with campus groups to improve operating practices
  - Worked with Campus Dining to eliminate all use of styrofoam
  - Developed guidelines for zero waste events - now available as an option for all campus catered events
  - Targets large events like open house
- How to make an event zero waste:
  - All reusable or compostable utensils, dishes, and cups
  - No packaged products (sugar, butter, salt, pepper, condiments)
  - All waste collected for either recycling or composting



# LESSONS LEARNED

- Be committed! Provide adequate staffing and budgeting for programs. Emphasize priority for the organization and set measurable, achievable goals. Recognize improvement and accomplishments – need to have a champion!
- Reach out to all stakeholders for planning and brainstorming – your auxiliaries are interested in sustainability but may not know what they can do.
- Reinvest savings in new equipment, bins, or alt fuel vehicles for collection.
- Harness the power of students and volunteers – look for opportunities to integrate student project based learning. Get faculty to offer relevant course credit for volunteering. Utilize groups like Green Campus. Cal Poly motto – “Learn by Doing”
- Partner with your local waste management utility to re-examine business practices and find opportunities to improve. Ask why 5 times! Specify your requirements/goals in your waste management contract.
- Don’t be afraid to try something innovative, and be sure to “tell the story”!



# SPECIAL THANKS TO:

- Richard Wagner – Recycling Coordinator
- Kevin Shaw – E-Surplus Coordinator
- Steve Sherman – Cal Poly Compost
- Cal Poly Organic Farm
- Cal Poly Biodiesel
- Campus Dining
- Cal Poly Zero Waste
- Empower Poly Coalition
- Green Campus Program
- Custodial Services
- Landscape Services
- Farm Operations



# CONTACT INFO AND WEB LINKS

- For info, contact Dennis Elliot, Mgr of Engineering and Utilities (805) 756-2090, [delliot@calpoly.edu](mailto:delliot@calpoly.edu)
- Recycling: [www.facilities.calpoly.edu/sustainability/RECYCLE.htm](http://www.facilities.calpoly.edu/sustainability/RECYCLE.htm)
- E-Surplus: [www.publicsurplus.com](http://www.publicsurplus.com)
- Organic Farm: [www.calpolyorgfarm.com/index.shtml](http://www.calpolyorgfarm.com/index.shtml)
- Cal Poly Biodiesel: [ceenve3.civeng.calpoly.edu/biodiesel](http://ceenve3.civeng.calpoly.edu/biodiesel)
- Campus Dining: [www.calpolycorporation.org/campusdining](http://www.calpolycorporation.org/campusdining)
- Zero Waste: [www.geocities.com/zero\\_waste](http://www.geocities.com/zero_waste)
- Empower Poly: [www.empowerpoly.calpoly.edu](http://www.empowerpoly.calpoly.edu)
- Green Campus: [www.ase.org/section/program/greencampus](http://www.ase.org/section/program/greencampus)



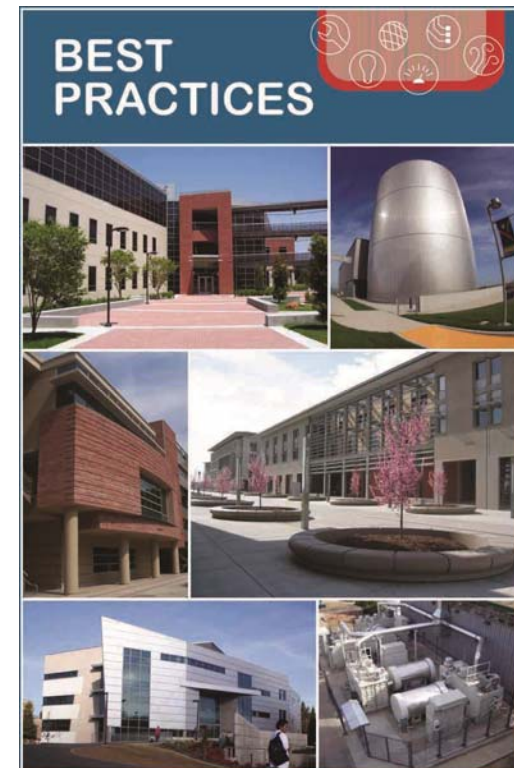
# QUESTIONS?

This concludes the American Institute of Architects Continuing Education Systems Program.

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Or visit

[www.greenbuildings.berkeley.edu/best\\_practices.htm](http://www.greenbuildings.berkeley.edu/best_practices.htm) to view an online archive of case studies.



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