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ALLIANCE TO SAVE ENERGY'S GREEN CAMPUS PROGRAM: YEAR 1 & 2 EVALUATION REPORT

Program Numbers 1425-04, 1426-04, 1427-04
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COMBINED YEAR 1 & YEAR 2 REPORT - FINAL

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ORGANIZATION OF REPORT

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1.0 EXECUTIVE SUMMARY

1.1 Green Campus Program

The Green Campus Program was developed by the Alliance to Save Energy (ASE, The Alliance) with input from California Student Sustainability Coalition (CSSC). The program was designed to build on the success of ASE's Green Schools Program, adapting the program to the University level. The goals of the program are to:

- Save energy on university campuses through a student-led campaign to identify and reduce energy waste.
- Build student awareness about the relationship between energy efficiency and the environment and the need to use energy efficiently; and
- Strengthen academic learning by facilitating the incorporation of Green Campus activities into student academic plans.

The program was based on a flexible intern-led approach, which was designed to take advantage of several potential advantages:

- On-campus interns can identify activities and programs that are most appropriate to the needs of their campus. This can represent their own creative efforts as well as adaptations of programs that are successful at other campuses. This approach avoids cookie-cutter program designs that will likely be less successful than a tailored design that responds to the "local" university situation
- On-campus interns have better access to administration, facility staff, student buildings, and students than outside contractors or entities ever would. Students are the "clients" of the university.
- A student run program capitalizes on the energy and idealism of the student population, and "taps" the power of some of the most capable, premier students in California to lead to changes in energy using behavior among students as well as university staff and faculty.
- Students can have more influence over their peers, and can use approaches that will resonate most with other students.

Six campuses were selected for the pilot program: The participating schools were:

- California State University, Humboldt;
- California State University, Sonoma;
- California State University, San Bernardino;
- University of California, Berkeley;
- University of California, San Diego;
- University of California, Santa Barbara.

Nine campuses participated in the program's second year. The three campuses added in Year 2 were:

- California State University, Chico;
- San Diego State University; and
- University of California, Irvine.

These campuses were selected based on a number of criteria, with variations that help illustrate the program's relative potential and performance in different settings.

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1.2 Evaluation Efforts

In order to assess the Green Campuses (GC) Program design, delivery, and effects, the Alliance contracted with Skumatz Economic Research Associates (SERA) to conduct the evaluation. SERA's subcontractor, Quantec, LLC, conducted the process evaluation of program and facility staff in the first year of the evaluation. SERA conducted the intern process evaluation work and the surveys and evaluation of student feedback. The first year evaluation focused on process evaluation and program effects. More detailed work was conducted as part of Year 2 evaluation efforts

To conduct this evaluation, interviews were conducted with program staff; in addition, more than 350 surveys were administered to random sets of students in the first year, and almost 1,300 in the second year. The Year 1 student surveys were conducted at the end of the year, asking about changes in behavior, attitudes, and other issues from the beginning to end of the year. In the second year, separate beginning of year and end of year surveys were conducted, increasing the number of total surveys conducted. The number of completed interviews or surveys analyzed in support of the evaluation is summarized in Table 1-1. Key findings and recommendations from the evaluation are summarized below.

Table 1-1 Number of Completed Interviews and Surveys by Group

Year	Program Staff Interviews	Campus Facility Staff Interviews	Intern Interviews	Student surveys
1	7	4	15	353
2	4	10	9	1,292

1.3 Findings

The battery of process interviews indicated that the first year of the pilot program went extremely well. Procedures were designed, interns were hired, and basic administrative activities were implemented. Interns were trained, and were set forth to assemble campus-specific Technical Advisory Committees, create and design program interventions, and work with the campus administration and housing staff to get the program initiatives implemented. The interns interviewed were pleased with the overall experience of being involved with the Green Campus program. The program itself seems to have been successful in raising awareness and changing some behaviors, and also was able to establish energy classes on some campuses. In addition, the interns appreciated the ability to help bring about change, and stated that the Green Campus program helped them with professional development. Year 2 saw further improvements in the program, with additional clarification of roles, improvements in training and reporting, and other enhancements to the program's delivery and administration.

Awareness of Green Campus: One of the Green Campus program's strengths has been to increase students' awareness of energy conservation measures. In Year 1 between two-thirds and three-quarters of students reported being aware of the program or saw flyers or other information or outreach from the program. As of the Year 2 evaluation, student interns had been hard at work for two years trying to raise awareness on the campuses and experienced considerable success in their effort. More than 70% of the students reported that they were aware of the programs or saw information about the program, mainly through flyers or posters.

Two years of surveys indicated that, of these efforts, posters, Green Campus program information, and flyers/brochures were the most successful media items in terms of students taking notice. Also successful were the incentive programs such as the free CFL bulb give-away, residence hall "challenges", and classes on environmental or energy conservation issues. Students reported they were not as likely to notice rebate coupons, Energy Star® promotions, pledge cards, and emails or listserv on energy conservation or Green Campus. The survey also found students reported those outreach methods that would garner the greatest response and energy-related action on their part. Residence hall advisors also played a significant role in passing information on Green Campus across to the students, especially noted in the Year 2 evaluation interviews.

Appliance Saturations in On-Campus Housing: Overall, the data showed a trend of using more energy efficient appliances and using less of standard efficiency appliances. Computers are leading the way, and CFLs have also been making inroads. With devices such as free light bulb give-a-ways, students' awareness of CFLs increased to about half of the student body by the end of the year. Encouragement of CFL usage has been one of the most successful aspects of the Green Campus program.

Students in year two reported having at least one of the following energy using appliances in their room: cell phone charger or charger for other items; power strip; computer; and printer. The specific saturations at beginning of the year, end of year, and percent that are energy star are reported in Tables 5-10, 5-15, and 5-16. The data showed that while students did not purchase an overwhelming amount of Energy Star equipment throughout the year, the energy efficient equipment they did purchase was due to the influence of the program.

Table 1-2 Summary of Appliance Saturation and Energy Star® Results

Most Common Appliances in Residence Hall Rooms	
• Computers • Printers / scanners • Cell phone or other chargers • VCR/DVD/CD players	• CFL or standard bulb desk lamps • Refrigerators • TVs • Microwave ovens
Equipment Most Likely to "Improve" in Saturation (increase in efficient equipment, decrease in inefficient equipment)	
• CFL desk lamps increased • CFL overhead lights increased	• Halogen desk lamps decreased • Standard bulb desk lamps decreased
Most Common Equipment to be Reported as Energy Star®	
• Computers • Printer/scanner • Refrigerator	• Cell phone chargers • Televisions and VC/DVD/CD players • CFL desk lams
Highest Percentage of Equipment in Room that is Energy Star®	
• CFL desk lamps • CFL overhead lights	• Microwave ovens • Computers
Energy Star® Equipment Purchases Most Influenced by Green Campus Literature	
• Microwave ovens	• Printer / scanners

Table 1-3 Summary of Appliance Saturation and Energy Star® Results Year Two

Most Common Appliances in Residence Hall Rooms Year Two	
• Cell Phone or other chargers • Power Strip • Computer	• Printer • Desk lamp with standard bulb • Refrigerator
Equipment Most Likely to "Improve" in Saturation (increase inefficient equipment, decrease in inefficient equipment)	
• Refrigerator decreased • Computers decreased	• Printers decreased
Most Common Equipment to be Reported as Energy Star®	
• Power Strip • Computer • Refrigerator	• Overhead CFL lights • VCR/DVD/CD player • Desk Lamp Halogen
Highest Percentage of Equipment in Room that is Energy Star®	
• Power Strip • Computer	• Refrigerator • Overhead CFL lights
Energy Star® Equipment Purchases Most Influenced by Green Campus Literature	
• Overhead CFL lights	• Desk lamp with CFL bulb

Energy Related Behavior and Effects from Green Campus: Students were asked how frequently they carry out energy related / conservation behaviors. Participation in events to increase awareness of energy conservation was a more difficult area in which to involve students. Other than enrollment in an environmental class, interest was relatively low. The results showed some penetration of Green Campus-encouraged behaviors, including purchase of CFLs, turning off computers overnight when not in use, lower use of heaters, and other behaviors. However, the percentages imply that there is considerable room for growth and improvement in Green Campus outreach and programs.

The second year saw participation in these activities rise. While there is still room for improvement here, there were no activities that saw zero participation, and the majority of activities were participated in around half of the time. The Year 2 student surveys also indicated that between the beginning and end of the year, students more frequently purchased CFLs and Energy Star® CFLs, and used power strips to turn off equipment not in use – two behaviors that were strongly encouraged by the Green Campus activities.

Non-Energy Benefits: The survey provided indicative feedback on whether students recognize non-energy benefits associated with the program-encouraged energy efficiency measures. The results show positive perceptions of efficiency equipment, especially related to their ability to help the environment, and provide improved equipment performance, reliability, quality of light, and other advantages. The second year survey saw students return a positive response in all categories of non-energy benefits. Again, students noted environmental impacts as a key non-energy benefit associated with energy efficient equipment and appliances.

First Year Issues

Although the overall design and implementation went well, interviews indicate that, there were a few modifications that were needed along the way.

- There was staff turnover that slowed implementation somewhat. There were difficulties in the coordination of and responsiveness to interns – a critical component to program success – that was remedied when new staff were hired and when roles between ASE and its subcontractor SEI were optimized.
- Some administrative procedures did not work well in their first incarnation, and were later refined, especially the financial controls that needed to be flexible for interns to purchase needed program materials.
- Some background design and administrative work would be useful to complete in preparation for the second year of the program. In addition, interviews indicated that intern training and communication needed improvement.
- Interns and staff recognized and admired the program design, which focused on intern-driven efforts, with flexibility to implement what was appropriate on each campus, and for determining how it could be best implemented on each campus. There is strong support to maintain this key design feature.

Second Year Issues

Year 2 saw significant progress in many of the issues identified in Year 1. however, several issues were identified.

- Intern training and independence: Interns are interested in additional training to help them better perform their jobs, and are pleased that the program is soliciting their input on training topics. The issue of how to balance intern independence and creativity (and low interference or oversight) with sufficient oversight, structure, and sharing of ideas to keep interns productive remains a challenge within the program.
- Measurement: Measurement of program effects received increased attention in Year 2, and this is vital to helping assure the program delivers impacts in return for funding. Measurement of kWh remains a challenge on many campuses as the campus building metering systems were designed for billing and not submetered in a way that supports program-related measurements and comparisons. Measuring kWh as well as changes in attitudes and behaviors attributable to the program is important continuing issues.
- Continuity and sustainability of the Green Campus Program: The program's continuation and expansion relies on documentation of program delivery and procedures (which had significant improvements in Year 2), a high quality communication channel (also addressed well in Year 2). However, the interviews make it clear that the success of the program hinges on high quality Senior Program Manager / Intern Coordinators and high quality interns. Turnover in interns is inevitable; hiring strong interns is a key to program success, and institutionalizing this skill is always difficult. The Senior Program Manager role is vital; expansion of the program requires finding additional staff that is comparably dedicated and talented as the current staff, and this will be a key to the on-going success of the program.

1.4 Program Recommendations: Year 1 Issues, Progress, and Year 2 Recommendations

A listing of the recommendations from the evaluation work follow: Because the process evaluation parts of the work were delivered earlier, many of the recommendations have either already been implemented, or are in the process of being addressed.

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Year 1 Recommendations and Progress

- **Green Campus (GC) needs to clarify staff roles and responsibilities**. A few respondents felt confused about the division of responsibilities among Program staff, and believed that this might be a point of frustration for the interns.
    - **Status**: Addressed. Staff turnover was addressed, and significant work was conducted to clarify the roles and responsibilities. The particular issue included dividing responsibilities between ASE and SEI program staff in intern and campus coordination. This was addressed very well with improved coordination, assignment of leads for campuses, and additional communication efforts. The issue of separate offices remains a small impediment, but can either be resolved by sharing offices, or on-going communication seems to address most of the concern.

- **An evaluation system needs to be developed for student interns.** Although interns need to retain autonomy and creativity, an evaluation/accountability system is needed to assess performance, perhaps in the form of a quarterly goals and performance check.
    - **Status**: Significant improvement. The program introduced additional benchmarking through their work plan activities & deliverables, attendance at weekly meetings, and other metrics. Green Campus created a tracking sheet to capture metrics laid out in handbook by program goals and progress. Many activity indicators were introduced to monitor progress; however, fewer kWh indicators were introduced because of the difficulty of measurement. Green Campus has been brainstorming some additional measurement methods, and is working with campus facility staff to further examine options for kWh measurement. Monitoring and evaluation is always an area for improvement – and the program should continue to develop methods to measure progress toward kWh or participation goals and awareness goals to be added to the activity goals in evaluating intern performance.

- **Develop progress indicators**. The Green Campus Program needs to develop evaluation criteria and progress indicators to help measure progress toward success.
    - **Status**: Significant improvement. The program incorporated more benchmarks and interim deliverables / progress indicators including quarterly goals, work plans, deliverables, newsletters, required weekly meetings between campus interns and other progress indicators. In addition, the new work plan procedures require interns to consider measurement approaches as part of the program development, and this should assure attention remains on the measurement issue. The work plans included template progress indicators to assist interns. An important complication remains, however, as a key indicator of progress are kWh impacts. Measurement of kWh remains a challenge on many campuses as the campus building metering systems were designed for billing and not submetered in a way that supports program-related measurements and comparisons. Green Campus and the interns are working with facility staff on many campuses to try to identify techniques to tease out the necessary information, and Green Campus has been exploring purchasing submeters or retrofitting where possible. Beyond metering, there is some difficulty measuring behavioral changes (which are key effects of the program), and then estimating

kWh for those changes, and beyond the evaluation surveys, there has only been limited work on measuring these changes on the campuses.

- **Develop a sustainability plan**. For long-run success, the Program needs to develop a long-range plan of funding and sustainability.
    - **Status**: Improvement, but work remains. The GC program added campuses this year – a key sustainability step. In addition, GC worked on ensuring funding for Years 3 and 4. However, work remains in sustainable, and possibly diversified funding sources for the future.

- **Documentation and assessment of program implementation strategies.** GC should synthesize the monthly campus reports (both positive and negative outcomes) to come up with more formal recommendations for the best implementation activities across campuses, and to track impacts across campuses.
    - **Status:** Addressed. GC developed a web site and required sharing of documents, program plans, and other information on the web site / project space. GC also achieved significant idea exchange through regular conference calls with interns from all campuses, and the monthly newsletters. However, coordination and time commitment became a significant issue in these large conference calls, so additional reliance on web sites and smaller, more focused project-related conference calls. Thus far, it seems these calls achieve the same objectives more efficiently and effectively. In addition, the program introduced a system asking interns to report on program successes and failures to further document program efforts and provide information and advice to other interns. This was an area that seemed to be addressed very well.

- **Increased flexibility with financial resources**. GC should clarify and streamline the relatively cumbersome and tardy process by which interns acquire money for routine program purchases.
    - **Status**: Addressed. This issue led to significant frustration in Year 1. Significant attention was paid to finding methods to transfer funds to interns and achieve appropriate documentation. Using the new credit / debit card system that can be replenished seems to have addressed the problem, and helped the program operate with fewer bumps from this administrative issue.

- **More efforts directed at establishing stakeholder network on campus**. GC needs to develop an improved method of getting on the administrators radar more quickly. However, flexibility may be key – a formal TAC procedure has proven a hindrance on some campuses. Increasing the frequency of GC Council meetings would also prove fruitful in improving the intern-stakeholder relationships and maximize program development efforts.
    - **Status**: Significant improvements. Group TAC meetings are difficult to coordinate, but provide an opportunity for all involved campus staff to see each other around the table and see the emphasis place on the program by administration. One-on-one meetings with key stakeholders are an efficient way to get progress on specific activities. The GC program implemented what is probably the optimal compromise between these two options. Interns are asked to organize a large kickoff meeting early in the year (unless they can justify why this is difficult / impossible). Then the remainder of the year focuses on one-on-

one “get things done” meetings.

- **As multiple interns per campus are hired, consider clarifying intern roles and hierarchy to minimize confusion about responsibilities.** Consider, but also consider the tradeoffs in lost flexibility and creativity.
    - **Status:** Addressed. The GC program named “lead interns” on each campus to help improve reporting, coordination, continuity, and avoid things falling between cracks. This is a good solution, and thus far, seems to have worked well.

- **Work to improve training for campus interns**. Improved communication among interns, and fast response from the intern coordinator is helping; however, a notebook about the program, and an improved website for exchange of information would also help.
    - **Status**: Significant improvements. An intern handbook was developed, with a focus on administrative aspects, but also on planning and organizing program activities. Training is emphasized at the mid year and year end update meetings, and the staff solicited input from interns on issues on which they thought additional training would be valuable. There is also come training that occurs from returning interns, and significant work by the ASE and SEI senior program staff / intern coordinators. There is still some work to be done in training interns on measurement approaches, including surveys, focus, and kWh metering (e.g., with control buildings for the challenge, etc.)

- **Consider spreading the intern work load more evenly across multiple years**. Some interns felt the PIPs required most of the work to be conducted in the first, rather than second year of the program.
    - **Status**: Addressed. This was not reported as a continuing problem, largely due to the emphasis on preparation of yearly work plans. These workplans included clearly defined activities and deliverables and helped organize intern efforts. The feedback loop with Program Staff helped students make sure the plan was realistic and that the workload during critical periods (exam time, etc.) was feasible. This feedback also helped interns prioritize their efforts. Certainly, some interns lagged behind plan if they mis-estimated study loads, but the program remained flexible and realistic, intern “leads” could help identify problems and possible solutions, and the procedures put in place seem sufficient to address this issue.
- **Work with interns to develop improved options for measuring impacts.** Interns are aware of the importance of measurement. Options may include purchasing meters that can be moved to different campuses as program activities are implemented.
    - **Status:** Significant improvements. The GC program provided some meters / submeters, there was significant attention paid to trying to get access to building metering data; interns and staff accessed energy use models, and additional efforts were undertaken. Facility staff worked with interns to try to develop options in many cases. However, kWh impacts still difficult to measure because of meter configurations (as mentioned above). Guidelines for measurement were provided on the website and in program documentation, and training was offered at some of the mid year and year end meetings. However, additional work with the interns on procedures for developing indicators of progress in non-kWh impacts may be useful. In addition, continuing efforts to obtain meters will also

be very useful to the program. Continued education will be necessary because of the inevitable intern turnover.

- **Sharing program ideas.** Continue communication and share ideas for successful programs. However, try to avoid having the same set of successful programs put in place across all campuses, but encourage tailoring, and introduction of new program ideas.
    - **Status:** Addressed. As discussed in the recommendation related to documentation, there has been significant sharing of information on successful programs, through the web site, project space, newsletters, conference calls and other means. Successful programs were deliberately spread and encouraged on other campuses, leading to some uniformity in some basic program offerings at the campuses – with variations, additions, and enhancements beyond these programs on a campus-by-campus basis.

- **Program expansion**: Interns feel Green Campus is a strong and important program. They suggested program expansion -- to additional campuses, to campus groups beyond the residence halls, and to issues beyond energy conservation.
    - **Status**: Addressed. Interns and facility staff still mentioned a desire to expand the program to recycling and other "green" activities. However, given the program's funding source and mandate, expanding the scope is not a priority. However, by coordinating with other student groups, some link to these other green activities was achieved. Diversification of funding sources may be needed if the program is to move beyond the energy focus. There was some initial focus on residence halls in the program's pilot first and early years. The program is also generating impacts beyond these buildings, including work with facility staff on bi-level lighting (which are not particularly appropriate for residence halls), spillover of CFL installations and other efficiency retrofits in other buildings including bookstores and other on-campus buildings.

- **Continue to work with Campus facility staff**. Increasing attention to facility staff activities and work to change overhead lighting in residence halls, and increase the efficiency of equipment in classrooms and elsewhere, per survey respondent suggestions.
    - **Status**: Improvements. Working with facility staff has been a very fruitful arrangement on many campuses, but the degree to which this has occurred varies by campus -- perhaps due to individual intern style / interest, and perhaps somewhat due to facility staff temperaments. Some campuses had success getting more energy efficiency into facilities; other interns were working at campuses that were already very advanced in energy efficiency retrofits, giving them little extra to do; and other groups of interns had success helping implement bi-level lighting. Facility staff has a pivotal role – they can train interns in many energy issues, and they are critical in getting retrofits to occur in campus facilities. They can be a key to leaving a legacy of longer lasting campus energy efficiency improvements, and there are strong potential benefits from continuing to encourage a close relationship between the GC interns and these staff.

- **Use evaluation results to refine outreach.** Leveraging on the results of the NEB work, continue to emphasize the environmental and performance benefits of the energy

efficient equipment promoted through the program. The results indicate these messages should resonate with students.

  - **Status:** Addressed / not a priority. The NEB analysis shows the number one NEB recognized by students was the ability to "do good" for the environment. That was certainly a selling point for the GC interns for energy efficiency well before this analysis was provided. Although performance issues may be of interest to students, many of the benefits in maintenance, lifetime, and other factors are not very relevant to students. However, some of these NEBs may be of value to facility maintenance staff and information on these benefits may be useful in encouraging greater retrofits by facility staff.

- **Balance program efforts on modifying purchase behavior and energy behavior**. In the cases where immediate "bangs" are desired for the program, Green Campus staff may want to review which appliances are actually purchased by students during their stay in on-campus housing. The list may be relatively short. If so, Green Campus may want to mail pre-arrival packets early enough that they can influence purchase of new computers, electronics, refrigerators, and other equipment prior to arrival on campus. In addition, changes in behavior may need to become a greater focus of the program – an area with potential, since relatively few students have fully adopted many of the key behaviors promoted by the Green Campus program.
  - **Status**: Addressed at some campuses. The pre-arrival mailers were implemented at UCSD, HSU, and Berkeley, but not at the other campuses. In addition, some campuses worked to try to link behavior and kWh by providing "mock bills". This was mentioned and/or implemented at San Bernardino, Berkeley, and a few other campuses.

Year 2 Recommendations

Recommendations developed from the Year 2 evaluation are listed below. Again, the program is on-going and continually monitored by ASE staff, and therefore, actions to address many of our recommendations may already be in progress.

Staffing, Training, and Communication

- **Honor the Senior Program Manager / Intern Coordinator role**, The interviews made it clear that a critical link in the delivery of the program is the role of the Senior Program Manager / Intern Coordinator. This go-between between the program and interns has proven to play a pivotal role in intern hiring, coordination, motivation, training, enforcement, and other roles. While expansion of the program is positive for the program, finding high quality persons for this role is critical to program success. It is very important to have a high ratio between this role and interns to allow sufficient one-on-one intern time to help the program succeed on the campuses.[1]

- **Where possible, attempt to hire sophomores or juniors as interns to improve continuity**: Intern turnover is an inescapable element of this program. While turnover brings new ideas and energy (and involves more interns in the program), it also requires

[1] It should be noted that GC has already been grooming two additional staff for this role to help staff the program's expansion.

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additional (and repeated) training, and provides some loss of institutional memory and continuity.

- **Consider leveraging on-campus facility staff to assist in directing interns**: It is difficult to balance supporting independent, creative thinking by the interns with intervening sufficiently to provide guidance, sharing ideas, and nudging to keep forward (directed) progress. However, that is the tightrope managed by this program. Progress was made in institutionalizing some administrative procedures to help prevent stagnation by interns that may be overwhelmed by too little structure (work plans, "leads", newsletters, etc.). However, some suggested that the interns may need more supervision on each campus. Perhaps facility managers can play a closer oversight role as well – at least at some campuses. This may also help in delivering training and in further incorporating changes into the facilities themselves.

- **Where possible, further integrate RAs into the program**: RAs were very valuable in helping achieve program goals. Their close relationship with first year students, the focus their job has on delivering programs and services to students, their help in res hall competitions; assistance in handing out promotional information, and the valuable service they performed in helping deliver and retrieve program surveys over the last two years demonstrates they can be a key element in successful delivery of the Green Campus program. GC may want to see if staff can attend the summer RA training sessions to introduce RAs to the program, invite RAs to some GC meetings or trainings, and more formally include RAs as a program resource / partners and delivery mechanism. If this cannot be done formally, "prizes" or other incentives for continued RA assistance would pay off for the program.

- **Provide additional training for interns and retain the training already available**: Significant improvements were made in intern training – especially as it pertains to program administration, organization, and expectations of the program. More clearly defined deliverables were put in place (work plans) that helped organize intern efforts, and the feedback loop with Program Staff helped students make sure the plan was realistic. However, a number of interns were interested in additional training, and efforts to solicit their input in training at mid year and year end meetings should be retained and enhanced. It would also appear that training on effective measurement methods would be beneficial – including principles of baseline, control groups, and measuring "hard to measure" (behavioral, attitudinal) impacts may be beneficial. Some also mentioned training in basic energy principles.

- **Continue the twice-annual meetings, and other communication / training opportunities**: The twice a year meetings are important and appreciated. Their content has improved, and the training opportunity provided is appreciated by interns. The communication through newsletters and the web site were also strongly applauded and helped persons beyond the interns, particularly helping program allies, feel up to date and connected to the program.

Impacts, Leveraging and Spillover

- **Continue to incorporate facility managers as a key program ally**: Help keep facility managers involved in the program. They can provide training to interns and guide /

focus intern activities "on the ground". Their interest and cooperation in the program can help leverage the program's influence to hard, long lasting energy savings in a wide range of campus buildings. If not courted, they can be an impediment to the program, stymieing measurement efforts and close off the mentoring role that can be critical to success for some interns.

- **Work to expand Energy 101 to additional campuses**: Energy 101 has been introduced on several campuses. Continuing to expand this program involves more students in direct energy education, and provides a "brand" opportunity for Green Campus.

- **Identify the elements that have led to success at getting kWh spillover on some campuses and implement at other campuses**: Some campuses have been successful at getting recognition and in affecting policy at the campus level. They have had success in getting energy efficiency implemented at bookstores and other buildings on campuses. Additional study of the factors that led to these successes may identify best practices that can be applied at other campuses to leverage this success – and these long-lived savings – to other locations.

Measurement Issues

- **Continue to make measurement – and training on measurement – a focus with interns**: The emphasis on setting up / planning measurement plans for all intern programs should be continued, with measurements of pre/post or baseline an integral part of the plan. This should be undertaken not only for kWh-based interventions, but also for programs designed to affect awareness and behaviors as well. To continue the success of the work plan and intern workbook in emphasizing measurement, consider implementing a training session that addresses basics of baseline and control groups, sample sizes, focus groups, and other useful, basic measurement issues as part of early intern training

- **Institutionalize measurements of awareness and behavior change**: Awareness and behaviors are key program goals. The best way to measure changes in these "hard to measure" effects is through student surveys. The interns should incorporate beginning and end-of-year surveys with a reasonable (>200 responses) sample of students to monitor progress in these indicators of program impacts.

- **Procure additional meters to address the kWh measurement issue**: Measurement a big issue. GC needs to link program efforts to kWh to measure impacts and help insure continuation of program. Consider grants, utility funding, and other methods to obtain additional meters – and not just submeters at the building level, but purchase less expensive in-room plug load meters as well. These meters can be installed in samples of student rooms to measure usage in test and control rooms, and measure impacts of specific program interventions. For residence hall challenges, some campuses have been able to measure "before and after" usage, but the influence of weather was difficult to sort out. To the degree possible, designating another residence hall as a control (even if an imperfect comparison) can help control for these outside influences.

2.0 PROCESS EVALUATION / PROGRAM STAFF

In order to assess the Green Campuses (GC) Program design and delivery mechanisms, Quantec, under contract to Skumatz Economic Research Associates (SERA), conducted interviews with Program implementation staff from both Alliance to Save Energy and Strategic Energy Innovations, who was the implementation subcontractor. A total of seven telephone interviews, taking up to an hour and half each, were conducted between March 24 and April 1, 2005. Year two interviews were conducted by SERA directly with both SEI and ASE staff between the dates of September 1st and 26th 2006. Interviews ranged from forty minutes to close to an hour and a half. Four were completed with two SEI staff and two ASE staff his chapter presents the integrated findings from these staff interviews.

2.1 Program Design

Respondents provided helpful insights into program design elements, particularly program development; Program goals and objectives; the importance of various market actors; and progress indicators towards mitigating market barriers.

2.1.1 Program Development

The GC Program was conceived through meetings between Alliance to Save Energy (ASE) and California Student Sustainability Coalition (CSSC). CSSC asked ASE to present how the Green Schools Program, a program that targets K-12 schools, could be adopted at the university level. ASE and CSSC felt that "tapping" the power of some of the most capable, premier students in California could lead to changes in energy using behavior among students as well as university staff and faculty. ASE then chose to engage Strategic Energy Initiatives as a subcontractor because of Strategic Energy Initiatives' involvement in the GS Program; close collaboration with CSSC and the University of California Office of the President (UCOP); and general knowledge of the California energy environment.

Six campuses were selected for the pilot program in 2004 and three campuses were added in 2005 for a total of nine campuses. The 2004 participating schools were: California State University, Humboldt; California State University, San Bernardino; California State University, Sonoma; University of California, Berkeley; University of California, San Diego; and University of California, Santa Barbara.[2] The 2005 campuses added University of California at Irvine, California State University at Chico, and San Diego State University. The campuses were selected based on a number of factors, such as:

- **Strong student interest in sustainability issues**. Campuses such as Berkeley and Humboldt have a long history of student activism and a natural base of students who are deeply concerned about environmental/sustainability issues, thus facilitating the message that GC attempts to convey.

[2] San Bernardino was selected after an attempt at implementing the Program in Cal State Fullerton was considered unsuccessful due to lack of campus commitment.

- **Mix of utility service territories**. ASE wanted to ensure that there was at least one campus from each of the three major California electric IOUs (Pacific Gas & Electric, Southern California Edison, and San Diego Gas & Electric).
- **Presence of Green Schools Program**. ASE anticipated that the GS and GC Programs could work together, so tried to select universities in the proximity of GS activity.

Most of the respondents felt that these six campuses were well-suited to meet the goals of the GC pilot. Yet, at a number of campuses, reaching these goals has been more challenging. San Bernardino and Sonoma, for example, were thought to have higher percentages of commuter students who tend to live off campus, be older, and be less concerned with environmental issues. But this diversity was considered a positive for the Program because it might foster more creative program development and allow for even greater success when implemented at already "green" campuses.

In year two the school selection process was modified due to the increased recognition and success of the Green Campus program in its first year. This modified selection process worked to address a number of problems that arose in the first year including:

- Problems with communication and cooperation between interns/facility managers/administration.
- Administration support for both commitment and follow through.

Instead of Green Campus choosing schools for their suitability attributes and then bringing the program to them, the program was able to pick and choose from schools that wanted to be a part of the program. More schools were approached and asked if they would like to be a part of the program then Green Campus wanted to bring into the program. The program was then able to ascertain from the prospective campuses what they had to offer the Green Campus and vice versa, thus allowing the program to choose the most suitable match and enlist administrative/facility support from the very beginning. The schools in the second year were more receptive to a program they felt they really wanted to be a part of, instead of the perception some first year schools had that this program was coming to their campus whether they wanted it or not. In the case of UCI, the facility manger attended a sustainability conference and heard a presentation from the Green Campus program. He was so impressed by the goals, objectives and results that he contacted ASE and SEI to find out how he could bring the program to his campus. This type of enthusiasm toward the program in the second year on behalf of staff and administration has done much to decrease the perceived lack of cooperation among different tiers of the campus community.

2.1.2 Goals and Objectives

The goals of the Green Campus Pilot Program are stated on the ASE Web site in this order of importance:

- Save energy on university campuses through a student-led campaign to identify and reduce energy waste through improvements in energy use behaviors, student purchasing decisions and operations changes;
- Build student awareness about the relationship between energy efficiency and the environment and the need to use energy efficiently; and

- Strengthen academic learning by facilitating the incorporation of Green Campus activities into students' academic plans.

The GC Program staff generally confirmed these stated goals, prioritized in the order listed above. Second year goals did not change very much. There is slightly more emphasis placed on obtaining hard evidence of these measures, indicating a shift from raising awareness to a results oriented program. Although the goals did not significantly change, the way that the goals were achieved and measured in the second year did evolve. The ASE Web site also outlines five broad objectives of the Program:

1. Immediate energy savings – The program focuses initial activities on the behavior and student purchasing decisions that will generate immediate energy savings at little or no cost.
2. Partnerships with other efficiency programs – The program works in partnership with other organizations on campuses, and collaborates with other energy-related research activities that are already occurring on campuses.
3. Tracking energy savings – A key program component is the development of a baseline of energy use and tracking of the energy and dollar savings that result.
4. Use of a planning based approach – Each campus develops a unique plan for saving energy, integrating energy into academic learning, and involving the campus and community.
5. Students work with professors of multiple disciplines – Students tie the Green Campus work to their academic programs. They work with a professor to identify a way to use the project to add to their academic plan.

With the students as primary implementers of the GC Program, the initial focus is on the student residence halls. According to one respondent students now have an average of 17 plug loads per resident, which includes plugs for computers, cell phone chargers, DVD players, and stereos. There is a great deal of potential savings simply by getting students to purchase ENERGY STAR® products and by shutting down their equipment when not in use. Cost savings from the energy reduction can then be passed directly on to the students, who incur the costs as part of their rent (i.e., dorms are typically paid for directly by their residents, so when energy costs go up or down, these costs or savings are passed on to the students by raising or lowering dorm fees). According to one respondent, "The facilities managers have strong mandates to increase efficiency, and see the 'low hanging fruit' for energy savings; GC offers them a way to achieve these savings."
Initial efforts have focused on realizing energy savings in the residence halls. The Green Campus program will continue to work in the residence halls, building on their original work, while honing their student outreach and tracking methods. At the same time, Green Campus will look to identifying potential savings outside of the residence halls.

Furthermore, the program seeks to achieve "spillover" savings by influencing longer term practices of universities (e.g., sustainability goals), local businesses (e.g., increasing the stocking practices of ENERGY STAR appliances), and the families of students. GC, in other words, uses students as a vehicle for community outreach to promote same energy efficiency objectives.

Spillover effects have already begun to take form in just the second year of the program. There have been multiple incidents of the Green Campus program affecting overall campus policy or action in energy efficient ways. A few outstanding examples of spillover from year two are:

- At HSU the housing/residential life department was so impressed with the Green Campus work with energy efficiency in dorms that they created their own paid internship position to ensure housing efficiency.
- Berkeley has hired an intern for the physical plant to focus on EE due to the efforts of the Green Campus program. The Chancellor has since doubled the funding allocated to this position.
- A GC report at UCSB on where to purchase Energy Star equipment has been incorporated into school policy.

2.1.3 Student and Administration/Faculty Roles

The use of students to implement the change is considered critical among the program design elements for a number of reasons, including:

- **Students are the "clients" of the university and have more power to make changes**. Because students, or their parents, are paying the universities, the campus administrators are obligated to listen to their requests and concerns. Students, therefore, can have access to campus staff and implement changes that would be extremely difficult for outside stakeholders to do. According to respondents:

  "As a student you are client, you can walk to the vice-president and talk about recycling. The student led model takes advantage of their power on the university campus."

  "Students have more freedom and ability to go up the ranks of the administration and faculty chain to meet decision makers, make changes and campaigns to focus on these areas. They have more freedom than faculty themselves, students or parents pay bills, they can get an audience with the decision makers, get key players together, with enthusiastic yet silent approval from faculty."

  "I worked with Rebuild America for 10 years and tried to get interest involvement with the director of student housing at U.C. Berkeley. Our intern has made great progress, and implemented a light bulb exchange in only months. Universities look at students as customers and listen to them."

- **Students can have more influence over their peers**. Students can use light-hearted, creative approaches that can be extremely effective and resonate with their Peers (e.g., handing out mock "citations" to residents that leave their lights on). The "bottom up" approach", as opposed to a "top down" edict, is actually more effective in the university setting.
- **Students continue to carry the "message" after leaving the university**. Many of these students will be the future leaders, and educating them early in their lives about the connection between their behaviors and the environment can reap long-term energy savings. As one respondent said, "College students can be the environmental stewards of the future. They carry the [energy efficiency] message with them for the rest of their lives."

- **Students have strong idealism and energy**. Energy and the environment are issues that many of these students care deeply about, and GC helps "harness" that energy to generate creative ideas and solutions to promoting energy efficiency.

Although students are the focus and the real "drivers" of the program, many respondents discussed the importance of also working closely with campus staff for the long-term sustainability of the Program itself. Students, of course, are only on campus for a number of years, so it is critical for the Program to have continuing knowledge of what works extend beyond the student's time on the campus. Efforts toward achieving this goal have become apparent in the second year interviews. Not only did students facilitate cooperation between administration, housing facility and energy managers, but they have increased cooperation between faculty departments that otherwise would not work together. The students have served as a bridge spanning the gap between these diverse sectors of the campus community. By incorporating the sectors that experience longevity on campus, continuity of the program is being insured.

The program has established informal advisory councils that consist mainly of students working with the administrators on a one-on-one basis. The role of the Councils is to:

- Determine the Vision Statement for each campus;
- Determine particular objectives and program implementation plans; and
- Identify and recruit the larger group of faculty, administrators, and facility staff for program support and participation.

Interview respondents generally felt the Advisory Council concept is working, and is imperative to the long-term success of the Program. Respondents reported:

> *"[We must] ensure at each campus that faculty/staff champions are identified, they will lend consistency, ensure success of program year to year. They will be around given tenure, far exceeding the intern stay in most cases."*
>
> *"In some cases champions are identified, some of those on the advisory council, they need to ensure that champions are in place, ensure those in place are duly included and nurtured."*
>
> *"One of the challenges is eliciting higher levels of support and buy in. Very fortunate to have UC and CS energy mangers 'on board', now getting the message to the energy managers on university campuses, indicated that this is important, encouraging them to support it."*

The Advisory Council concept also gives campus administration the opportunity to work closely with students for positive change, something that is important for the cohesiveness and image of the universities.

2.1.4 Mitigating Market Barriers

The interview respondents from Year 1 reported that there are a number of substantial barriers to the adoption of energy efficiency among the college campuses. However, the GC Program is

working to address and eliminate these barriers. As indicated by the respondents, the barriers include:

- **Students and administrators lack awareness of energy efficiency measures**. Students and administration are often simply not aware of what energy efficiency measures are available. GC reduces this barrier by making both the information and efficiency measures readily available to the relevant market actors. For example, the program gives out CFLs to students, and goes to administration with information about ENERGY STAR products, including potential savings, sales locations (local merchants), and cost. According to one respondent, "GC makes it a 'no brainer' to purchase and install energy efficient measures."
- **People get into habits and aren't motivated to learn how make changes**. Many of the students and administration on the selected campuses have the general desire to "do the right thing," but lack the motivation to change their behavior or seek out the products that will save energy. Creative approaches, such as dorm competitions to save energy, serve to both educate and motivate student populations to change their behavior and save energy.
- **Students are not aware that energy bills can impact their tuition**. Because the energy bills for the residence halls is included as part of rent or tuition, students are not aware of what they are actually spending. According to one respondent, the CG Program addresses this barrier by, "Making what was invisible before visible: once they are engaged in PR activities, awareness increases, giving information to students about how their energy use may in fact affect their tuition, and how much is being spent…it is a whole information campaign to make them more aware of how their behavior impacts themselves and their environment."
- **Competing priorities**. Students lead an extremely busy lifestyle, and although many of the students care about energy efficiency and the environment, they have constant demands on their time that take higher priority. Paying the student interns allows them to focus on GC, and the creative approaches that the interns have developed, such as the peer competitions, helps make savings energy a student priority. Administrative staff are also busy, and like the students other responsibilities take precedence over saving energy. GC overcomes this barrier by having the students not only prioritize this issue for administration, but also providing the necessary tools for administration to quickly learn about and adopt efficiency practices.

2.1.5 Progress Indicators

Other than the stated objective of tracking energy savings, GC, in Year 1, has not developed any formal Program-wide metrics to measure Program achievements or areas for improvements. The focus so far has been on education, although there have been a few attempts at measuring energy savings. For example, students at Berkeley compared energy use in five residence halls for February 2005 with previous usage for the same buildings. They found that energy use went down 7% when compared to the previous year and 8% when compared to the previous five years.[3] Most of the campuses, however, have had difficulty measuring energy consumption in the residence halls because they are not individually metered

[3] "Green Campus Chronicles", UC Berkeley, Vol 1 – Issue 4, April 4, 2005. Note that the report only provides the results and few details about the analysis (e.g., it is does not appear the date were weather normalized).

(e.g., on one campus four high rise dorms are on one meter). GC has budgeted $2,500 per campus for sub-metering,[4] but this will probably not be enough to allow for more comprehensive analysis of energy savings.
GC still hopes to improve the measurement of energy savings in the future and to ensure that the reduction in energy costs is passed on to the students. In the Green Schools Program, for example, one of the core principles is that 50% of the dollars saved through reduced energy consumption is returned to the specific school that saved the energy. GC attempted to implement a similar concept, but between the difficulty of measuring savings and the multiple levels of administrative staff who must agree to participate (e.g., energy managers, housing directors, etc.) GC postponed this idea.

In absence of energy savings GC examines other general measures of Program progress, including:

- Level of participation (e.g., how many students or administrative staff are directly involved in the Program, number of participants for the midyear meeting, etc.);
- Level of awareness (e.g., number of students or administrative staff even aware of the Program);
- Level of influence (e.g., number of students or administrative staff influenced by the Program);
- Number of type of approaches that are adopted by the interns to promote energy efficiency;
- Additional campuses, outside of the six pilot campuses, that have been influenced by GC to promote energy efficiency;
- Changes in administrative policy resulting from the Program

Some of these progress indicators appear in the monthly reports prepared by the campus interns. As of Year 1, the Program, however, has not yet formally defined, collected, and summarized these indicators.

Progress indicators for year 2 have once again proven to be the bane of the program measurement. There have been marked attempts to address and ameliorate the metering issues, but no clear solution has presented itself. Staff felt that:

> *"It is a continual challenge; we are aware of the problem of metrics and are working toward new ways to measure success."*
>
> *"Metering is still an issue at schools, some schools have made progress using the Green Campus budget to get real time meters or taping into existing structures but it still needs work."*
>
> *"It is hard to measure energy savings with the large blocks of meters. We were able to install real-time energy meters on three houses on campus."*

[4] Records indicate the budget for metering and logging equipment may be closer to $6,000 per campus.

There has been a concerted effort to fix the metering problem but it persists. Purchasing meters for each dormitory or building to conduct real time measurements, or taping into the existing meters to do this are the ideal end results, but it seems to be out of reach with the current funding constraints. ASE and SEI staff are working to develop other metrics to be used as benchmark indicators whenever possible. These include such innovations as an on-line metric template that students add data to, or energy and light audits. The second year also saw a change in the program approach that the interns are encouraged to follow. They are mandated to look at their proposed activities and determine what the deliverable metrics are before they implement any new programs or activities. These do not necessarily have to be a quantitative value but can include qualitative data on student behavior as well.

The interns are now required to:

- Determine metrics and report them at the beginning/during/completion of proposed activities.
- Meet on a weekly basis.
- Take notes during project completion and post them on the project space.
- Meet with ASE every six weeks in person and with regular phone calls.

These measures combined with the added meters that have been installed at a few of the schools exemplify the Green Campus commitment toward solving the ongoing issues of benchmarks and metering. There is still room to improve in this area, but both the staff and stakeholders are aware of the need and working to amend it.

2.2 Program Delivery And Administration

The interview respondents also provided thoughts about the Program delivery and administration, including an assessment of how well they are working.

2.2.1 Staffing roles

There are a total of seven people (not counting the interns) that actively manage the GC Program: two ASE staff in Washington, D.C., two ASE staff in Oakland, CA, and three SEI staff in Berkeley, CA. The second year has seen the addition of another SEI staff member in the satellite Arcata office to keep the Northern California schools in touch with the main office. In the earliest stages, the Program had not developed a formal organization chart presenting specific roles and responsibilities, but ASE Washington staff tends to focus on oversight and financial issues, ASE Oakland staff tend to focus on implementation and logistics, and SEI Berkeley staff tends to focus on meeting facilitation and project facilitation. However, by late 2004 or early 2005, a specific staffing plan delineating specific areas of responsibility between all project managers and staff had been developed.

While most staff only commit part of the their time to GC, one of the Program Associates at ASE focuses all his attention on the Program and, actively manages all of the communication activities, reporting, and supervision of the interns. This staff person also held a previous position at SEI, personally hiring and training many of the interns, so was already quite familiar with the GC Program. Another Program Associate at ASE is primarily responsible for student finances, setting up credit cards for the interns and reviewing the monthly reconciliation reports. She also assists with marketing activities, including the Web site and a two page GC brochure.

The two ASE Oakland staff visit the Washington ASE office approximately once every quarter, but are in frequent communication by telephone and e-mail. The Program had previously had monthly internal conference calls, although these lapsed the past few months due to the mid-year meeting. Although most respondents believed the separate offices were generally working fine, a few respondents did feel that the implementing the Program out of three locations was difficult at times, especially with one office 3,000 miles and three time zones away.

SEI staff has focused on organizing the Program meetings, conducting intern training, and facilitating specific initiatives. For example, one SEI staff member organized a number of training seminars for the fall and mid-year meetings, while another SEI staff member works closely with GC interns to coordinate with the ENERGY STAR dorms project, as well as the CSSC initiatives. These activities have allowed SEI to work more closely with the interns, reducing the work burden on ASE Program Associates.

The first year interns reported that having two agencies in charge would sometimes add to the confusion of staff roles. With this in mind, during the second year ASE and SEI were encouraged to work in closer union. This helped the problem of inefficiencies due to the two office system but it could still be improved upon. Roles in the second year for the two separate offices have been more defined; some of this has been from an active effort to do so, while part of it can be attributed to the history of the program establishing the scope and aim of the existing positions. A single office to work out of for both ASE and SEI or combining portions of the two for the Green Campus program could further cut back on inefficiencies created by scheduling worries and information gaps.

There are currently a total of two to four interns per campus (18 total), who work a combined total of 40 hours/week per campus. During the summer of 2004, when the Program was first implemented, each campus had only one intern. The role of the first interns was to“lay the groundwork” for the Program by recruiting the advisory councils and preparing programs for the incoming fall semester students. The remaining interns were hired in fall 2004.

There currently is not a hierarchical structure for interns on each campus, so interns are not responsible for supervising each other. According to Program staff this flat management structure has worked well, especially since many interns tend to focus on their own projects. On only one campus was there even a known conflict between interns, and this was perceived more as a personality issue. The second year has seen this modified to have a lead intern in some cases and more defined roles for the individual interns in others. At HSU the interns were each given an area to focus on, one being communication, another budget, and another the technical aspects of the program. On most campuses ASE has attempted to have a mix of interns by class, providing for continuity between program activities as some interns graduate. GC recently gave one intern per campus a Mastercard, which greatly simplified the process of purchasing e project materials. Previously, interns had to pay out of pocket or call GC staff to purchase materials for them, which often delayed the purchasing and required a significant amount of administrative time. The process has been further streamlined so now interns can go online and review their accounts, including their balances. Now, only large purchases, of over $500, require GC staff participation in the purchase. Interns were all brought together in late-summer 2004 for training with ASE and SEI. Additional training took place at the mid-year meeting.

The original process of purchasing and reimbursement turned into a big headache for the interns and staff in year one. This was a major evolution of the program in year two, streamlining and improving upon the original method. In year two there are debit cards that the interns are given that link to the ASE credit card. The interns can use these cards for small purchases and add money to the cards. The larger purchases are done with the ASE credit card. The Visa bucks that were in place in year one have remained there. The intern handbook that was created for the second year has also done a great deal to lessen confusion in intern spending. The staff respondents said that the new system is "much better" and "went smoother this year".

Training in the second year for the interns was achieved through a number of outlets.

- Formal meetings at beginning, mid-year, and end of year
- Workshops at these meeting
- "In the moment training"
- One on one training in person with professionals
- Over the phone with ASE/SEI staff
- The intern handbook and notes from previous years
- Utility companies showing them how to do audits

2.2.2 Reporting and Communication Processes

Starting in February 2005, the Program required that interns from each campus prepare a monthly newsletter that highlighted the customized GC goals – termed “Bold Steps” – and the actions that he/she took towards meeting the objectives. The newsletters are typically about one and half to three pages long, and are neatly organized with the goals/Bold Steps followed by the activities. The newsletters make for helpful collateral material plus help the ASE prepare a summary of the monthly activities across all six campuses for the CPUC. Staff reported that the newsletters were a tremendous improvement over the previous monthly reports, which sometimes were so detailed that the real goals and achievements were difficult to discern from them. In addition to the newsletters, every other week interns prepare an e-mail update with what they are doing on their campuses. Second year saw a continuation and expansion of the newsletter program. This has been the primary way, other than meetings, for students to get information across to students at other campuses. These newsletters once achieved can also serve as a great reference to future Green Campus interns to track previous successes and failures of program activities.

Interns also participate in bi-monthly conference calls with the Alliance to Saver Energy. These calls typically last one hour, with about half the time devoted to campus “check—ins”, where an intern from each campus provides an update on activities.’’ Because of conflicts there are normally one or two campuses that do not have representatives on the call. The conference calls have not been as successful in year two mainly due to the larger number of campuses and interns. It is difficult to schedule the calls and has proven confusing to have a phone discussion with 12 campus representatives and staff members at the same time. Despite the decrease in the effectiveness of the total campus conference calls, phone calls have continued to be the most popular means of communication between the interns and ASE staff. E-mail communication and updates posted on the Green Campus web site have aided both interns and ASE/SEI staff to ascertain the progress or status of different activities on different campuses.

The interns who have been issued Mastercard must also prepare a reconciliation report each month where he or she allocates the monthly expenses into categories such as office supplies, copies, travel, etc. Andy Coughlin, a Program Associate at ASE, also meets in-person with the interns approximately once every six weeks. There was the feeling among a number of respondents, as well as the interns themselves (in the mid-year meeting evaluation), that this time period between meetings was probably the maximum amount of time that should elapse between meetings, and that more frequent in-person meetings would be beneficial.
Finally, ASE recently set up a listserv group using Yahoo Groups. When fully operational this will allow interns to email all the other interns with one message, post examples of work, and coordinate schedules for meetings. The list serve and website was up and running for the second year of the program. The staff feels that it is an effective, innovative tool to share information but the intern response is a little mixed. They all know it exists but some respondents stated they were "too busy" to check it.

2.3 Assessment

2.3.1 What has worked best about the program?

Respondents reported that there were many attributes of the Program that were leading to successful implementation. These included:

1. **Allowing the students to drive the implementation efforts**. Nearly every respondent reported that the student-led approach was critical to the Program's success. Allowing the students to run the Program has allowed the events to be more enthusiastically received; has led to the development of many new and creative approaches; and has earned the attention of administration and faculty. Respondents offered a number of accolades regarding the student led model, such as:

   "[The student led model gives students leeway, room to maneuver, and bring their creativity to bear on this. They are an impressive set of people."

   "GC empowers students to effect change, they get involved, they are the ones making the change happen. Peer to peer education activities and student to faculty/admin are empowering 'places' for students."

   "GC taps into a resource that we normally don't see as resource to save energy, it so obvious to university students that they have so much to offer, we don't take advantage of much as we can. The sky is the limit."

   "The interns in place are some of the most impressive, high performing individuals with respect to their ability to carry out a campaign, make things happen and expand their minds for future planning. They are making the GC model even better than we could have envisioned."

   "All the students we are working with are great, motivated, and hard working."

"The Program is unique and has strength in that primary focus is student led nature of model. Not top down by way of admin/faculty, truly grassroots, driven by student body."

3. **Paying the student interns and providing funds for projects**. While it may be possible to run the program solely with volunteers, paying the interns – even a stipend – allows the interns to commit time to the Program activities. In addition, paying the interns allows GC to attract even more qualified candidates, and provides sustentative work experience that could lead to future careers for the interns (vs. simply taking a low-paying job in the service sector). Providing a budget for materials (including promotional materials) allows the students to effectively implement their campaigns.

4. **Creative collaboration with administration and faculty**. GC has successfully engaged the campus staff by coming up with creative approaches to working together with the students. For example, when a San Bernardino professor was teaching a class on energy audits, GC interns not only gave a talk to the class, but helped fund data loggers that the class could use. On other campuses, such as Humboldt and Berkeley, interns have teamed with faculty to develop one-credit classes on energy use, with GC supporting them with materials and lab fees. In San Diego, interns established brown bag luncheons where administration and faculty give talks on energy efficiency issues. GC has also worked closely with the California Students Sustainability Coalition (CSSC) and with the personnel of the University of California Office of the President (UCOP) in an attempt to integrate Environmentally Preferred Purchasing (EPP) criteria to UC's centralized purchasing system, currently under development. This collaboration has provided GC more credibility and respect with the administration and faculty, thus allowing it to attract even more attention from campus staff. According to one respondent, "[There were] early examples of pushback or lack of interest from administration and faculty, some cases where it's been perceived as 2nd class, another bunch of students wanting to be active, another demand on my time/energy…Faculty needs to decide how to focus their energies…Staff are more likely to sink their teeth into it when they think it is sustainable.

5. **Collaboration with other environmental groups**. GC offers opportunities to partner with other organizations and build on existing work of others. For example, GC has teamed with the CSSC, DOE Rebuild America Program, and the ENERGY STAR dorm room project on a few campuses, getting ENERGY STAR products placed in the demonstration dorm rooms (for incoming students) and establishing partnerships with local retailers that sell the products (e.g., they have identification stickers on the products and are listed in takeaways). According to one respondent, "Students are in silos, they don't always look outside, but when outside then see how to bring network together.

6. **The mid-year meeting**. Nearly every respondent talked about the success of the mid-year meeting, held in late-February 2005. Interns developed a comprehensive program poster to display at the meeting, using a visual representation of GC efforts (pictures, drawings, etc.). The posters included information about the campus Bold Steps, activities/projects they are taking to reach these objectives, successes and milestones, and future goals. Each campus also had to prepare and present a signature case study at the meeting, and Program staff assisted the campuses to ensure that a diverse group of projects, represented a broad portfolio, was presented. With the presence of many

campus decision-makers at the meeting, including campus energy managers, there was a feeling that the Program had earned legitimacy.

Second year additions:

The second year survey found many of the same results. The program has been able to capitalize on the aspects that worked the first year while trying to eliminate parts of the program that were shown to be either superfluous or a hindrance. In response to the student led model that was so successful on the first year, here is what the staff had to say in the second year:

"Students have the power and ability to catalyze change as customers of the University that faculty or administration could not achieve."

"The interns are capitalizing on the history that Green Campus is creating. They are experiencing tremendous success on the HSU campus."

"They (the interns) are bringing the Zen-beginner mind and enthusiasm to the forefront of the Green Campus EE programs."

7. **Program uniting separate tiers on campus**. The program in the second year is increasing cooperation on campus. A number of staff respondents and campus stakeholders were all impressed with the way the students have been able to increase conversation and teamwork on campus. By meeting with energy managers, faculty, and administration, the program has influenced all aspects of the University. It has raised overall energy efficiency awareness and incited these groups to work together to increase efficiency

8. **RA assistance**. Resident hall advisors were invaluable in spreading the Green Campus program. This is due in part to their close proximity to the resident students. Also, they have the ability to exert influence on incoming freshman to teach them about energy saving behaviors. The RA's were integral in the resident hall competitions. They were one of the keys to marketing and promoting these competitions. In some cases the RA's were even able to use Green Campus lessons as part of the prescribed curricula that they are required to share with their resident halls.

9. **The Handbook**. The intern handbook that was created for the second year was instrumental in the guidance of intern policy and behavior. It helps with all aspects of the intern position from spending and budgeting, to program design and implementation. This is an ongoing effort and should be updated every year.

2.3.2 Future of Program

The current Green Campus program, which is a pilot program, is scheduled to run through the end of the school year in 2006. The Alliance is currently exploring how to extend the program beyond that period and add more campuses to the program. In the meantime, GC staff members are trying to use funds to create an infrastructure that could extend beyond the life of

the current grant. For example, the energy efficiency classes, model dorm rooms, and other program activities hopefully can continue even if the Program ends after PY2005.

GC is also hoping that other sources of funding, other than PGC funds, could become available to help sustain the Program. For example, GC has demonstrated the soundness of the student led initiatives, and possibly the universities would fund the positions since the campus benefits from reduced residence hall utility costs. One respondent even suggested that the campuses set up this paid position with the title Resource Conservation Manager (RCM), and pay the salary through the generated savings. Staff also hope that by continuing to work more closely with campus administration – such as at the mid-year meeting – universities will see the benefit of the Program and be more likely to offer additional funding to help sustain the Program. Other, more creative funding sources are also being explored. One respondent suggested that students form a revenue-generating collaborative that promotes energy efficiency projects, similar to the College Pro Painters business model.[5]

There was the feeling among staff that to demonstrate the efficacy of the pilot Program is critical to any future sustainability of GC. With this the staff recognize the importance of being able to measure and demonstrate energy savings, particularly now that the utilities will be determining future funding decisions.

Some staff also expressed an interest in expanding the Program to include more campuses and, possibly, other states. Besides this interest in Program expansion and inquiries about the program from other universities, no concrete steps have been taken to expand the Program outside the six pilot campuses.

The second year plans for the future have remained very similar, the most common forecast being expansion. The program is now on 12 campuses and some of the staff has expressed the desire not only to be on all the UC/CSU campuses but also to expand out of state.
This manifest destiny of the program also begs the question of funding. Will the future of Green Campus be able to occur without expanded funding? This was the most common response when the staff was asked if any factor will affect the future. Expansion also raises the problem of limited staff interaction with interns. As the program expands and more interns are recruited, without a proportional staff increase the student to staff ratio will just continue to widen.

2.4 Conclusions and Recommendations

Despite the general consensus that the pilot was going extremely well, the respondent interviews, along with a review of Program materials, provide a number of areas for improvement.

- **GC needs to clarify staff roles and responsibilities**. A few respondents felt confused about the division of responsibilities among Program staff, and believed that this might be a point of frustration for the interns (i.e., they might be sure who to go to for different

[5] According to the College Pro Painters Web profile," College Pro Painters, founded in 1971 by a college student, has grown to be the largest student painting company in North America, operating in 38 U.S. states and also 7 Canadian provinces. Student managers are trained in all aspects of business management, including selling, interviewing, coaching, marketing, financial management, customer management and more." (http://www.deca.org/nab/collegepro.htm)

issues). Respondents felt an organizational chart clarifying staff roles and responsibilities would be helpful for both program staff and maybe more-so for the interns. The organizational chart that was prepared by the Alliance may need to be re-forwarded to program staff and interns.

  - *The second year program has done well to address this problem. It has been fixed with an emphasis on defining the roles and through the limited but growing history of the program. As more activities and problems are created the staff is able to define their roles as they go and pass it on to the next year program.*

- **An evaluation system needs to be developed for student interns.** Although all respondents indicated that the interns should continue to be given the autonomy to develop and manage their own projects, a number of respondents believed that an evaluation/accountability system needed to be established to assess intern performance. One idea was to work with the interns to develop quarterly goals and performance indicators to assess how well they achieved their goals. Given the disparate student bodies and the various base levels of commitment to energy efficiency it is crucial to make sure the goals are campus specific, not universal among all the campuses. The development of the Bold Steps process is certainly a step in the right direction for defining the objectives, but the assessment process is still uncertain.
  - *The second year program approached this problem in various ways. The leads are requiring the interns to set benchmarks before they start to implement a new program or activity that they can measure and achieve, create monthly newsletters highlighting successes and failures, and enter data in the on-line database.*
- **Develop progress indicators**. In addition to developing an evaluation system for interns, the GC Program needs to develop evaluation criteria for its own success. Progress indicators have become common practice among program theory and design planning, and GC staff should work to develop a set of progress indicators that can be tracked and reported. Some of these should be more quantitative metrics (e.g., number of CFLs provided through a trade-in program, number of students participating in a meeting about a dorm competition, etc.) and others should be more qualitative (e.g., establishing meetings with housing director and energy manager). A more methodical approach to measuring energy savings should rank the more important progress indicators and should be a top priority.
  - *This will be an ongoing issue until separate meters can be installed for each dorm or a new method to tap into existing meters is developed. The staffs of ASE/SEI and the stakeholders are all aware of this shortcoming and are working diligently to correct it. A program theory was not specifically prepared for this program, and a workshop or other mechanism might provide an opportunity to develop a program theory, logic model, and consequent indicators.*
- **Develop a sustainability plan**. As noted above, the perception of sustainability contributes to Program success by motivating administration and faculty to get more involved. In fact, the Program grant, which paid staff and interns and provided budgets for materials, distinguished this Program from other "green" initiatives. It garnered the attention of the campus staff, and contributed to the early success of the Program. For long-run success, however, the Program needs to develop a long-range plan of funding and sustainability.
  - *Funding is still a concern.*

- **Documentation and assessment of program implementation strategies.** The monthly campus status reports are an excellent resource for documenting the activities on each of the campuses, but GC is currently not synthesizing this information to come up with more formal recommendations for the best implementation *activities across campuses*. In addition, Program staff are not comparatively tracking the *impacts across campuses*.[6] More formal documentation of activities across campuses will also allow for the development of a collective Program knowledge base, critical for future continuity and success of the Program. According to one respondent, "We heard loud and clear from interns and faculty/staff that the key need is to put into place and document at each campus the efforts, campaigns, and process that interns went through, including the contacts and mechanics of the program for continuity between academic terms and succession for new GC interns over time" I, One respondent pointed out that the monthly newsletters normally just highlight the positive aspects of the Program, leaving out the "lessons learned" or critical assessments of how implementation might have been improved. This is another reason that GC staff needs to synthesize the results of campaigns, documenting and evaluating each initiative.
    - *Year two interns were stressed the importance of documenting failures as well as successes and were able to help correct this shortcoming. The annual meetings have also proven themselves as a viable means of sharing information across campuses for both interns and stakeholders. The program is doing well in alleviating this problem and should continue to improve on documentation and info sharing with the student interns.*

New Recommendations Year 2

- **Room for the program**. There is a physical shortage of room for the program to operate on some of the campuses. Some of the programs are running in to problems finding a space to meet and set up an office.
- **Empower the Energy Managers**. The energy/facility managers are beginning to realize the resource they have in Green Campus, but in most cases are not utilizing the interns as much as they could. By emphasizing the intern assistance that is there for the energy managers to use, more real energy savings could be obtained. The interns have been focusing on raising awareness but with some more direction for these energy managers they will be able to increase real energy savings in some cases. The managers know that the students do not have the technical expertise to complete retrofits but they can be of assistance in data collection and leg work.

[6] It is recognized that the monthly reporting formats for the CPUC are strict and do not allow for this tracking. This work may be explored for potential inclusion in the final report.

3.0 PROCESS EVALUATION / FACILITY STAFF

In order to assess GC facility staff's role and efforts, Quantec, under contract to Skumatz Economic Research Associates (SERA), conducted interviews with campus staff from the pilot program campuses. These interviews, taking up to an hour each, were conducted between May 16 and June 8, 2005. This chapter presents the integrated findings from these staff interviews. In year two the staff interviews were conducted directly by the SERA staff. SERA staff was able to conduct ten facility staff interviews between September 21st and 26th, taking an average of thirty five minutes an interview.

Methodology

In the first year evaluation, GC provided contact information for one stakeholder per each of the six participating campuses. The first year contacts were all university staff, and served various positions, including Energy / Utilities Manager, Campus Recycling & Refuse Services Manager, Environmental Health and Safety Department, and Depart Chair of the Department of Industrial Technology. Each of the contacts served as a volunteer on the Green Campus Councils, the organizing body for program activities formed on each of the campuses.

Interviews were conducted with four of the six contacts. The other two contacts were attempted five times but did not return messages. In addition, the respondents were asked about other members of the Green Campus Councils that we might speak with; only one respondent, however, could provide additional contacts, and these three volunteers also did not return our calls.

In year two GC once again provided a list of stakeholder names from the participating campuses for facility staff interviews. Of the sixteen names provided, two refused the interviews, both stating that the interviewer should speak to someone else on the campus that knows more about the program. The SERA team was able to collect ten interviews for the second year program evaluation. Interviews were conducted with one campus energy facility manager, one campus recycling manager, two engineering facility managers, the CSU system wide energy manager, the UC system wide associate director of energy and utilities and the sustainability coordinator.

3.1 Facility Staff Roles

Campus facility staff acted as mentors and resource specialists for the program interns, and offered varied levels of support and direction as interns developed and implemented programs directed at achieving the goals and objectives of the program. Some facility staff assisted in the intern hiring process, provided office space and necessary office equipment (e.g., computers, printers, telephone), and generally served to mitigate campus barriers and act as a liaison between the interns, university administration and faculty, and program implementation staff.

The facility staff's role focuses on getting the interns what they need to effectively carry out their mission on campus, meeting regularly with interns, serving as a sounding board for future ideas, and removing obstacles on campus. On one campus, facility staff hosted monthly brown-bag lunch with campus stakeholders and interns to discuss GC future and obstacles. Three of the four respondents offered that, while they generally assisted with directing the interns as to the

goals of the program as specified by the proposal, the interns were very self-directed, creative, and resourceful when it came to carrying out the goals of the program.

All of the facility staff praised the efforts of their interns and agreed that the intern-driven approach on campus was the most effective way to communicate with university administration and, ultimately, work to conserve energy on campus.

> *"We have seen other outside vendors come on campus as well as other faculty attempting to achieve many of the same type of goals and projects put forth by the Green Campuses program to no avail. The interns were able to pitch the light bulb recycling/exchange program and roll it out a month later."*

While some facility staff mentioned they were not able to participate to the degree they would have preferred due to their job requirements and other campus responsibilities they all appeared to be very self-motivated in their efforts and sounded as if they truly enjoyed working with the diligent and dedicated GC interns.

This trend was continued in the second year of the program. The staff interview once again, saw themselves in a sort of mentor role for the students. The staff that was on campus often would work side by side with the interns, helping them the minutiae of the activities, reserving table space, talking to administration, and guidance in ideas and completion. The system wide staff that responded stated that in most cases they were of use when other outlets of assistance had been exhausted, functioning as an escalation point problem solver. They were not as involved in the day to day work with the students but would speak to them through telephone calls, emails and both during on campus and annual multi-campus meeting.

3.2 Program Design

Respondents provided helpful insights into program design elements, including program delivery, program organization, and program goals and objectives.

3.2.1 Program Delivery

Respondents indicated that the goals and objectives of GC have been met by a largely supportive culture across the program campuses.

The interns have initiated meetings and student gatherings on campus focused on promoting the tenants of the Green Campuses program and how they could become involved in the program. These meetings and gatherings, in association with more targeted program efforts, served as one of the primary platforms by which interns attempted to build student's awareness about energy conscious behaviors and teach students how they could most effectively impact energy use on campus.

Three of the respondents offered that these campus program meetings have been effective and, overall, "are continually getting better and more productive." One respondent commented that during these meetings there are "lots of small group planning and strategizing. They were always trying to get something done – take it to the next level." Conversely, on one campus, which has admittedly been struggling to meet the goals of the program, mentioned, "I feel optimistic, but I feel we haven't done a whole lot. We are still struggling to establish name recognition with the program on campus … but we are starting from ground zero." Similarly,

these meeting were critiqued by one respondent as generally “fishing for ideas [among fellow students and campus stakeholders] as opposed to offering goal-oriented strategies.”

Meetings in the second year have become more focused as the interns and stakeholders have a history to work with, knowing which programs were successful and which were not in the first year. On the campuses that had the program this year for the first time, they were able to garner information from the annual meetings and ASE/SEI staff as to which activities work better than others in raising awareness on campus. Staff was impressed with the enthusiasm, brainstorming and organization of the meetings they attended in the second year. One interviewee warned of students setting goal that are too lofty to attain, wary of having goals that are immeasurable and could never be reached. Others felt that the positive, energetic work of the interns is one of the highlights of the program and with guidance and progressive benchmarks the second year program was "successful due to the student's investment and motivation to make it work."

3.2.2 Green Campus Council

According to the GC Web page, each participating Campus forms a Green Campus Council, which serves as the organizing body for program activities. The Council role is to:

- Determine the Vision Statement for their program;
- Determine particular objectives and program implementation plans; and
- Identify and recruit the larger group of faculty, administrators, and facility staff for program support and participation.

The interviews with the campus staff provided insight into the logistics, and success, of the Green Campus Councils.

Frequency of meetings. Three of the GC Councils meet quarterly, while one campus council has no formal structure or schedule and meets on an “as needed” basis.

Roles served by the GC Councils. There was general consensus among respondents that the purpose of the councils is to establish a centralized voice on campus regarding energy conservation and to unite stakeholders in a common purpose. All respondents agree that the committees serve to gather campus resource specialists and experts in order to service the interns in achieving the GC program goals.

Biggest successes and accomplishments of the GC Councils. Most respondents commented that a large part of the success of the GC Councils was attributed to the hard work of the interns. Respondents offered that the primary accomplishment of the Councils was to establish recognition of the GC program on campus, and the fact that the councils have grown in size to include the appropriate resource specialists. Campus Councils were most successful at removing or limiting obstacles that stood in opposition to GC goals and objectives.

Size and composition of GC Councils. GC Councils ranged in size from six to 12 members and were generally regarded as being comprised of the appropriate number and type of campus stakeholders. On one campus in particular, the initial meeting had about 30 people but was

later downsized to include six stakeholders to serve as resource specialists for the interns who initiated the Council. On another campus, the council started with two stakeholders and then grew to have about a dozen individuals involved. After interns focused their initial efforts on establishing their respective councils, it is generally believed that the "right type" of individuals are involved in the GC Councils. However, two respondents offered that despite having assembled a GC Council, they were still concerned about the longevity of the Councils after the interns graduated. One of the campuses' council was not an intern led initiative; rather, due to the presence of an already established "Sustainability Council" on campus, an intern was appointed to the committee in order to address and proliferate GC objectives (i.e., the "Sustainability Council serves as a de facto council).

Areas for improvement. Respondents agreed that given the busy schedule and varied commitments of the GC Council members, the Council would be better able to contribute to GC program delivery if given more time to work on established goals, address campus-specific issues, and to meet more frequently. One respondent offered that the program and council, "needs more structure [and] needs to have more meetings with interns including a review or evaluation of progress." Another respondent commented that it is difficult to truly harness the skills and abilities offered by the Council members due to limited time and resources, and said that some, "show up out of courtesy." Generally, now that the Councils are established, work needs to be done to "establish more concrete, tangible goals."

Overall effectiveness of GC Councils. All respondents offered that they thought the councils were "somewhat effective" in becoming established and setting out to achieve the goals of the program.[7] Most respondents, however, were skeptical of the longevity of these councils after the interns graduate. This is concerning as the viability and future sustainability of the GC program is largely thought (according to implementation staff) to depend on establishing these stakeholder councils. Three respondents recommended more initial attention be given to establishing connection between GC and administrative and faculty campus staff in order to increase buy-in and council participation among campus stakeholders:

> *"There needs to be a thrust to get in the administrators radar more quickly. We could have made more progress initially with more administrative support."*
>
> *"It was difficult garnering support from the faculty. There were some missed opportunities for partnerships on campus. Establishing better faculty/staff support from the outset would have been positive."*
>
> *"It took me a while to figure the program out … what its purpose and goals were and where it was coming from. I would have appreciated more information on the infrastructure and goals of the program."*

One respondent mentioned that the "council" has proven generally effective in carrying out the GC mission, but would like to see the "council" tasked with more tangible goals aligned with the specific intentions of the program. While campuses have reported to have successfully garnered the support of campus stakeholders, there is concern about how to establish what's next for the council and, more generally, GC. Respondents suggested working to build and

[7] Respondents were asked to respond how effective the councils were based on a 3-point scale including "very effective," "somewhat effective," and "not at all effective."

develop the structure of the existing councils and possibly increasing the frequency of the meetings until more tangible progress is established. Moreover, as one respondent suggested earlier, there needs to be more established objectives, " … like a mission statement in which we are striving to achieve [specific goals]."

3.2.3 Mid-year meeting.

Three of the four respondents had participated in the multi-campus mid-year meeting and offered feedback regarding their experience. They indicated that the meetings were of most benefit to the interns, providing them an opportunity to meet with other campus interns and implementation staff, plus get ideas and inspiration for moving forward. Some respondents enjoyed the opportunity to "better grasp the infrastructure of the program; the goals, where the initiative was coming from, and why it was created:

> "*I witnessed the varying degrees of sponsorship and support across involved campuses. I left meeting feeling as if our goals were achievable."*
>
> *"The meeting was very well intentioned. I was very impressed with the leadership of the program."*

In year two, only two of the ten interviewed staff had not attended any of the multi-campus meetings. The most attended of the meetings was the mid-year meeting. The response to the meeting was overwhelming positive. The aspects that the staff most liked were:

- Energy and enthusiasm of the students
- Organization of the meetings
- The chance to share information across multiple campuses
- The workshops

The staff all felt that these meetings were very important not only for training the interns but also for spreading information. One of the energy managers suggested starting a workshop at one of the meeting to teach the interns some of the basics about energy facilities and streams on campus. One of the other respondents thought that the lights were "too dark" at the meeting and did not like the plastic folder that the information was handed out in.

3.2.4 Program Goals & Objectives.

All respondents agreed that the program goals were well designed and realistic, despite common barriers present on campus. "Apathy among energy consumers," and the belief that "the university, left alone, would not make progress in effectively conserving energy" summarize the primary barriers the facility staff understood GC was designed to address and overcome.

On one campus, from the outset, there appeared to be a 'disconnect' between some facility staff and the program implementation staff regarding the established goals of the program. The facility staff claimed to not have been informed of the goals of the Green Campuses program, and said the interns were not sure of specific goals detailed by the program either. The respondent expressed frustration after having to do a lot of independent research to "simply find out what we are supposed to do" and, more generally, commented on the need to improve communication channels between facility staff and program leadership.

"There really are no goals … there are no measurable standards … this is only an information based program. So, yes our campus is very receptive to a program with no goals. I was a bit frustrated with the communication channels between program leadership and our campus "

However, after doing some research and work to develop goals, the same respondent offered:

"Program goals are now outstanding after we have established our own after receiving little/no support direction."

Green Campus is an "Information Only" program that produces energy savings through encouraging light bulb replacements, behavior changes, and other actions. However, this staff person's frustration may have derived partly from the indirect (not always directly "countable") nature of the goals and standards that can be expected for information-only / non-retrofit programs. As the program progressed, however, the Program's success in addressing both the issues of goals and communication seemed to improve.

These types of problems arising from a disconnect between the interns, facility staff, and SEI/ASE staff have been stemmed in the second year. By consciously working to get stakeholders on board early in the semester and choosing schools that truly want the program there, there were no instances of this type of response in the second year. The staff all felt that they were able to work well with the student interns and accomplish measures to increase energy efficiency. This is still an area that can experience growth however, with a few of the respondents stating that they could work better with the interns in the future and get more staff involved. When probed to determine if the extra administrative work related to the GC program was an onerous burden to the staff, they all responded that it was not. The staff felt that there was extra work associated with the program, but that it was "good" work and the "the benefits outweighed the costs" of not working toward sustainability.

Communication was addressed in the second year program with the newsletters and the annual meeting. As stated earlier, the staff the attended the annual meetings found them to be an important asset of the program. The monthly newsletters also helped the staff to learn what was occurring at their campus as well as the other GC program campuses.
When asked about communication during the second year when compared to the first year, staff responded by saying:

"Newsletters were much better this year. They (interns) have done a good job with this."

"There has been good sharing of information between campuses at the annual meeting."

"The newsletters are great; it is very helpful to see what is going on at the other program schools."

One of the energy managers responded that he did not see any shared information this year but tit would be very helpful. This shows that although the program has made large gains toward rectifying the communication issue, the interns must remain vigilant in their effort to communicate with the stakeholders and other campuses.

The following is a goal-by-goal facility staff assessment of the campuses efforts to address the Green Campus program goals and objectives (this list of goals was discussed earlier in Section 2.1.2)

1. **Immediate energy savings – The program focuses initial activities on the behavior and student purchasing decisions that will generate immediate energy savings at little or no cost.**

There was consensus among respondents as to the underlying assumption that when people know how to save energy, they will change their behaviors to save energy. It was also indicated that the targeted approach in which the residential halls received initial intern attention and program focus was the most sensible way to positively effect energy savings on campus. Each -campus developed unique, campus-specific strategies for realizing energy savings as well as implemented shared intra-programmatic strategies (e.g., dorm energy conservation competition, disseminating flyers and informational packets to students, meeting campus stakeholders to discuss program goals).

On the Humboldt campus, the dorm competition to conserve energy was particularly successful. A large part of their success was due to the dorms actually being apartments with individual meters, which facilitated establishing true baseline measurements and determining savings due to program efforts. The students started by conducting energy audits after receiving training from knowledgeable campus faculty. They then worked with residents regarding behavioral changes focused on conserving energy, and collected all data necessary for a baseline assessment and thereafter. In addition, they were able to install some Energy Star technology following the baseline assessment. With the statistical analysis assistance from the campus facility staff, behavioral change due to program efforts accounted for a 9% reduction in energy use among residents. When the savings from student's installation of new Energy Star technology were factored in along with the savings attributed to behavioral modification, the interns found a 43% reduction in energy use across apartments.[8] Other campuses were limited with regard to the sophistication and accuracy of similar "dorm competitions" as multiple dorms were linked to a single meter.[9] These campuses were unsuccessful at acquiring the necessary funds to use sub-meter the dorms in order to ensure accurate baseline and post-intervention numbers.

The dorm competitions and "blackout" competitions have been continued in year two. The staff all responded that these dorm competitions are a strong part of the Green Campus program and raises awareness while reducing energy use At SDSU nearly 60% of the students participated in these energy competitions. An important part of these competitions is the assistance provided to the program by the Residential Advisors. The RA's help to market and promote the competition and show the residents ways to reduce energy. For these dorm competitions to remain successful the RAs should be kept in the loop, trying to get them Green Campus information earlier in the school year, possibly before students arrive on campus, and involving them with Green Campus meeting should be investigated for the future of the program.

[8] Based on data reported by the respondent during the interview.

[9] However, as noted in the previous chapter, Berkeley also has also been able to estimate energy savings.

2. **Partnerships with other efficiency programs – The program works in partnership with other organizations on campuses, and collaborates with other energy-related research activities that are already occurring on campuses.**

According to the responding facility staff, all program campuses were able to partner with already established energy-related organizations present on campus to various levels of success. However, while making some progress in partnering with ongoing campus programs, one respondent indicated that their primary on-campus partnership "hasn't really taken off yet." Most interns partnered with campus groups including Green Peace, campus Energy Council, Student Sustainability Education Effort, SEACAT, and other similar, campus specific initiatives/groups. One campus joined in promoting bike-to-work day. Respondents mentioned that joining forces with other like-minded groups on campus aided in the dissemination and achievement of many Green Campus goals and improved the programs visibility. Overall, these campus organization partnerships were mutually beneficial and greatly facilitated the efforts of GC interns. All but one respondent claimed these alliances were mutually beneficial and largely productive.

The second year saw an increase in the amount of partnerships occurring on campus. All responded that Green Campus was observed partnering with multiple on campus clubs or sustainability councils and experiencing larger successes due to these partnerships. The second year has also found the program partnering with off-campus sustainability efforts as well. An impressive success from the second year has been GC teaming up with the Davis Lighting Center to identify and audit lighting systems and push to install bi-level lighting. This is an example of partnering and it is occurring on multiple campuses. The program has also partnered with faculty in the science labs to reduce energy use from exhaust hoods and to complete an energy audit of the freezers and refrigerators in the labs. At HSU the program has partnered with the sustainability council to reduce the volume of the waste stream.

3. **Tracking energy savings – A key program component is the development of a baseline of energy use and tracking of the energy and dollar savings that result.**

Tracking energy savings was a particularly salient aspect of assessing the progress the Green Campuses program and a topic of frustration for most respondents.

> *"[We have] no empirical data available to determine energy savings."*

Three of the four respondents indicated that they wish they were better able to accurately assess energy savings in order to back up the interns efforts and, ultimately, to secure future funding and GC credibility among stakeholders. These respondents said they had no means to accurately track energy savings on campus due to shared metering of campus facilities. Humboldt and Berkeley were the only campuses interviewed with the capability to truly establish baseline energy expenditures at residential facilities due to the individual metering.

As mentioned in the previous chapter, this continues to be an issue. One energy manager stated that he has been speaking to his local utility to try and raise funding or a grant to install individual real time meters at his school. Some stakeholders have noted the increased push toward measuring by the interns but most believe it needs to be improved upon. The SEI/ASE staff is aware of the program goals and benchmarks but many of the stakeholders showed confusion in this area. A few of the comments were:

"They have tried to quantify energy use but it is very tricky because of the large blocks of meter readings."

"I'm not sure if they have established any benchmarks, I can't name them. I know they try to set some sort of institutional objectives for energy savings I but don't know what."

"I know they have a list of goals that they want to accomplish but I am not sure what they are."

"Goals were created for both the long and short term but there was no real evaluation of them."

The interns need to publicize their project benchmarks and objectives to show success or failures on campus. If they do not reach their desired goal, the benchmarks and indicators can at least show what they have accomplished and show the stakeholders and general campus population that progress is being made.

4. **Use of a planning based approach – Each campus develops a unique plan for saving energy, integrating energy into academic learning, and involving the campus and community.**

The campuses chosen to participate in GC had unique strengths and weaknesses regarding the successful implementation and achievement of the GC goals and objectives. As a result, each campus attempted to build on their strengths and improve their weak areas in developing a viable and effective approach to increasing energy-conserving behaviors and achieving the goals of the program.

Three of the four campus facility staff interviewed were able describe how GC has impacted university curriculum. The other respondent indicated that they were unable to impact curriculum on campus, but acknowledged this as a goal of the program. Although one of the more challenging program objectives, the respondents generally believed that students and professors were able to work together to influence the academic curriculum:

"We have a power and energy course on campus that partnered with the [Green Campus] program and were able to develop skills necessary for the Green Campuses program (e.g., energy auditing) and vice versa."

"We had a student taught class sponsored by faculty members (dubbed Energy 101), and I co-teach a sustainability class and our GC interns taught how to teach and conduct energy audits."

Some campuses built on their more basic student/campus outreach efforts. One campus sponsored an energy awareness day with multiple vendors, and was able to invite a promotional van outfitted with all forms of alternative energy. They estimated they had at least 100 to 150 attend the event. Similarly, other campuses hosted energy conservation trivia gatherings at individual dorms (attendance up to 30-40 students), participated in a campus-wide

environmental expo with approximately 150 other vendors. One campus promoted and held a Green Campus Luau, which also included a slogan contest for the Green Campuses program on campus. Multiple campuses participated in light bulb recycling/exchange program, which allowed students to exchange their incandescent bulbs for CFLs, and conducted energy audits throughout dorms as a way of informing students about energy efficient technology alternatives and Energy Star technology.

This has been a success of the program in the second year as well. Many campuses have created a four credit course. Berkeley has set up an Energy 101 class that has proven extremely effective with guest speakers, energy audit information, and intern instruction. Humboldt State is working on creating a continuing education class on energy sustainability.

5. **Students work with professors of multiple disciplines – Students tie the Green Campus work to their academic programs. They work with a professor to identify a way to use the project to add to their academic plan.**

In some instances, GC had the good fortune of working with and learning from rather sophisticated, ongoing campus programs that were sustainability-focused.

> *"Our environmental science dept. is highly advanced and we essentially 'ride along' with them on projects …"*

GC initiatives led to mutually beneficial effects on campus and, in some instances, could be leveraged in the classroom.

> *"A geology/ecology class used some of our sub-metering for their projects and look to use some of our CFL to do some comparative analysis."*

While some progress was made in achieving this programmatic goal on participating campuses, interns had more success at impacting curriculum than partnering with campus professors' ongoing and developing projects.

This goal is still being worked toward in the second year. The idea of having energy efficiency written into University curricula is an ongoing task of the Green Campus program and will always be continued.

3.3 Assessment

3.3.1 Campus response.

The respondent's impression of the campus response to GC was generally positive. The primary area of impact, according to respondents, is raising energy conservation awareness, a few respondents also mentioned that the program provided unique benefits such as, skill building, fostering leadership, and providing practical work experiences for the interns:

> *"[Campus response has been] positive regarding awareness and participation among first year students and other self-selecting students. The housing folks have been responsive to the energy conserving efforts."*

"Information is being well received. The campus is starting to tailor their behaviors to energy efficient ones. However, it's hard to tell, due to the increasing campus size, if we have tangibly reduced energy use."

"Besides the obvious reduction of energy, I think the educational benefits were tremendous. I am most interested in what the students can take away from this process … and I think the interns have gained marketing and PR skill, learned how to work collaboratively, how to find allies, how to overcome barriers, how to enlist and gather resources depending on the need, … and articulate their goals in a concise and confident fashion with multiple, diverse audiences with minimal supervision."

"[GC] energized my students to a degree I have never seen before. This has been a terrific career enhancing experience. I also enjoyed that they were so self-motivated … no handholding on my behalf. We were able to concentrate on higher-level issues as a result. The interns had no fear in terms of their research and public relations efforts."

Overall, across campuses, GC has been well received and has made significant progress in meeting or working towards the programs primary objectives and goals. According to three of the respondents, Green Campuses is identifiable among most students as are the programs primary objectives. Respondents were able to refer to good campus participation among various GC-oriented events, programs, meetings and more informal gathering on campuses initiated by GC interns. Similarly, effective partnerships were established with already existing groups on most campuses, which helps to ensure proliferation of the GC goals and objectives.

Facility staff expressed that they were very receptive to the program goals and mission. One facility staff offered that, "having student involvement in my area of expertise" was the most satisfying aspect of the GC program. All respondents shared in the pleasure to work with such talented and hard-working interns, and their enthusiasm was infectious.

Many of the respondents in year two were unable to pass a judgment on what the campus response had been. This was because a number of the interviewees hold positions in which they spend very little time on campus interacting with students. The staff that did spend time on campus reported seeing a very positive response from students, staff and faculty to the program. One respondent said that it has been an overall positive response on his campus and an increase of energy awareness by the student body and staff. he also felt that "awareness is not only increasing on this campus but on campuses that don't have the program are hearing about it and want to become a part of the program."

The staff saw what they interpreted to be a rise in energy awareness on the campuses but they were not sure how to quantify this rise. The overall atmosphere appears to be shifting toward sustainability but without quantitative measurements the staff was hesitant to say how much effect the program has truly had.

This leads to what the staff responded was the most glaring problem in the Green Campus program, respondents as a whole said it is very difficult to meter the real energy savings. The schools on the majority of campuses are set up for blocks of buildings and cannot determine the actual energy savings per dorm or individual building. They are also failing to take into account

outside factors such as the extremely cold and rainy February last year that undoubtedly would raise energy usage in the dorms compared to the baseline measure the year before.
The staff put forward a few possible solutions:

- Have ASE/SEI secure funding from the utilities to install meters.
- One school facility manager has spoken to his local utility to gain funding for meters.
- On-line meters to collect data that can be tapped into existing meters.
- More training for interns on light and energy audits.
- Collect more data, even if qualitative, to use as a measurement.

The staff noticed that on all the campuses the faculty is also participating in energy efficient behaviors. It is hard to say what portion of this behavior is from GC program influence. Many of the schools already have other mandates in place requiring faculty and staff to increase energy efficiency on campus. Portions of the program that the stakeholders liked best were:

- Spillover to other programs and policy created by GC raising the overall level of awareness on campus
- Bridging the gap between students and faculty
- Bringing the enthusiasm and innovation of the student to the program
- Reduction of energy use on campus
- The organization and communication of the program
- Having an outside funded program on campus that work with students and staff

3.3.2 Program effectiveness.

Respondents tended to agree about the effectiveness of GC regarding promotion of energy conservation awareness and instilling energy conservation behaviors in students, and to a lesser degree, across campus. Three of four respondents offered that they were "extremely satisfied" with GC's progress and the work of the interns, while the remaining respondent mentioned they were "impressed and satisfied with progress."

Most respondents were quick to attribute program effectiveness to the intern-driven approach:

> *"I like that the program is driven by the interns. They had a reasonable budget to work with and developed accounting and budget management skills on a low risk basis. The larger program infrastructure was critical … the ability to bounce ideas off others involved at other campuses."*
>
> *"[The program was effective due to the] student led effort. [GC] is well funded (e.g., paid staff, resources available) and the students are able to mold their goals and efforts to meet campus needs. There is implied and explicit support with partnering on campus."*

There was an overriding consensus that there was sufficient funding and it significantly contributed to the effectiveness of the program. Most respondents underscored the importance of continuing to pay the interns for their efforts, and that, in their opinion, very little progress would have occurred without intern stipends.

Key elements of the Program's effectiveness and success are having dedicated paid interns, and using a stipend approach. Having stipends makes it clear that interns are partners in the program, and empower and allow them to implement activities efficiently, effectively, and with a minimum of barriers.

3.3.3 Future trends.

All respondents indicated that they are hopeful that GC will build on this first program year and replicate the program on a larger scale in order to build on the program's successes. Despite the overwhelming desire on behalf of respondents to replicate and expand GC, it was agreed that securing continued funding, identifying energy savings, and replacing student interns would be the most challenging aspects of moving forward:

> *"[I hope GC leadership will] role out the program more globally and have more resources generated or directed at the program for outreach. Maybe establish more interns and up the level of outreach."*

> *"I imagine funding will be difficult to acquire without more tangible benefits established and projections of dollars saved due to program efforts"*

> *"Budgets are the biggest sticking point. Our funds continue to be cut and we have to continually be creative to find solutions. I am already stretched very thin in my role at the university and attempting to help out with programs and initiatives such as the Green Campuses program can be challenging. We need more staff."*

> *"[My concern is that the program will end with] the graduation of the two interns. If we can associate this program with an existing student committee then it will have a chance."*

The second year staff had similar responses to the first. They felt that the future of the program is expansion and the limiting factor is most likely going to be funding:

> *"I see all California campuses becoming involved with the program and eventual expansion out of the state."*

> *"I see the long term goal as getting this program so integrated into university curriculum that we basically work ourselves out of a job, there will be no need for this program."*

> *"Ongoing energy awareness for students both on campus and in their lives once they graduate with quick and easy changes they can make and long term behavioral changes. Also keep data available, track energy use data, and push for new ways to collect data."*

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"I would like to use Green Campus interns to help in implementation side of the energy efficient measures we are installing, measurement, surveying and data collection."

3.4 Conclusions and Recommendations

GC facility staff offered unique insight into campus response and program efforts. There was a general consensus that the pilot was successful, and facility staff also provided recommendations for how GC could improve and build on its successes. Overall, the facility respondents confirmed and reiterated many of the same recommendations that program staff cited, (Program Staff – *2.4 Conclusions and Recommendations*).

- **Develop a sustainability plan**.
  All respondents voiced concern that the program would have difficulty becoming established on their respective campuses after the tenure of the current interns unless effective strategies we developed for program sustainability. While some effective partnerships have been developed on some campuses, which will help to proliferate GC goals and objectives beyond this program year, respondents agreed that more effort should be directed towards establishing on-campus alliances with stakeholders. One respondent suggested current GC interns recruit their replacements a year prior to their graduation. This would allow new interns to work with the program and help to ensure continuation efforts and progress.

  The second year has done a great deal to address these issues. By modifying the school selection process the program has greatly reduced barriers some of the barriers that existed between stakeholders, administration and students. The intern handbook and increased documentation of the first year program has aided in continuity.

- **GC needs to clarify staff roles and responsibilities**.
  Respondents consistently mentioned the program could improve its communication between program staff and GC facility staff and interns on campus. While it was noted by most respondents that effective channels do exist, there was still a good deal of uncertainty regarding specific roles and goals of the program. A couple of the respondents commented that while the open-nature of the program regarding the role and responsibilities of the interns was a positive aspect of the program intended to foster innovation and creativity, it was also challenging for many of the interns who desired more initial direction.

  The program in the second year worked to clarify roles but still has room for improvement. Staff in the second year continued to note that role clarification needed improvement but thought that it was "much clearer" and "smoother" in the second year. Part of this problem is inherent in the program as new and innovative projects and activities are designed. When the interns are not exactly sure what the scope of the new project will entail there will be some confusion in roles. By creating intern positions and a lead intern this problem is being reduced.

- **An evaluation system needs to be developed for student interns.**
  All respondents made mention of the interns desiring some way of evaluating their efforts and effectiveness on campus. After a full year of program experience and projects, respondents suggested it should now be possible to establish a system to evaluate intern's development and progress.

  This area has also improved in the second year. The SEI and ASE staff is receiving the updates and newsletters from the interns showing progress. There is still some need however, to relate these progress indicators to the on campus stakeholders. A number of the staff interviewed saw this as a problem in the second year too. One energy supervisor felt that:

  > *"1st year interns operated a bit too autonomously and now they have cut down on their freedom and it is better. Better still would be to have facility managers feel more in-charge of the interns to get more done."*

- **Develop progress indicators**.
  One respondent commented that despite finding value in the rather open-ended orientation and approach of GC and its goals, "it's a little too nebulous at this point … [we] need assistance in planning steps to achieve long-term goals. [The program is] too loosely organized." Similarly, one respondent commented that GC should have conducted more "pre-program" evaluation.

  > *"[There was] no preprogram evaluation to determine effective strategies and to identify receptive target groups … no baseline assessment [was done]."*

  The second year program has made some steps to improve in this area. IN the summer of 2006 the ASE and SEI staff met and now mandates the students to develop progress indicators and deliverable metrics before they approach a project.

- **Increased flexibility with financial resources**.
  Some respondents voiced concern over the process to acquire money for rather routine purchase early in the program year, and one facility staff had to use their own money to sponsor pizza and beverages for an intern-led gathering after unsuccessfully trying to gather funds from program staff. The same respondent followed up by saying that improvements have been made (e.g., receiving credit cards, etc.). Other respondents offered, and then conducted research to back up their assertion, that more money should be available to invest in energy efficient technologies or tools that would help to improve the rigor and quality of data and findings of the various energy conservation projects led by GC interns (e.g., sub-metering for dorm competitions).

  The intern handbook and new procedures in the process of intern purchases has for the most part eliminated this concern in the second year.

- **More efforts directed at establishing stakeholder network on campus**.
  Most respondents agreed that there, "needs to be a thrust to get on the administrators radar more quickly," and that, "more progress [could have been made] initially with more administrative support." Some respondents stressed the importance of devoting appropriate resources to ensure GC is hiring quality interns, and attributed most successful stakeholder alliances to the unique and dedicated efforts of the qualified

interns. Increasing the frequency of GC Council meetings would also prove fruitful in improving the intern-stakeholder relationships and maximize program development efforts.

By changing the campus selection process and working to contact stakeholders and administrators very early in the process the program was able to get everyone on board much earlier in the second year. Many campuses have an open door policy whereby the student interns can walk directly into campus administrator offices and gain their ear.

Recommendations Year 2

- **Continue the use of RA's**. All of the staff responses showed a high regard for the role of the residential advisors in making the program a success. By engaging this resource earlier in the year and inviting them to take part in the meeting the interns will be able to increase the EE awareness on campus.

- **Work as closely as possible with interns without losing their flexibility**. While none of the interns complained of having their sense of freedom and creativity curtailed in the second year program, members of the staff and even a few of the intern responses indicated that with more guidance and control they could get more done. As the program grows and the ASE/SEI staff sizes stay the same this will be a challenge to address but should be considered. The flexibility of the interns plays a huge part in the program success but with more control by the stakeholders or leads some of the interns might be able to function with more confidence and create more results in the future.

4.0 PROCESS EVALUATION / INTERNS

For the first year evaluation, a total of fourteen telephone interviews, taking up to an hour each, were conducted by SERA staff between July 28th and August 16th, 2005. For the second year evaluation, a total of nine telephone and email interviews were conducted by SERA staff between July 10th and August 28, 2006. Interns were asked questions regarding a wide variety of topics that would provide a description of the program and its operation, the administration of the Program, activities they implemented, and strength, weaknesses, and satisfaction with the program and its elements. This chapter presents the integrated findings from these interviews.

4.1 Intern Background and Program Roles

A critical aspect of the program design was to use student interns as program representatives to their peers on campus. Respondents were comprised of interns and programs coordinators, with at least one intern from each of the six California universities involved in the first year evaluation, and the nine universities involved in year two. Table 4-1 below shows the number of interns interviewed for each campus by year:

Table 4-1. Number of Interns Interviewed by Campus

Year		All Schools	CSU	CSUSB	HSU	SDSU	SSU	UCB	UCI	UCSB	UCSD
1	Number of Intern Names Provided	21	—	2	4	—	1	5	—	5	4
	Number of Interviews Completed	14	—	2	2	—	1	5	—	1	3
2	Number of Intern Names Provided	24	2	2	2	3	3	4	3	2	3
	Number of Interviews Completed	9	1	1	2	0	1	2	1	1	1

There was a broad range of involvement for Green Campus interns. Some had held their positions from the time of program implementation (May/June 2004) and some had only just been hired (January 2006). The average number of months that the interns had been with the program was about seven to eight. About half had held the position 5 months or less; another half had been with the program 9 months or more.

In the first year evaluation, one interviewee had held another role for Green Campus, working in a Washington D.C. office with education programs including Green Campus and Green Schools. Many of the first year participating interns held other positions in similar programs in their past. These included:

- Program assistant for a global environment theme house, an academic program for living in residence halls.
- Director of operations for environmental coalition for 1 year and work on progressive political campaigns.
- High school president of environmental club.

- Co-director of student organization on campus center for applied technology to teach folks how to live more sustainably; also with sustainable campus task force club on campus.
- Active in on-campus environmental club.
- Intern with Sierra Club for 6 months.

Most of the second year interns had not held other positions in the Program or similar positions with other programs. However, a couple had done so, including:

- Leadership roles in several other student organizations
- Internship at environmental organization in D.C.
- Environmentally geared and Sierra Club internships
- Community service in high school

These varieties of previous environmental experience reflect the informed position of the interns for the program at the select California universities.

Intern Roles and Responsibilities

Intern roles and responsibilities can feasibly vary quite a great deal. In the first year, an intern was hired early, and was responsible for many or all phases of design and delivery of programs on that campus; in both years, the interns interviewed may have just started recently, or may now represent one of several interns hired for that campus. Organization of the workload at each campus could also vary, but often depending on the individual's areas of strength. Roles, and familiarity with the various program elements could, therefore, vary dramatically. Also, beginning in the second year of the program, some of the campuses developed more of a hierarchy for reporting/contact with ASE purposes.

A vast majority of the interviewed interns both program years stated they were familiar with all areas of the program. In the first year of the program, two of the respondents stated that their familiarity with all aspects was due to being the only intern for some length of time. It was also common, however, for the program areas of coverage to be split up between interns. Therefore, not only did a familiarity with all aspects exist, but there was also more specialization of knowledge areas. Examples of specialization were:

- Working on the design, delivery and implementation,
- Working with the administration,
- Working with the residence halls on campus,
- Working directly with the student-body,
- Working on specific events/projects, and
- Working on publicity for programs and awareness.

4.2 Program Design

4.2.1 Goals & Assumptions

All the interns interviewed were asked to summarize the goals and objectives of the Green Campus program. Responses from the fifteen interviewed in the first year included:

- To promote, educate, and inform college students about energy awareness, use, efficiency, and conservation.
- To extend the programs influence to university faculty, staff, and surrounding communities.
- To encourage a change of behavior and reduce energy consumption.
- To affect campus policy regarding energy efficiency.
- To create more awareness with real time results in the immediate future, and long term results in people's way of thinking.
- To work toward long-term sustainability of the program on campus.
- To make energy efficiency and conservation institutionalized on the campuses and part of the mission.
- To explain the benefits of saving energy in environmental and monetary terms.
- To create the first steps toward a sustainable campus / state / country and ease the transition to future measures.
- To get students interested in taking an active role in conserving energy and looking at how their campus uses energy.

Responses from the nine interviewed the second year included:

- Demonstrate documented energy savings through innovative programs and working with administrators.
- Raise awareness and realize energy conservation on campus through education of students, staff, and faculty.
- Institutionalize energy savings and instigate retrofits and equipment changes.
- Implement energy education into the curriculum.

Those who were interns in both first year and the second year also said that the goals have changed between program years. While the first year was getting established and networking, the second year was geared more toward documenting and institutionalizing the energy savings. However, the overall message of saving energy has never changed.

A recurring underlying assumption according to the interns interviewed during the first program year was that student education about conservation is key. People need to be educated on changing behaviors and habits and creating less of an environmental impact on the world. They especially need to be educated on *why* they should *care* about energy conservation.

The first year interns interviewed felt that in the short term, energy is being wasted on campuses through careless behaviors, and there are savings and economic benefits that can be realized by educating people to improve energy behaviors. In the long term, if the program can create a lasting effect on students' thinking, it is a wise investment because they will be energy consumers for a long time to come. Education presents the opportunity to change many individuals' outlook beyond their academic career.

Second year interviewees felt that saving energy was the main issue being addressed. Campuses have not taken advantage of all the technologies available to save energy, and lowering peak demand and cutting costs were primary objectives. The program is a response to the energy crisis; it assumes that conservation is a necessary first step before exploring alternative energy sources, and therefore is designed to help the PUC meet the demand for energy without increasing the supply.

Other underlying assumptions behind the program included:

- Education is important – the major problem is the choices people make about their behavior and their lack of awareness of the effect.
- The universities' administrations have been unsuccessful in their attempts at increasing awareness and practice. Interns stated that Universities can initiate the dialogue about conservation, but do not go much further. Administrators do not always understand there is technology they could be using that would be cost effective. In addition, there is a lack of continuity between different campuses across the state.
- Universities are not using efficient energy sources.
- As a world leader in energy consumption, there is a need to get people informed.
- Over-consumption is rampant – people do not make the connection between what they use, where it comes from, and the consequences.
- Future negative impacts can be avoided by a change today.

4.2.2 Perceived Benefits of the Program to Campuses

The interns interviewed were asked what the apparent benefits were of the Green Campus program to their universities.

The main perceived benefits of the program in the first year included:

- Energy savings.
- Increased awareness and education to inspire behavioral changes.
- A real time cost reduction for energy on campus with tangible monetary savings.
- Helping students to be more active and responsible in their actions and helping make them more informed citizens of the world.

Other benefits mentioned included:

- Creates campus awareness of holistic view / approach to living / sustainability and being more aware of surroundings and impact on environment.
- For schools lacking environmental clubs or studies program, helped to fill a vacuum.
- Starting conservation activities at a young age has a lot of potential to make a big impact in their lives.
- Green Campus will leave a long term legacy for the universities.
- Creates a cultural shift – makes caring about the environment a more mainstream interest.
- Green Campus helps get things done that otherwise would be neglected.
- Sets a framework for the future – it provides a starting point and a lot of momentum for other environmental causes to build on.

The main perceived benefits of the program in the second year included:

- Energy/monetary savings.
- Encourages cultivation of sustainable living habits and making such behavior more mainstream.
- Fast return on investment.
- Fostering understanding between administration and facilities, addressing the disconnect between the staff on campus and bringing actors together.

- Helping to build an aware community and elevating the schools' image.
- Implementation of programs and projects that arguably may never have been attempted without the Green Campus Program's support/encouragement.

Many of the interviewed interns felt that the structure of the university setting made them conducive to creating conservation behaviors. Interns noted that:

- University campuses are often viewed as progressively minded, activist communities.
- University administration and staff are supportive, and buildings are centrally located.
- Residence halls on campus make for a large captive audience.
- Some stated that while universities may have had recycling in place, anything additional was absent.
- The atmosphere is favorable to changing the culture and setting a framework to make programs more sustainable.
- Faculty and administration are noting other campuses going green, hiring sustainability coordinators, and reacting to the Green Campus name.

However, the campus atmosphere can also have obstacles to the delivery of program services. Interns noted obstacles including:

- Some campuses have so much environmental activism already that people start tuning-out the call for action.
- There seems to be lots of talk but not much commitment by administration to implement policies (mentioned in first year only).
- Interns have support for what they want to do, but the administration does not follow through (mentioned in first year only).
- Not many students know or care about energy or sustainability (particularly at SSU Sonoma); kids have no connection with the area and come from "wealthy" backgrounds- so presumably no reason to be concerned with the monetary benefits.
- Some campuses (such as CSUSB San Bernardino) are "commuter colleges" without a big residential population, so it is difficult getting people interested.
- There isn't necessarily an already built-in atmosphere of being aware of the issues at some campuses; not as environmentally conscious as others.

On a personal level for the interns involved in the first program year, they noted that the Green Campus program helped them to develop professionalism and an ability to bring about change.

4.2.3 Program Design

A goal for a program like Green Campus is to have far reaching influence. However, in order to achieve this influence, the program recognized that efforts and cooperation would be needed from a number of actors. Interns were asked about the important market actors relevant to delivering Green Campus program, and their list included:

- Students and student volunteers,
- Residence assistants, resident sustainability coordinators, and housing & dining,
- Administration, faculty, campus housing department, the physical plant personnel, facilities management,
- Sustainability / energy/ environmental coordinators and departments, and

- Other Green Campus interns, surrounding community (regional energy offices), some vendors.

According to the interviewees, there are many ways in which the Green Campus program attempts to influence / educate students and stakeholders / actors regarding energy efficiency behaviors. For first year interns, these included:

- Events: competitions, raffles, concerts, workshops/seminars/lectures, presentations, give-a-ways.
- Media: websites, brochures, flyers/posters, email, table tents, stickers, newsletters, films.
- Other: pledges, information tables, field trips, audits, classes, displays of energy efficient dorm rooms, policy recommendations, making the "business" case to administrations for more efficiency, partnerships with other like-minded groups/organizations.

For second year interns, the following were mentioned:

- Meetings: coalition meetings, stakeholder meetings, regular Green Campus staff meetings, and one on one conversations with students and administration.
- Passive means and giveaways: emails, posters, flyers, tabling, t-shirts, stickers, etc.
- Events, showcasing, and communication with on-campus newspapers.

Innovative Intern-Led Design

Although there were general categories of activities to influence students and stakeholders, key to Green Campus is "intern-led" design aspect of the program. This was perceived to allow for campus specialization – to allow needed flexibility for variations in campuses and their "constituencies" – as well as providing a method of encouraging creativity from the interns. Interns had the flexibility, empowerment, and freedom to adapt the program to their particular campus in such a way as to create maximum effect. In other words, students were given the chance to decide what was most important for them, rather than having to follow the preferences of someone else (unaffiliated with the university or student body). This was crucial because students, as "clients of the university," have access to administrators and faculty that outside interests probably would not have. This ability to pressure administrations was not the only advantage either. Student interns are also more in-tuned to the student body as a whole. They relate to each other more and are better barometers of the attitudes of their peers. The interviews showed the interns recognized and appreciated the significance of this key program design feature. A final critical aspect of the intern arrangement was the fact that it was a *paid* position. Some interns felt that it gave them the opportunity to be involved where they might not have been able to otherwise (due to the need of income while in school) and it made those in the position take the job a little more seriously than might be the case otherwise.

Other program innovations cited by the first year interns included:

- Organization of the program: a structure that allows for creativity and change, open lines of communication, mentor groups, budget allowance, the credibility and support given by working with the two non-profits (SEI & ASE).
- A drive to set standards for institutionalizing environmental awareness and conservation.
- Creative campus events to increase awareness.

- Emphasis and encouragement to examine measurable results (i.e. from "Blackout Battle," and CFL exchange).
- Encouraging and making in-roads to the campus curriculum (including Energy 101 class and other examples).

While second year interns stated the following:

- The focus on energy- narrowed in on one issue yet allows several means to achieve the goals.
- Good hybrid of having students (who can be more effective) and having the budget (from an established organization) to follow-up.
- Interface/ interactions between interns and administration, faculty, staff, etc.
- Incorporating classes into the curriculum– rarely done by other groups.
- Individual design; the program can be tailored to each campus's needs.

4.2.1 Feedback on Program Design

Year 1

The interns interviewed had a great deal to say about how satisfied they were with the current (at the time of the first survey) program design. Overall, the interns interviewed are very satisfied, giving the program an average letter grade of A/B, or saying it deserves a score of 8.5 out of 10.

The interns were asked what they perceived as strengths of the program design. According to interns, strengths included:

- Flexibility and adaptability of the program according to each school.
- Interns had the freedom and power to tailor campus-specific approaches.
- Student driven, many appreciated the ability to be creative in their outreach.

The interns also greatly appreciated the Green Campus administrative staff. They said all four supervisors were knowledgeable, approachable, and quick to respond. The supervisors were a valuable basis of support for the interns. They noted this improved over time as roles between the program staff and contractors were clarified.

Other program strengths were:

- The combination of education and awareness.
- It is a legitimate statewide program with funding.
- Increased time management and organization skills.
- Good budget.
- Mid-year and end of year conferences.
- Communication (and support) between campus / Green Campus Admin, and campus / campus.

However, they suggested several changes to the program:

- An expansion of the program from "just" energy to other causes (water, environment, green building, etc.).[10]
- An expansion of the universities involved (this was being accomplished as the interviews were taking place, and the program has now expanded to more campuses).
- An expansion beyond residence halls to the campus at large.

Year 2

Almost all of the second year interns interviewed were very satisfied overall with the program design. One intern felt satisfaction had increased from moderate to well please over the course of the year. Another said that satisfaction came from the effect of the program on the individual's personal experience, but as far as effectiveness on campus it was "hard to say." Those returning from the first year said that they were *more* satisfied than the previous year, saying that "as the program 'matures' it gets better," and that working with the program more has created more of a stake in the success of it for the interns.

Strengths of the program design according to second year interns were similar to the first year, but also included:

- Ability to expand to other campuses, even some including community colleges, etc.
- Establishing effective training and the means to pass on knowledge from past interns.
- Constant feedback and connection; able to keep in touch and aware through project spaces, meetings, etc.
- Self-directed and structured but allows for flexibility; have done really well in adapting program goals to each campus, individual design is allowed and encouraged.
- The use of students who can do more and say more without "political" repercussions; can make a difference more quickly because they are "outside" of the system.
- Paid intern position, not sure a volunteer would gather as much interest.
- Program is becoming more replicable due to solidifying aspects and the ability to see all levels of involvement and action.

However, concerns with the program existed as well. Some of the concerns centered on training for the interns. The second year interns felt that there was a lack of "specific proper training" and that there needed to be a method of passing on the knowledge from the previous set of interns.

Other suggestions included:

- Reimbursements are hard; one intern said "I am glad that we are switching back to cards to use for payment; I liked the set up of the budget sheets last year."
- Ideas are sometimes rather ambitious, and holding interns responsible for student interest "might not be so helpful," especially for the schools were students are more apathetic.

[10] These other environmental / resource causes are considered; however, given that the program's funding derives from energy and gas utilities, energy is the core / primary focus of the program. Expansion to provide greater emphasis on the broader resource issues may depend on the support and desires of the program funders.

- Prescribed hours could prove challenging: limited hours to share, plus hours fluctuate during the semester, “but locked in to 40;” would be nice if more hours were available or distributed differently/more flexibly.

Finally, there were a couple of conflicting comments about having more guidance. Some interns felt that more guidance and contact from ASE & SEI would be beneficial; templates might be useful, as would be an explanation of processes relating to leadership and how to manage the money and budget. However, others felt that caution needed to be taken when recommending all the same activities to every campus; the danger being that “making it easier can stifle creativity,” and it would be unfortunate for the ideas that currently work to come at the expense of fresh ideas. Nevertheless, one returning intern stated, “I feel like most of the complaints I would’ve had a year ago have been ironed out.”

4.3 Program Administration and Communication

Interns were asked a number of questions to gather feedback on program administration issues.

4.3.1 Program Administration

Interns are asked to perform a number of duties on their campus, and the list of those most commonly mentioned includes:

- Serve as spokesperson for campus sustainability and student outreach.
- Promote efficiency, conservation, and other Green Campus goals.
- Provide education and inspire change.

In addition to these key assignments, interns also stated that they are responsible for general administrative duties including:

- Prepare newsletters as project updates.
- Participate in conference calls.
- Submit timesheets, action plans, and task sheets.
- Keep track of budget, accounting, and receipts.
- Monitor program and scope of work follow through.
- Distribute (evaluation-related and other) surveys.

Compliance with these activities was ensured through requirements of deliverables such as newsletters, goal/objective sheets, attendance at regularly scheduled phone calls and meetings, and submittal of meeting minutes. The meetings included conference calls, beginning of the year planning, mid-year check-in, and end of year follow-up meetings. The interns are held accountable for all of this, and receive e-mail reminders, calls, and on-site visits to help monitor compliance. This was considered a weak area in the early stages of the program, but several interns noted this communication and feedback loop had improved with the delegation of roles between ASE and the contractor (at time of survey).

The reporting process mainly involved monthly newsletters, conference calls, and submittal of meeting minutes. Interns also had to provide budgets at the first of the month. Most of the interviewed interns felt the reporting process happened on a timely basis. Although, some of the program administrators felt it occasionally fell through (such as during finals). The interns, for their part felt that the only exceptions regarding timely feedback seemed to have been if the

administrators (SEI or ASE) were traveling, or if the original question posed was of less significance. In the second year, the designation of one intern as the "lead" or "point person" was also instituted, which seemed to help with designating and monitoring as well.

In the first year, arranging payment for program materials has proved challenging for interns; however, those procedures had changed just before the interviews were conducted, and most interns seemed to feel the changes represented a good improvement.

4.3.2 Technical Advisory Council

Another part of the program administration involved the use of Technical Advisory Councils. The core campus decision-makers who determine program involvement are the interns, but they need the support of many other actors. The other decision-makers include Green Campus project managers and associates to Campus administration, such as the resident-life and housing directors, and facility and energy managers. These actors have roles in helping facilitate and implement program activities, and the program design suggested their involvement and input through formation of campus Technical Advisory Councils.

According to the interns interviewed, it seems to be unclear as to when the Technical Advisory Council(s) (TAC) on the various campuses are supposed to meet during the first program year. When questioned about how often the meetings are scheduled, answers ranged from twice a year to a couple of times a quarter, and the majority said they had not attended any. However, during the second year, a meeting once a semester was the norm. Some interns noted that the formal TAC was attempted, but that the organization did not turn out to be an effective way to work on the program. Many used subsets of the potential TAC members as their sounding and approval board, facilitating constant communication between the interns and advisory board.

For those who had organized and attended TAC meetings, they felt the TAC's role was to support those involved in the Green Campus program. It provides a forum for ideas, initiatives, advice, guidance, and feedback for interns, students, staff, and administration. The TAC makes sure that the program is on the right track and serves as a springboard for networking and delegating tasks, as well as providing valuable feedback and insight into implementation.

The biggest success of the TAC according to the responses in the first year is the general accomplishment of building good connections on campus. Interns are able to get noticed and reach the administration and staff with which they will constantly be working to improve conservation on campus. Good connections have led to other accomplishments such as increased inspiration and opened up resource opportunities. It was felt that in the second year there had been an improvement in general communication, and that the interns and faculty felt more comfortable working with one another.

While overall, TAC seemed to be effective, suggested improvements to TAC were:

- Improved definition of the roles of the group.
- More and better-structured meetings.
- More follow-through and communication.
- Continued attendance by the members involved.

According to returning interns, the TAC has gotten better and more focused in the second year compared with the first program year.

4.3.3 Training for Interns

Year 1

According to one person, the original six interns had an orientation and received training about the program. There were also workshops (marketing, program planning) that they could attend. However, according to most of the interns that were interviewed, training seemed to have been limited for the Green Campus program. When asked about training, several interns paused for quite a while before saying that there was "pretty much no training." Several others also noted that training was minimal if existent. Some said there was training regarding some administration duties, especially timesheets, but more of an overall endeavor would have been helpful. Several mentioned that the mid-year and end-of-year conferences were beneficial, as well as some brief training on Energy-Star®.

Unfortunately (although only in this context), because of the need for new interns all the time, interns noted that it is difficult to get a plan set up that gets them formal training and brings them up to speed. As one element, several interns suggested that to help educate new interns, having a manual or binder on each campus with all of the general information and history of the program for reference at any time would be helpful. Others noted the web site provided some assistance; many noted communication with other interns seemed to be one of the most important elements of training.

However, several interns noted a significant improvement in the organization of the program over time, with greater communication and clearer requirements, and these changes were helping them understand and become better grounded in the program and expectations. In addition, others noted that the interns were supposed to be active "self starters", and that for interns that will ultimately be successful, comprehensive training may not be the only or best way of familiarizing interns with the program.

Training is one aspect of learning about the program; however, other activities that interns mentioned had helped them in learning about the program included:

- Collaborating with other organizations.
- Planning, scheduling, budgeting, and contacting vendors and administration, and other administrative activities.
- Assistance provided on time management skills.
- Working directly on program design and implementation, particularly with others.

Most of the interns interviewed participated in campus program meetings. Several noted that they most often had one-on-one meetings. All but two of those that attended the meetings felt that they were effective, productive, and generated good ideas. The overall feeling was that, as long as everyone was able to get together, and there was an efficient agenda, the meetings went well and were informative. However, it was difficult to find a time available in everyone's schedules, and without direction, the meetings were more talk and less discussion.

A few of the interviewed interns said they basically just had one-on-one consultations. Those in the previous group also had one-on-one meetings. The general sentiment was that it was easier to accomplish more in these individual sessions, because there was a direct line of communication and a targeted goal. However, the end-of-year program group meeting was also considered productive.

All but one of the interviewed interns had participated in a multi-campus program meeting. Most commonly they had attended the mid-year and end-of-year meetings. The general consensus was that the meetings were great for being able to get acquainted and interact with other interns. It was also felt that the meetings were effective in helping to enlighten participants and create ideas. Some of the interns felt a little rushed in the presentations for each school, which in turn made them feel like the information received was limited and not all that was possible. This was particularly true for the mid-year meeting, which participants felt was more formal in composition than the casual end of year arrangement.

Year 2

Fewer interns interviewed in the second year of the program said that they had received "no training." The mid-year meeting was mentioned as providing some training, and some had been trained by the previous interns or were able to reference the "handbook." However, many still felt that training was a weakness of the program. A few were left to "learn on the fly" or by hands on experience, and at least one handbook was still being drafted (and therefore not very much help).

Many of the second year interns had participated in campus program meetings. It was common for there to have been meetings between the Green Campus staff on a weekly basis, and also to have regular meetings with important campus actors. It was also ordinary for interns to meeting with individuals as well, depending on the project. Those who had participated in these type of meetings felt that they were very effective. As with the first year, the only limitation seemed to be time availability for staff and faculty. Those who had not participated in campus program meetings said that the newsletters and email communication had kept them well connected, but they had heard that the meetings were successful.

All of the interns interviewed in the second program year had attended at least one of the multi-campus meetings; most had attended both the mid- and end-year meetings. The meetings are always appreciated for facilitating interactions between interns from all the involved campuses. The training provided at the mid- and end-year meetings was also valuable. There were some conflicting feelings about which meeting was more effective. One intern felt that the end-year meeting went better, there was more time put into planning it; while another said that they got more our of the mid-year meeting and the end-year meeting felt rushed and repetitive. Overall, the meetings are considered well organized and constructive.

4.3.4 Program Communication

According to the interns interviewed both program years, the most common types of communication that occurred among campus implementers/ stakeholders and ASE included:

- Conference calls,
- E-mails,
- Meetings,

- On-site visits, and
- On-line sharing through “Project Spaces”.

Green Campus encourages these forms of communication, and requires participation from interns. Correspondingly, interns feel that the communication is helpful and has a positive effect. In the first year, recent and continuing improvements to communications were planned and being implemented as the interviews took place. Some of these changes in communication / interaction included:

- Set-up of working groups on each campus to accomplish assignments.
- Move program wide calls to once a month.
- Encourage more in-depth communication among interns.
- Make campus visits about once every six weeks with both SEI and ASE staff.
- Increase program-wide gatherings.

These were viewed as positive changes by the interns.

By the second year, the interns felt that the only thing that seemed to be lagging was communication between campuses. According to the interns, despite encouragement from ASE, there was little communication between participating campuses other than the multi-campus convened meetings. The online forum was available, and proved effective for some campuses, but another said that they were all so busy that the site rarely got checked.

When questioned if interns or implementers had been convened as a group, most of the interns interviewed restated the conference calls and mid-year and end-of-year meetings. Others mentioned that each campus had specific meetings, which occurred at a frequency of about once a week to once a semester. These were not only program meetings, but also advisory council and club group meetings.

4.3.5 Feedback on Administration

According to the interviewed interns, there is much that has worked well in implementation, as well as some things that could use improvement. Many of the aspects that worked particularly well in the first year involved communication. These include:

- Conference calls,
- E-mails,
- Meetings, both group and one on one,
- Ability to share ideas, and
- Accessibility of Andy Coghlan and Steve Miller.

In the second year, aspects that worked well included:

- o Meetings and conference calls,
- o Team dynamic: tasks for everyone that play to strengths, assignments reinforced by meeting minutes,

However, help with marketing was a request made more than once during the interview process, and one school mentioned that a “more structured use of the ‘Team Leader’ might be helpful.”

Interns had a variety of comments related to program administration. These included:

- They enjoy that each campus is somewhat autonomous but coordinated with the rest.
- The four supervisors help out interns on each campus, but interns have the room to bring in their own ideas, and there is lots of support.
- Andy Coghlan (ASE Coordinator) does a good job of being available when they need him without "micro managing" too much.

Many of the interns interviewed mentioned that the beginning of the first year had been a little rough, due to high turnover and confusion between the roles of ASE and SEI. Some also felt that SEI had little input and had not been very involved. However, all the relationships have improved according to the interviewees. Steve took the lead for SEI and brought it more into contact with the interns, and Andy Coghlan has been approachable and easy to work with. The roles are continually evolving, and ASE and SEI have begun working more closely together, which has improved support and helped interns overall.

The first year interns stated that they "were getting the structure, organization, and planning down- finding what works and what doesn't." They indicated that the organization was tougher to understand in the beginning, but now the roles became more defined. Recent changes seemed to indicate the program "…seems to be moving in the right direction."

There seems to be general satisfaction, but interns suggested several possible areas for improvement during the first year:

- Additional background information for the interns, not only on the program itself, but also on the energy efficiency and conservation measures that it promotes.
- Organization on the individual campus scale could be improved, possibly with more defined roles and more direction.
- Streamlining the time-consuming administration and paperwork.
- Interns suggested improvements to the website.
- Program implementation (PIPs) could be improved. Every on-campus deliverable is supposed to take place in 1st year, but can only expect interns to grow in the 2nd year. This impeded progress, with interns scrambling to meet program deliverables that are not important.
- The system for finance tracking and ability for interns to use funding/cash resource needed improvement – interns wanted an easy to understand, decisive method for distributing money. (A revised system was just being implemented when these interviews were being conducted).
- On the project conference calls, it can be hard to listen to all the summaries and get much out of them. And at individual campus meetings, not everyone shows up, limiting the ability to share information.

In addition, turnover – a natural part of a program that depends on student interns, complicated matters somewhat. First year interns noted that:

- Fewer turnovers and less lag time in contact with Green Campus Administrators would be beneficial. Intern graduation and turnover loses knowledge on programs, administration, etc.
- The structure with "…6 different mini programs and 2 agencies…" makes the program complicated, a situation that is exacerbated by turnover.

In the second year, intern turnover and lack of passing on information/training continued to be a problem.

4.4 Program Delivery, Implementation, and Monitoring

4.4.1 Program Activities and Curricula Implemented

One of the main aspects of the Green Campus program was creating activities and events to help address the above-mentioned issues. The interns interviewed listed the following actions:

- CFL bulb exchanges & give-a-ways.
- "Blackout Battles," competitions between dorms on who can decrease their light usage the most.
- Providing incentives for students demonstrating conscientious behaviors.
- Awareness days: At these events, interns passed out CFLs, displayed hybrid cars, sponsored a visit from the Edison Energy Star® Bus, and served lunch and distributed raffle prizes. They also passed out education and Energy Star® pamphlets plus their own pamphlets.
- Energy Star® product list: The interns created a list of Energy Star® products that dorms, students, and residents usually use (televisions, DVD players, cordless phones, etc.). To create the flyer, the interns researched where they could get them close to campus.
- Eco-Trivia: The trivia game competition included environmental questions on energy efficiency.
- Green Campus end of year luau: The interns teamed up with the visual arts department on campus and did "Pull-the-Plug" competition. In addition, Redbull® came out in support, and the energy trivia game was also used at the event.

Some campuses also implemented or worked to establish other events last year, including:

- Energy Competitions,
- Council meetings,
- Car-free Day,
- Earth Day participation,
- Movie night, and
- Sustainable living arts and music festival.

Second year additions included:

- Scavenger hunts
- "Cal-a-palooza" and other welcome week presentations, tours, etc.
- Energy "Ninja" or "Power Patrols"
- Additional lectures, seminars, and film series
- Green Rooms or Green Apartments
- Fumehood campaigns
- Environmental Expo- community focused event
- Energy Limbo

When asked about activities planned for the second year, the interns interviewed the first year mentioned ones already undertaken – or activities that had been developed and implemented at other campuses but not theirs – but added new ones as well. These expanded activities included the following:

- Housing event called "Power House" for incoming freshmen
- Green Campus "Take the Stairs" Day.
- Energy "tune-ups" in dorms and apartments.
- Appliance exchange.
- "Phantom Load" event on Halloween.
- Organize movie nights in residence halls.
- Campus-wide energy competition for dorms.
- Classes.
- Take part in Energy Awareness Day and Earth Day.
- Car-free Day.
- Sustainable living music festival.

For the second year interns, future planned new activities included:

- Get involved with lighting technology on campus
- Expand education outside of "just the dorms," and expand competitions to include departments
- Work on website
- Pair with outside groups: technology high school students and engineering students to help with energy audits; also help with community audits
- Replace more equipment around campus: paper towels with hand driers, non-efficient with Energy Star®, etc.
- Panel at annual conference

Energy Curriculum

Interns thought it was important for the Green Campus program to establish its own contributions to the university curriculum. Interns from four of the participating universities in the first year said they had indeed been able to establish energy academic programs on their campuses. These are listed in Table 4-2.

Table 4-2. Curricula Established by Green Campus Interns

Campus	Curriculum	Program Description / Feedback
Berkeley	Energy 101 course	• Evaluations and feedback indicate it was successful; continuing
Berkeley	DECAL Program	• 2 unit course on energy – projects and education on energy and impacts of energy • Program went very well – did in-room energy audits, lighting surveys of different campus buildings (11 most energy using buildings), lighting surveys of common areas working with energy manager on campus, and presentations to staff in 11 buildings
Humboldt	Energy class (1 credit)	• 1 unit class that was based on energy conservation • Created around an energy competition between dorms: monitored usage for 1 month as baseline and compared reduction over the next 2 months, whoever reduced most won a prize • Class talked about metering and energy conservation; very hands on

Campus	Curriculum	Program Description / Feedback
Humboldt	LEED courses planned	• Planning another class for this coming fall dealing with LEED buildings by inviting guest lecturers • Hope to add a 3-4 unit class to certify a LEED building • Coming up: lecture series on green building, including LEED and other green building topics
Santa Barbara	Environmental Services Learning Program (ESLP)	• Program with guest lecturers, etc.

In addition, Sonoma established an Energy Exchange club, consisting of interested students and faculty. The club status offers members the ability to rent tables and attend events. They also organized a presentation for incoming residence assistants (other campuses may have conducted similar RA training).

The second year saw fewer establishments of energy classes, although still a continuation of lecture series. UCB continued their Energy 101 class and felt it was successful. SSU found that the CSAs on their campus had to do education in the dorms anyway, so that worked out to be a good symbiotic relationship. HSU, UCB, and CSU had some form of education series that looked at LEED building. And looking toward the future, UCSB would like to establish an energy education curriculum for a class; HSU is considering doing a class on energy auditing; and UCSD is thinking about trying to do a freshman seminar 1 unit course.

4.4.2 Fielding the Program

For the most part first year interviewees felt that the planned delivery procedures of the program worked well in the field. Limitations were:

- Activities took more preparation and implementation than expected.
- Complications and issues reading meters and getting appropriate data arose.
- Measurement was sometimes impossible to come by.
- There were cases of surplus of CFLs from exchange schemes.

However, interns were pleased overall of the delivery procedures, stating that they "worked better than expected," and were "more successful than envisioned."

The program delivery component most commonly mentioned was outreach. Many of the interns interviewed felt that the program outreach had been the most successful element. Other aspects that worked well included advertising, marketing, publicity, and classes.

Second year inters felt that the program had good solid plans and was good at adapting to changes to create successful activities/projects. Two things mentioned were that outreach and promotion could be improved and that a need exists to take a more active rather than a passive approach (depending only on advertising, etc.)

The interns interviewed named a variety of people that they worked with to deliver the program in both years. These included:

- Other interns,
- Administration, staff and department chairs,
- Housing and facilities directors, building and dinning managers,

- Associated student body councils,
- Resident Hall Advisors, and
- Students.

In some cases, campus actors also provided some of the hurdles that the interns ran across. In the first year, some of the administration was un-helpful, and one intern said a housing director was particularly uncooperative. Other barriers they ran into during the process were:

- Difficulty in getting started / established.
- Difficulty in connecting with the right people.
- Not enough manpower.
- Time frame issues/ time constraints.

Barriers for the second year were not so much individuals, but more general issues such as:

- "Sheer bureaucracy:" the need to get several signatures for one action item
- "Behind the scenes actors:" with no knowledge of who they are
- Scheduling: difficult to find time when all campus actors are available to meet

According to the interviews, the Green Campus program was able to team with other efficiency programs at various phases of delivering the program. They recognized potential benefits from networking for ideas and support, and leveraging program efforts and volunteers. Groups they worked with included:

- A variety of campus clubs (e.g. eco/environmental & recycling).
- Local utilities (e.g. Southern California Edison).
- Community-wide organizations (e.g. San Diego Regional Energy Office).
- Nation-wide organizations (e.g. Green Peace).

Other partnerships were formed with associations. Those mentioned several times were:

- California Student Sustainable Coalition (CSSC).
- Leadership in Energy and Environmental Design (LEED).
- Chancellor's Advisory Committee on Sustainability (CACS).
- Environmentally Preferable Products (EPP).
- Center for Environmental and Economical Development (CEED).
- Campus Center for Applied Technology (CCAT).
- Sustainable Campus Task Force (SCTS).

The interviewees had mixed feelings about affiliations with the entities mentioned. Some worked well, people were excited about what they were doing and happy to offer expertise and opinions. However, sometimes collaboration was infrequent, or it was difficult to coordinate with everyone. There were also some clubs that were "loosely knit and disorganized," which limited relationship development.

In the second year, interns were again able to team up with other organizations and individuals. These included:

- Environmental clubs and organizations on campus
- Campus sustainability coordinators and resident student sustainability groups
- Community environmental groups

Second year associations included some from the first year (CCAT, CEED) but interns also worked with:

- Education for Sustainable Living Program (ESLP)
- Redwood Coast Energy Authority
- Green Schools
- Energy Star
- Environmental Action and Resource Center / Environmental Action Council

4.4.3 Impact Tracking and Monitoring

According to the interviewed first year interns, the general response at the UC campuses has been positive. Administrators who were skeptical or showed little interest at first were won-over and became supportive of the program. The administrators felt it was good for public relations (PR) and saved the campuses money, and so had a positive effect overall. Students who were aware also felt that it was a positive and beneficial program. The Green Campus program helped to create interest in efficiency and conservation on campuses and in the student body.

The second year interns interviewed again stated that the administrations at their respective schools were very supportive and excited to have the Green Campus Program. This is especially the case since the program provided savings, reliable measurements, and valuable information. One intern said that "some stakeholders say that Green Campus has brought them together in an active way." While the interns think that the campus community's reception has been positive on the whole, getting students interested still represents a challenge.

However, in order to declare a program successful, measurement is needed to see if goals and objectives are achieved. For Green Campus, interns listed a number of tools used to assess the program (See Table 4-3).

Table 4-3. Types of Measurement Activities Undertaken by Interns in Both Program Years

Indicator	Measurement Activities
Determining progress in energy reduction, savings, and cost reduction from program activities	• Baseline energy data from residence halls, electricity consumption changes- kWh change • Humboldt in particular used change in kWh to see how much energy was saved by baseline comparisons; they created a spreadsheet of carbon, CO_2, and emissions averted; barrels of crude oil avoided; equivalents of trees saved; and cars removed from the road. • Measurement from one activity: "take the stairs day" in one administrative building included interns sitting adjacent to the elevator and stairs on the same day of week to measure baseline and avoided trips. • Comparing energy usage in "Blackout Battle" / resident hall competitions. • Counting incandescent bulbs turned in for CFLs in a CFL exchange, and computing kWh savings • Looking to work with the laundry facility to track and measure energy use
Tracking awareness and the number of students reached	• Number of attendees at meetings, classes, events • Number of supporters • Number of completed surveys and questionnaires • Number of people who do tours of the "Green Rooms" • Number of pledges from activities • Number of RAs involved in training to education the student residents

Second year students did similar measurement activities, and also mentioned they would like to do more focus groups and surveys.

Students also worked to publicize the results of their measurement work. They created websites and online illustrations that showed the beginning electricity consumption and the savings after program implementation.

The first year interns interviewed had much to say about possible monitoring options to determine the success of activities implemented on the UC campuses. The monitoring would reflect the program's efforts on campus concerning change of behavior. Planned and suggested techniques included:

- Baseline measures, finding energy use from last year and compare to new year.
- Energy Star® portfolio manager tool, which supports kWh savings estimation to provide better numbers on energy use and stronger baselines.
- Direct tracking of kWh usage with meters or records.
- Monitoring light bulb returns / switches and energy pledges.
- Tracking monetary savings.
- Tracking attendance at events.
- Evaluation surveys both pre and post evaluation, which are helpful to help identify how effective program efforts were.
- Focus groups, get information on demographics, beliefs and behaviors.
- Opinion surveys from target groups of students and staff.

Second year interns focused more on metering energy use, but also said that they would like to see expansion in the current areas of monitoring.

Discussions about monitoring revealed the following sentiments in the first year interns interviewed:

- There is not enough money to buy meters to do better measurement for the buildings, and this was mentioned several times. On some campuses, there was a move to work with some housing directors and energy managers on campus to purchase meters using Green Campus money to make competitions more accurate.
- There is very limited (or no) information on energy use in campus buildings. In general, interns do not know how efficient the buildings are or how improvement can be quantified.
- There is a desire to get email address when doing energy pledges.
- End of year feedback on how beneficial the program was for residents was nice to have.
- Some would like to hire an intern for marketing specifically to help identify how effective are they at reaching people.

There was only mention of one monitoring project's difficulty for the second year interns. This revolved around the individual in charge of metering for the campus; the interns had a hard time coordinating with him and getting the project off the ground.

There was a tracking survey provided during the first and second program years (results are summarized in the next chapter). These surveys, provided by the evaluation consultant, were

designed to provide feedback from students on the impact and influence of the program on each campus. Interns were very interested in feedback and evaluation on the Green Campus efforts. However, they noted that the survey came at inconvenient times for distribution, and the survey was too long and complex to encourage response by busy students.

4.4.4 Feedback on Implementation and Activities

Overall, interns were satisfied with the program, stating that "… the student led campaign model was a good idea; it let them try out what they thought might work best / "personalize" the program." First year interns were very pleased with:

- Freedom of creativity and flexibility of work.
- People with whom they worked, other interns and more.
- Bringing awareness to the campuses.
- Good experience, rewarding work, exciting to be involved in the process.
- Builds a coalition on campus.
- Great opportunity for students to participate and get real-world experience.

Second year interns liked the following aspects of the program:

- Exposure- not only to information, but also to all the people involved
- Ability to work with a lot of passionate, talented, and innovative people; success in building useful relationships
- It has been a really good learning experience for interns on a personal level: freedom/ self-directed, challenging, eye opening, and has helped them to develop skills- writing, organization, excel, evaluating, etc.
- Ability to come up with the ideas and be able to implement them- have the resources and connections to do so

The implementation and coordination experience led to several "lessons" or suggestions from the first year experience as well. These included:

- Additional collaboration / coordination / communication: Several interns suggested that the delivery of programs in the first year might not have been as organized as it could have been. They suggested additional links to other campuses- a website or general area to post documents, and have forums or discussions on line, and learn about successes elsewhere. They also thought that more structure could lead to more collaboration between campuses, increasing productivity and efficiency. They felt this communication would help identify what is successful, circulate that information, and then try new things. Several suggested continued work on communication and information, especially to "get interns up to speed" and decrease the risk of repeating mistakes.

- On-campus concerns: On a few campuses, there were some problems with interns not following through on their responsibilities, and a lack of accountability to highlight that. A few thought there was a need for clear organization / division of labor for interns, and some suggested assignment of a "head intern" in those cases.[11] Other campuses felt that the lack of an office on campus makes centralization difficult. Some noted that it could be a struggle sometimes to balance the workload, and at

[11] Presumably, this could be accomplished within the current structure, if needed.

times, the timing of the work was difficult to fit in, especially around mid-terms and finals.

- Organizational issues: A few noted difficulty with Green Campus administration in the beginning, and a lack of policy check-ups / follow through from program staff. This feedback loop tended to improve over time, with much more positive comments related to the last few months than the early months of the program.

Other comments included the fact that the evaluation survey supplied by the evaluation contractor (SERA) was perceived to be too wordy and long. The detailed evaluation surveys the interns were asked to distribute and collect were point of contention, because of the length and because the timing interfered with exams on some campuses. In addition, student interns suggested that they would have preferred a less limited focus for the program activities – expanding to services beyond energy, as "… there are other important environmental issues."

The issues above that were brought up during the first year of the program were addressed during the second year. However, according to the interns, there were still a few things to be resolved. Program-wise this ranged from budgeting and expenses, to a lack of training (interns believe that it is important to have overlap, which doesn't always work out). While some interns felt that the self-directed nature of the program was positive, others felt that it made it details of planning difficult. Other specific complaints included: frustration because the administration does not really pay a large amount of attention- they have to try hard to get people motivated at some of the campus; and, "restraints given by the grant about discussing renewable energy and funding renewable projects has been frustrating at times."

4.5 The Future of the Green Campus Program

The fifteen interns interviewed in the first year were asked what they saw for the future of the Green Campus program, and what, if anything, might affect future program development. The general feeling was hope for the program to continue into the future. They also foresaw the program:

- Leaving a lasting impression as it gains more recognition and creates savings for the UC campuses.
- Continuing to fill the need for student outreach increasing awareness of efficiency and conservation.
- Getting more involved with administrators and resident housing to create some type of permanent arrangement.
- Expanding to other campuses.
- Cooperating more with other sustainability groups.
- Changing policies, going into more concrete things that stay after students leave.
- Having a full-time staff.
- Creating a more sustainable program.
- Increasing ways of measuring success.
- Applying for LEED certifications.

Second year interns had similar outlooks, such as an expansion to more UC schools, but also mentioned the following hopes for the future of the program:

- Expansion on campus and "becoming a more important impetus for change."
- Hope that it becomes self-perpetuating, so that even if the grant stops coming the projects they have been working on become self-sustaining/institutionalized.
- Will definitely grow, raise awareness, and gain more recognition.
- Will develop and expand to become a permanent asset of campus sustainability efforts.

Interns were also asked for feedback on factors that might negatively affect future program development or expansion. Topics mentioned the first year included:

- Lack of grants/funding would affect progress.
- If the organizational structure collapsed, program progress would be hindered.
- Retaining the number and quality of interns, and keeping up intern motivation can be challenging, as well as finding interns to carry on the process.
- Inability to get other students involved would affect progress.
- Concerns about campus administrative turn-over, which may bring in someone unconcerned with the value of the program or student input.
- Increased capacity may decrease effectiveness of program efforts (diminishing returns).

Most important to the first year interns was the fear of a lack of grant funding. Some of the interns were worried that without financial backing, the commitment level for the program may decline.

Second year interns added a concern that funding by the schools (if not available from outside) would put the project "under" the university and may change the nature of relationships with staff and administration. Second year interns also stressed the importance of hiring quality interns and training them well to keep the integrity and momentum of the program going. However, most students expressed a hope that the program would continue, whether through grants and interns or through the resident assistants or established campus clubs, and possibly become so successful that it is not needed anymore. For now though, many of the interns interviewed see the program growing and evolving further in the future, even to the point of moving beyond California to a national level.

4.6 Conclusions and Recommendations

The interns interviewed are pleased with the overall experience of being involved with the Green Campus program. The program itself seems to have been rather successful; it not only raised awareness and changed some behaviors, but also was able to establish energy classes on some campuses. And on a personal level, the interns appreciated the ability to help bring about change, and stated that the Green Campus program helped them to develop professionalism. A number of conclusions and recommendations follow from the interview results.

- **Program design**: Interns recognized and admired the program design, which focused on intern-driven efforts, with flexibility to implement what was appropriate on each campus, and determining how the program could be best implemented on each campus. There is strong support for this design.

- **Intern staffing and workload**: Interns come from a variety of backgrounds, but the program has been successful in attracting high quality, motivated students to work on the program. The 10-20 hour commitment generally works for the interns; however, scheduling program efforts around exam time can pose a challenge on occasion. The flexibility provided by having more than one intern per campus, and the ability interns have to plan the programs allows them to try to balance the workload to levels they can accomplish. A few interns noted that the PIPs required them to try to accomplish a great deal in the first year, and they suggested that the workload could be better balanced between first and second year activities. Some interns also stated that more flexibility about completing the required hours could help efficiency and effectiveness (i.e. make up for a short work load one week with a longer next week, etc.).

- **Training**: Training was cited as a weak point. However, interns did feel supported by communication with other interns at their campus, with communication between campuses, and with staff support (much improved in later months) by ASE and SEI. They recognized and supported recent improvements in administrative issues including cash handling, formal communication channels that helped provide context and feedback, and work plan requirements that helped them organize and plan their efforts. The efforts to supplement training with a handbook were also recognized in the second year, although interns still felt that training by overlapping inters was invaluable.

- **Flexibility in TACs**: The method in which TACs were formed and used varied across campuses. Although they were in use on some campuses, others had found the bodies unwieldy, and the interns had adopted more streamlined program approval processes using subsets of the full TAC membership. This was the case for both program years. Assistance and hints on how to better manage these larger groups, and how to provide more regular feedback loops to keep the groups useful would be appreciated by several interns.

- **Communication and administration**: Networking within and among the campuses was a valued interaction for the interns. It helped them understand their job, provided ideas and motivation for program efforts, and kept them in the loop on program expectations. The mid year and end of year gatherings were valued; interns stated their organization had improved to provide more time for useful feedback and interaction among interns. Recent administrative revisions to clarify / simplify cash handling, and to provide better communication links (regular conference calls, procedures on where to forward questions, clarifying cc-lists for emails, among other changes) were being noted as helpful changes that were making things clearer for interns. Timeliness of feedback from ASE and SEI had improved considerably, according to the interns. As the program progressed into the second year, many issues seemed to get ironed out along the way.

- **Program activities**: Interns had developed an array of program ideas that had been implemented to varying degrees across the campuses. The first year successes were being shared across campuses, and as a result, a package of successful programs (with variations), with hints about successful strategies, will likely be implemented at most campuses in Year 2. This is helping to get the word out to residents at all campuses; and the use of lessons from other campuses will help avoid wasted efforts and inefficient / ineffective delivery of programs, as was demonstrated in the program's second year. However, ASE may need to consider how to continue to encourage creativity in program

design among interns, so interns do not begin to rely on the same model because it is easy and proven. Innovation and the chance to experiment (without bad consequences) are a potential hallmark of the program.

- **Monitoring and evaluation efforts**: Clearly interns had come to recognize the value of monitoring and evaluating their efforts – both to demonstrate to students the products of their efforts, and to assess the success of the Green Campus program overall. They were working hard to identify monitoring options, but seemed frustrated by the lack of "hard" data like meters on buildings that could be accessed to understand and compare kWh results. Grants or program funding for meters that could move around campuses may be a positive investment. In addition, continued exploration of monitoring options, and training for interns on evaluation will help improve program tracking, and provide valuable learning opportunities for the interns. It may be useful to set up a way of tracking efforts across campuses and program years, providing a way to see the success of the program in the state of California.

- **Program expansion**: Interns agree Green Campus is a strong and important program. They are enthused enough that many mentioned the program should expand – to additional campuses, to campus groups beyond the residence halls, and to issues beyond energy conservation. They appreciate being part of a sound, well-designed program that is growing, and that gives them an opportunity to help effect change now and into the future.

5.0 PROGRAM EFFECT SURVEYS

5.1 Introduction, Purpose, and Methodology

The Green Campus program attempts to influence the energy consumption practices of students by providing them with information and education on more efficient consumption and living habits. A key element of this project was to evaluate the impacts of the program on the behavior, attitudes, and appliance / lighting purchases of students in residence halls on the six California campuses participating in the program's first year, and the nine campuses participating the second year. To conduct the evaluation, Skumatz Economic Research Associates (SERA) worked with the Alliance to Save Energy (ASE) to create a survey to gather data on the impacts of ASE's Green Campus program at the universities. On-campus interns were responsible for distributing the survey at their institutions.

5.1.1 Survey Administration and Distribution

The year one evaluation was initially designed as a comparison of the results from two surveys: a baseline practices and awareness survey to be conducted near the beginning of the school year, with a follow-up survey designed to detect changes and impacts, which was to be administered near the end of the year. However, after the baseline surveys were designed and distributed to interns, delays were encountered because the University system required a lengthy approval process – a delay that was not anticipated "up-front". To address this concern, the baseline and impact surveys were combined into one instrument, and distributed near the end of the year, after approvals had been acquired.

Survey targets were students living on-campus at the participating schools, including:

- CSUSB San Bernardino,
- HSU Humboldt,
- SSU Sonoma,
- UCB Berkeley,
- UCSB Santa Barbara,
- UCSD San Diego.

Interns were provided with the survey instrument, in conjunction with detailed instructions describing distribution methods. The plan called for about 150-300 responses from each campus. Interns were to deliver surveys to a random sample of residence hall advisors (RAs), using randomizing methods described to the interns. However, most likely due to end-of-year pressures, not all campuses used the suggested distribution methods, compromising the results.

- Response rates fell very short, with some schools sending back less than a dozen surveys. Given the end-of-school year timing of the survey distribution, the students could no longer be reached to get additional responses.[12]

[12] It is also possible that one campus received the majority of responses from students in an environmental class, but this is not clear.

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- Another gathered responses from more than 400 students while the other campuses averaged less than 30 each. Therefore, a cross-comparison of all schools reveals some inconsistencies.
- Another inconsistency relates to the surveys delivered from CSUSB. Accidentally, the survey distributed to students at CSUSB was the beginning year baseline survey, not the one that included both baseline and impact questions. Thus, for many questions, the impact results are not available. The variations are discussed in each section that is affected by this problem.
- Finally, no surveys were received from UCB Berkeley, and therefore they are not included in this report.

Despite the challenges experienced with survey format, distribution, and response rate, some useful data were obtained, and the difficulties of the Year 1 evaluation provided some lessons for Year 2 survey administration.[13] Although not definitive, especially for differences between campuses, the surveys provide useful evaluation information about energy consumption practices at California universities and the impacts of the Green Campus program.

The second year evaluation was also designed as a comparison of the results from two surveys: a baseline practices and awareness survey to be conducted near the beginning of the school year (denoted as BOY), with a follow-up survey designed to detect changes and impacts, which was administered near the end of the year (EOY). These surveys were generally distributed as planned, although exam weeks reduced the response rates from the end of year (EOY) surveys at some campuses..

Survey targets were students living on-campus at the participating schools, including:

- CSU Chico,
- CSUSB San Bernardino,
- HSU Humboldt,
- SDSU San Diego,
- SSU Sonoma,
- UCB Berkeley,
- UCI Irvine,
- UCSB Santa Barbara, and
- UCSD San Diego.

Again, interns were provided with the survey instrument, in conjunction with detailed instructions describing distribution methods. The distribution plan called for 100 or more survey responses (ideal 150-300) from each campus. Interns were to deliver surveys to a random sample of residence hall advisors (RAs), using randomizing methods described to the interns. However, while eight of the nine schools managed distribution and collection of the beginning-of-year surveys, only six returned end-of-year surveys to SERA.

- Similar to the first year, response rates for end-of-year fell very short, with some schools sending back only a handful of surveys.

[13] The 2nd year evaluation is working with students on appropriate distribution methods, and using the 2 survey approach (now that approval has been gained). For most campuses, a separate baseline survey (beginning of year BOY) was issued in Year 2, allowing a comparison to end of year (EOY) surveys. We also conducted intern training on conducting focus groups; however, few of the campuses were able to implement this evaluation task in Year 2.

- Another inconsistency relates to the end-of-year surveys delivered. Each campus was randomly selected to distribute one of two surveys; the only difference between the two survey formats was a distinction of Compact Fluorescent Lamps (CFL) or Energy Efficient (EE) appliances in question C2. The surveys received were from campuses that had randomly received the EE version, thus there is no information pertaining to student satisfaction with CFLs.
- Finally, no surveys were received from SDSU, and therefore they are not included in this report.

5.1.2 Instrument Design and Organization of the Discussion

The year one survey instrument and year two beginning-of-year instrument were divided into four major subsections investigating different aspects of student energy consumption practices.

- Section one, *housing and appliances*, examined student demographics and appliance saturation rates.
- Section two, *practices and awareness*, attempted to gain data that would illustrate respondents' behavior and awareness level of energy conservation and environmental issues.
- Section three, *satisfaction and behaviors*, investigated the realms of respondent preferences and personal beliefs about the environment and energy conservation.
- The last section, *programs and program changes*, investigated how open respondents were to changes in energy consumption campus programs.

The year two end-of-year survey eliminated the *program and program changes* section, but incorporated additional awareness questions.

The discussion in this chapter follows an organization that addresses:

- Student feedback on satisfaction with the current energy equipment and policies in campus housing and classrooms;
- Awareness of Green Campus programs and outreach;
- Ownership of energy using equipment, changes over time, and changes due to Green Campus;
- Energy related behaviors, changes over time, and changes due to Green Campus;
- Participation in Green Campus events;
- Non-energy benefits; and
- Conclusions and recommendations.

Overall results are presented first, with a discussion of important variations by school where appropriate. Note that the averages are also provided in two forms – one as the average of "respondents", aggregating all responses together equally; the other average is computed as the average of the school results, with each school weighted equally.

5.2 Housing and Demographics

This section describes the survey results gathered on student demographics.

Table 5-1 displays demographic information including respondents' sex, length of attendance at the institution, location of residence, number of floors in that residence, and state or country of origin for the year one evaluation.

- *Overall:* A total of 517 surveys were received from the California universities, 353 of which were complete and useable. About half the respondents in on-campus housing were freshmen, and each of the remaining undergraduate classes was represented by about 15% of respondents. About 5% were graduates, with most of those coming from one campus – San Bernardino. Three quarters of the respondents were female.

- *Humboldt:* 27 completed surveys were obtained from HSU Humboldt. Participants were characteristically freshman, closely split with 41% male and 59% female, students from California who lived on campus in residences that typically had three floors.

- *SSU Sonoma:* 11 completed surveys were obtained from SSU Sonoma. Respondents from SSU lived off campus and were typically upper-class women (juniors or seniors) from California. However, the data obtained from SSU Sonoma were different from the other campuses in two key ways. Response data from SSU indicated that participants were predisposed to having environmentally inclined views (e.g. they described themselves as environmental science majors or minors). Second, unlike the other campuses, all respondents from SSU lived off campus. Off campus students have much more control over the rate of saturation and types of appliances and other energy consuming devices present in their residences than on campus students. Thus data collected for SSU illustrates a different picture of the potential for action and change in the SSU Green Campus program.

- *UCSB Santa Barbara:* 17 completed surveys were obtained from UCSB. Respondents were fairly evenly split (56% and 44%) male and female freshmen from California that lived on campus in residences that had three floors.

- *CSUSB San Bernardino:* Approximately 294 completed surveys were obtained from CSUSB. Respondents were about three-quarters females, mostly freshmen, from California who lived on campus in residences that had three floors. Obviously, CSUSB had the highest response rate of all campuses. CSUSB offered the chance to win an Ipod by filling out the survey. This may have been a reason for such a high response rate when compared to the other schools.

- *UCSD San Diego:* 4 responses were obtained from UCSD. Respondents were mostly sophomores from California; about three (out of four) were female, and most lived on campus in residences that typically had eight floors. Because of the low response level, the data regarding UCSD students will not be representative of the campus at large.

Table 5-1 Demographic Characteristics of Respondents
Percentage of Respondents answering yes 0-100%

	All Schools N=353	HSU N=27	SSU N=11	UCSB N=17	CSUSB N=294	UCSD N=4
Average number of years attended	2	1	3	1	2	3
Percent freshman	49%	55%	0%	41%	50%	0%
Percent Sophomores	15%	14%	0%	12%	16%	50%
Percent Juniors	15%	7%	45%	12%	15%	25%
Percent Seniors	15%	14%	55%	29%	13%	25%
Percent Graduate or Other	5%				6%	0%
Percent from CA	93%	93%	72%	100%	94%	100%
Percent of respondents that were male	26%	41%	20%	56%	24%	25%
Percent of respondents that were female	73%	59%	80%	44%	76%	75%
Percent of respondents living on campus	97%	100%	0%	100%	98%	75%
Average number of floors in respondents' residences	3	3	NA	3	3	8
Table Note: No surveys delivered from UCB Berkeley. Results from Berkeley are omitted from most tables in this section of the report.						

Table 5-2 displays demographic information including respondents' sex, length of attendance at the institution, location of residence, number of floors in that residence, and state or country of origin for the year two evaluation by distribution time period.

Beginning-of-Year (BOY)

- *Overall:* A total of 1023 surveys were received. Over 90% of the respondents lived on campus, and over 90% were from the state of California. The freshman class was represented by 48% of respondents, and 55% of respondents were female while 45% were male.

- *CSU Chico:* There were 44 respondents from CSU, all of which were from California and 90% of which were freshmen. The majority of respondents were female (67%) and lived on campus (93%).

- *CSUSB San Bernardino:* CSUSB had 164 respondents, slightly less than half of which were freshmen. Over 90% were from California, 60%were female, and almost all of them (99.4%) lived on campus.

- *HSU Humboldt:* All of HSU's 95 respondents lived on campus. The majority (87%) was from California, almost evenly split between male and female, and 65% were freshmen.

- *SSU Sonoma:* About 99% of SSU respondents lived on campus, and 48% were freshmen. The female population was represented by 65% of the respondents, and the vast majority of respondents were from California (97%).

- *UCB Berkeley:* UCB respondents were also most likely to be freshman from the state of California (64%, 92% respectively), and closely divided between male and female. Nearly 92% lived in on campus housing.

- *UCI Irvine:* Irvine had the smallest percentage of respondents living on campus, although it still represented a significant number, 81%. Respondents were closely divided between male and female, and almost all (97%) came from California.

- *UCSB Santa Barbara:* UCSB was no exception, with 95% of respondents from California, 93% living on campus, 79% freshmen, 57% male, and 43% female.

- *UCSD San Diego:* UCSD had the second lowest amount of freshman respondents, about 50% of the 73 total returned. Around 95% were from California, almost all lived on campus, and 48% male v. 52% female.

End-of-Year (EOY)

- *Overall:* A total of 269 students responded to the second year end of year surveys. 97% of these students hailed from California and over 60% of the respondents were female. Almost half of all respondents were freshman.

- *CSU Chico:* Only 1 person responded to this survey and she was a senior.

- *CSUSB San Bernardino:* 47 students sent back end of year surveys. 98% of these students were in state students and there was a close to even split between male and female respondents. There was a good representation of all student classes, the lowest class response was from sophomores with 12.8%.

- *HSU Humboldt:* 3 female juniors responded to this survey.

- *SSU Sonoma:* There were 95 responses, the highest number of responses of all the schools. 91.6% were freshman and 67% of them were female. 99% of all the respondents lived on campus.

- *UCB Berkeley:* Did not send back any surveys.

- *UCI Irvine:* Did not send back any surveys.

- *UCSB Santa Barbara:* A total of 76 students responded from Santa Barbara. There were less freshman than any other class response, only 5.3%. There was a good representation of the three other class years.

- *UCSD San Diego:* 36 surveys were sent back from San Diego. 61% of the students responding were freshman and 86% of the students on campus in building with an average of 9.6 floors.

Table 5-2 Demographic Characteristics of Respondents
Percentage of Respondents answering yes 0-100%

Time of Year	All Schools	CSU	CSUSB	HSU	SSU	UCB	UCI	UCSB	UCSD
BOY	1023	44	164	95	187	207	117	136	73
Average number of years attended	1.3	0.9	1.6	1	1.1	1.2	1.4	1.2	1.9
Percent freshman	48.1%	90.9%	46.2%	64.5%	48.0%	64.2%	70.3%	78.8%	53.6%
Percent Sophomores	10.6%	4.6%	17.7%	16.1%	15.6%	21.6%	16.2%	6.8%	1.5%
Percent Juniors	10.6%	2.3%	20.3%	16.1%	29.6%	10.8%	6.3%	8.3%	15.9%
Percent Seniors	18.8%	2.3%	10.1%	3.2%	5.6%	3.4%	7.2%	5.3%	24.6%
Percent Graduate or Other	3.5%	0.0%	5.7%	0.0%	1.1%	0.0%	0.0%	0.8%	4.4%
Percent from CA	94.3%	100.0%	94.2%	87.0%	97.3%	91.9%	97.0%	94.7%	94.4%
Percent of respondents that were male	45.0%	32.5%	36.6%	50.6%	34.6%	53.8%	41.2%	56.9%	47.7%
Percent of respondents that were female	55.0%	67.5%	63.4%	49.4%	65.4%	46.2%	58.8%	43.1%	52.3%
Percent of respondents living on campus	94.7%	93.2%	99.4%	100.0%	99.5%	91.6%	81.3%	93.1%	98.6%
Average number of floors in respondents' residences	4.5	4.0	2.6	4.2	2.4	7.3	2.4	7.9	3.9
EOY	269	1	47	3	95			76	36
Average number of years attended	1.8	n/a	2.1	n/a	1.2	n/a	n/a	2.6	1.5
Percent freshman	48.1%	n/a	21.3%	n/a	91.6%	n/a	n/a	5.3%	61.1%
Percent Sophomores	10.6%	n/a	12.8%	n/a	1.1%	n/a	n/a	20.0%	13.9%
Percent Juniors	19.1%	n/a	31.9%	n/a	1.1%	n/a	n/a	36.0%	11.1%
Percent Seniors	18.8%	n/a	27.7%	n/a	6.3%	n/a	n/a	32.0%	13.9%
Percent Graduate or Other	3.5%	n/a	6.4%	n/a	0.0%	n/a	n/a	6.7%	0.0%
Percent from CA	97.3%	n/a	97.9%	n/a	100.0%	n/a	n/a	96.0%	97.2%
Percent of respondents that were male	38.2%	n/a	45.7%	n/a	32.6%	n/a	n/a	43.2%	36.4%
Percent of respondents that were female	61.8%	n/a	54.4%	n/a	67.4%	n/a	n/a	56.8%	63.6%
Percent of respondents living on campus	58.2%	n/a	30.4%	n/a	99.0%	n/a	n/a	13.3%	86.1%
Average number of floors in respondents' residences	3.9	n/a	2.1	n/a	2.2	n/a	n/a	4.6	9.6

5.3 Assessment of Current Campus Housing Energy-Related Services and Alternatives

In the year one evaluation, students were asked about their satisfaction with the energy efficiency equipment and policies in campus housing. The results of this analysis follow.

5.3.1 Satisfaction with Current Campus Housing Energy Services

The satisfaction of respondents regarding services provided by each institution with respect to energy conservation is provided in Table 5-3. Each service or category is given a letter grade, A being the highest level of satisfaction (excellent), and F being the lowest level of satisfaction (very poor)[14].

[14] In order to calculate the average grade used to represent each institution, these letter grades were converted to numbers, averaged, and then reverted back into the letter grade.

Five schools provided information on student satisfaction with baseline environmental and energy conservation services provided by each campus. Respondents from those institutions are not overly satisfied with the quality of each listed service in Table 5-3, and are the most displeased with the universities' (lack of) attempts to use energy efficient appliances or equipment in the classrooms. Students at CSUSB and UCSD provided the lowest scores for the University's activities in conservation and energy issues, and the HSU campus received the best overall assessments. Variations by campus are illustrated in the Table.

Table 5-3 Satisfaction / Assessment of Campus Housing Energy-Related Services
Grade Scale A+-F-

Service	All Schools	HSU	SSU	UCSB	CSUSB	UCSD
Information about energy conservation on campus	C+	A-/B+	C	B	C-/D+	C
Energy conservation/energy efficient appliances or equipment in the dorms	C	B	C-/D+	B	C/D+	D
Energy conservation/energy efficient appliances or equipment in classrooms	C-	B	C-/D+	C	C/D+	F
Energy conservation/energy efficient appliances or equipment in eating areas/unions	C	B	C-/D+	B	C/D+	D
Use of renewables or innovative energy on campus	C	B	C	B	C-/D+	D
Education about energy use on campus	C+	B	C	B-/C+	C-/D+	C
Average across all services	C	B	C-	B-	C-/D+	D+

Respondents were also asked to provide suggestions or changes that could be made to improve their satisfaction with the energy equipment and services provided by campus housing. The most common feedback items overall were requests for:

- More information / education on energy conservation, and
- More energy efficient appliances on campus.

Specific suggestions by campus are presented in Table 5-4 below.

Table 5-4 Suggestions to Improve Satisfaction with Energy Services Provided by Campus Housing

Campus	Suggestions for Improving Satisfaction with Energy Services in Campus Housing
HSU Humboldt	• Know more about the appliances in the rooms—are they energy efficient or not • Have more energy efficient and better working light fixtures
SSU Sonoma	• Removing the grass and replacing it with vegetation native to the area • Installing a greywater system • Have departments turn off computers when not in use • Install solar panels on dormitory roofs
UCSB Santa Barbara	• More information on energy conservation and efficient appliance options • More efficient appliances installed in residences • Solar panels on the roofs of campus buildings
CSUSB San Bernardino	• Use more energy efficient equipment on campus • Make more efforts to conserve energy • Provide more information and education regarding energy conservation • Improve the efficiency of the air conditioning system

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Campus	Suggestions for Improving Satisfaction with Energy Services in Campus Housing
	• Discontinue issuing the resident handbook • Offer incentives to promote low energy consumption • Provide students with in-room recycling bins
UCSD San Diego	• Installation of motion sensors to turn off lights in rooms that don't have any occupants • Dimming the lights outside at night to reduce UCSD's energy consumption

Respondents were also asked to score a pre-coded list of suggested energy-related changes for student housing. The grades are listed in Table 5-5, which describes the preferences of participants with regard to suggested changes. Participants were asked to rate energy related changes on a scale of A-F, A representing a very favorable change, and F representing a very unfavorable change. Overall, the occupancy sensors received slightly lower scores than the other two options mentioned. Variations by campus are shown in the Table.

Table 5-5 Favorability of Possible Energy Related Changes on Campus
Scale A-B, A= very favorable, F= very unfavorable

Change	All schools	HSU	SSU	UCB	UCSB	CSUSB	UCSD
Replace all lighting with energy efficient fixtures and bulbs	B+	B+	A-	n/a	B	B	A
Place occupancy sensors in all rooms to turn off lights when not occupied	B	B	A-	n/a	B-	B-	B
Provide rebates or discounted CFLs for sale on or near campus	B+	B	A-	n/a	B	B	A-/B+
Total	B+	B	A-	n/a	B	B	A-/B+

5.3.2 Exploring Impacts of Green Campus

The results indicate that residents are not particularly satisfied with the current attention to energy efficiency in the campus residence halls. The respondents provided an array of suggestions to improve the energy efficiency of on-campus student housing.

Green Campus program efforts are focused on improving the energy efficiency awareness, equipment and behaviors on campus. The results from Table 5-3, Table 5-4, and Table 5-5 indicate that there is room for improvement in the eyes of students. The following sections examine progress on a number of fronts:

- Awareness of Green Campus activities, presumably opening the door to influence from the program.
- Existing equipment in residence hall rooms, changes to that equipment over the year, and the role of Green Campus in those changes.
- Frequency of a variety of conservation-related behaviors, the factors underlying behavioral changes (including Green Campus activities), and remaining barriers to further improvements in energy behaviors.

5.4 Awareness of Green Campus Programs and Outreach

Year 1

In the year one evaluation, Green Campus interns had been active on campus for a year, providing programs, events, outreach, and information to students regarding energy efficiency. Table 5-6 describes respondent awareness of Green Campus programs providing incentives to purchase Energy Star® appliances or of information regarding energy conservation in that program year. Respondents were asked if they had seen any of a list of program activities or outreach initiatives undertaken by Green Campus interns since August 2004 (start of first term). If respondents were aware of information and incentives, then they were asked if they took action based on that information or program.

Four schools[15] returned response data for this portion of the survey. Overall, participants noticed the various types of energy conservation information and incentives listed in Table 5-6. This table provides suggestions about effective outreach methods – and methods that will not tend to lead to follow-through from students. Programs or information that respondents were most aware of included:

- Flyers and brochures about energy conservation in the new student packet
- Flyers and posters about energy conservation tacked to bulletin/message boards
- Information about the Green Campus program
- Classes on environmental or energy conservation issues

Students reported they were not as likely to notice rebate coupons, Energy Star® promotions, pledge cards, and emails or listserve on energy conservation or Green Campus.

Three schools[16] returned response data regarding participant action as a result of energy conservation information and incentive programs. The information or incentives that most inspired respondents to act included:

- Flyers and brochures about energy conservation in the new student packet
- Flyers and posters about energy conservation tacked to bulletin/message boards
- Classes on environmental or energy conservation issues

The table shows that reported follow-through is weakest from email / listserves, residence hall competition information, Energy Star® promotions, and welcome week events.

Results by campus are described in more detail following the table.

[15] Questions regarding respondent awareness of energy conservation information and incentives were omitted from the survey distributed at UCSD.

[16] Questions regarding participant action in response to information or incentives were omitted from the CSUSB survey.

Table 5-6 Awareness/Presence of Energy Conservation Information and Incentives

Percent of Respondents answering 0-100%

Info/Incentive	All Schools [17]		HSU		SSU		UCSB		CSUSB		UCSD	
	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See
Flyer/brochure about energy conservation in new student packet.	62%	38%	94%	6%	57%	43%	NA	NA	35%	65%	NA	NA
Took action if noticed	*63%*	*NA*	*69%*	*NA*	*57%*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Welcome week events related to energy conservation	49%	51%	79%	21%	43%	57%	NA	NA	24%	76%	NA	NA
Took action if noticed	*24%*	*NA*	*33%*	*NA*	*14%*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Flyer/poster about energy conservation tacked to bulletin/message board	74%	26%	94%	6%	88%	13%	NA	NA	40%	60%	NA	NA
Took action if noticed	*66%*		*44%*	*NA*	*88%*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Promotion about CFLs	52%	48%	64%	36%	75%	25%	NA	NA	18%	82%	NA	NA
Took action if noticed	*40%*	*NA*	*30%*	*NA*	*50%*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Promotion about purchasing ENERGY STAR appliances	40%	60%	54%	46%	50%	50%	NA	NA	16%	84%	NA	NA
Took action if noticed	*22%*	*NA*	*44%*	*NA*	*0%*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Discount coupons/rebates related to ENERGY STAR appliances	36%	64%	50%	50%	50%	50%	NA	NA	9%	92%	NA	NA
Took action if noticed	*17%*	*NA*	*33%*	*NA*	*0%*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Promotion about ENERGY STAR appliances with hardware or electronics store	39%	61%	53%	47%	50%	50%	NA	NA	13%	87%	NA	NA
Took action if noticed	*20%*	*NA*	*40%*	*NA*	*0%*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Information about "Green Campus" program	67%	33%	88%	12%	86%	14%	NA	NA	28%	72%	NA	NA
Took action if noticed	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Light switch stickers about turning off lights on campus	50%	47%	63%	38%	33%	50%	57%	43%	45%	55%	NA	NA
Took action if noticed	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Classes on environmental issues or energy conservation	64%	37%	90%	10%	89%	11%	50%	50%	25%	75%	NA	NA
Took action if noticed	*50%*	*NA*	*32%*	*NA*	*89%*	*NA*	*29%*	*NA*	*NA*	*NA*	*NA*	*NA*
Table tents/information in dining hall about energy conservation	52%	48%	69%	31%	43%	57%	79%	21%	18%	82%	NA	NA
Took action if noticed	*44%*	*NA*	*40%*	*NA*	*43%*	*NA*	*50%*	*NA*	*NA*	*NA*	*NA*	*NA*
Information about residence hall competitions about energy conservation	54%	41%	75%	25%	40%	40%	78%	23%	24%	76%	NA	NA
Took action if noticed	*3%*	*NA*	*8%*	*NA*	*0%*	*NA*	*0%*	*NA*	*NA*	*NA*	*NA*	*NA*
Pledge cards about campus energy conservation	37%	58%	64%	36%	40%	40%	36%	63%	8%	92%	NA	NA
Took action if noticed	*13%*	*NA*	*30%*	*NA*	*0%*	*NA*	*9%*	*NA*	*NA*	*NA*	*NA*	*NA*
Email or list serve about energy conservation or "Green Campus"	44%	56%	53%	47%	83%	17%	27%	72%	14%	86%	NA	NA
Took action if noticed	*4%*	*NA*	*13%*	*NA*	*0%*	*NA*	*0%*	*NA*	*NA*	*NA*	*NA*	*NA*

[17] Percentages in "total" column were calculated by weighting each school equally.

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***HSU Humboldt**:* Overall, the majority of respondents were aware of energy conservation information distributed around the Humboldt campus. The programs or information that respondents were most aware of included:

- Flyers and brochures about energy conservation in new student packets
- Flyers and posters about energy conservation tacked to bulletin/message boards
- Information about the Green Campus program
- Classes on environmental issues

Where incentive programs and energy conservation information suggested action, the proportion of respondents that took those suggestions was moderate to small[18]. The events or information that inspired action was:

- Information contained in the new student packet

***SSU Sonoma**:* Respondents were aware of information regarding energy conservation and incentive programs, except information posted in dormitories— which was most likely due to the location of respondents' residences off campus. The programs or information that respondents were most aware of included:

- Flyers and posters about energy conservation tacked to bulletin or message boards
- Information about the Green Campus program
- Classes on environmental issues
- Email or list serve about energy conservation or Green Campus

The events or information that inspired action were:

- Responses to flyers tacked to message or bulletin boards
- Enrollment in environmentally focused classes

***UCSB Santa Barbara**:* The first nine questions of this portion were not included for this campus. Subsequently, it is unknown if the same types of media that were successful in gaining the attention of respondents from other schools would be effective at UCSB (e.g. flyers). Overall, respondents from UCSB didn't seem as aware of incentive programs or energy conservation information as the previous two institutions. The programs or information that respondents were most aware of included:

- Light switch stickers about turning off lights on campus
- Classes on environmental or energy issues
- Table tent information about energy conservation in dining hall
- Information about residence hall competitions regarding energy conservation

Overall participant action in response to incentive programs and energy conservation information was low. The event or information that inspired action was:

- Information about energy conservation placed in table tents in dining halls

***CSUSB San Bernardino**:* Overall, respondents were unaware of information and incentives regarding energy conservation. The programs or information that respondents were most aware of included:

- Flyers and brochures about energy conservation in new student packet

[18] The ranges specified by "moderate" and "small" include anywhere from 40% of respondents to 1% of respondents.

- Flyers and posters about energy conservation tacked to bulletin/message boards
- Light switch stickers about turning off lights on campus

The questions concerning whether participants took action after noticing information related to incentives or energy conservation programs were not on the CSUSB version of the survey.

***UCSD San Diego**:* The questions in this section were not included for UCSD, and subsequently there is no response data regarding participant awareness of incentive programs and energy conservation information at UCSD.

Year 2

In the year two evaluation, Green Campus interns had been active on campus for two years, still providing programs, events, outreach, and information to students regarding energy efficiency. Table 5-7 describes respondent awareness of Green Campus programs providing incentives to purchase Energy Star® appliances or of information regarding energy conservation at the beginning of that program year. Respondents were asked if they had seen any of a list of program activities or outreach initiatives undertaken by Green Campus

Overall, participants noticed the various types of energy conservation information and incentives listed in Table 5-7. This table provides suggestions about effective outreach methods – and methods that will tend to lead to follow-through from students. The program that shows greatest effectiveness for all campuses is:

- Flyers and posters about energy conservation tacked to bulletin/message boards

Information distributed by Resident Hall Assistants was seen by almost 40% of students. The table shows that the least noticed categories of information were:

- Club or Meeting
- Class on Energy Efficiency
- Special Events/Challenges

Results by campus are described in more detail following the table.

Table 5-7 Awareness/Presence of Energy Conservation Information and Incentives Beginning of Year, Year 2

Percent of Respondents answering 0-100%

Beginning of Year (BOY)	All		CSU		CSUSB		HSU		SSU	
	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See
Flyer/ poster	72.7%	27.2%	73.3%	26.7%	72.1%	27.0%	92.0%	8.0%	67.1%	32.9%
Table Top Info	28.3%	71.6%	26.7%	73.3%	26.1%	73.0%	45.3%	54.7%	26.0%	74.0%
Residence Hall Assistant	34.9%	65.0%	13.3%	86.7%	36.4%	62.7%	53.3%	46.7%	23.3%	76.7%
Info table at special events	20.3%	79.6%	20.0%	80.0%	27.3%	71.8%	46.0%	54.1%	13.7%	86.3%
Club or meeting	18.4%	81.4%	20.0%	80.0%	11.8%	87.3%	23.0%	77.0%	11.0%	89.0%
Class on EE	9.4%	90.5%	0.0%	100.0%	11.8%	87.3%	14.9%	85.1%	9.6%	90.4%
Special event/ challenge	5.2%	94.6%	6.7%	93.3%	2.7%	96.4%	20.0%	80.0%	1.4%	98.6%
Other	6.4%	93.6%	13.3%	86.7%	2.7%	97.3%	10.6%	89.4%	13.7%	86.3%

Table 5-7 Continued

Beginning of Year (BOY)	All		UCB		UCI		UCSB		UCSD	
	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See
Flyer/ poster	72.7%	27.2%	77.8%	22.2%	31.5%	68.5%	86.5%	13.5%	68.8%	31.3%
Table Top Info	28.3%	71.6%	25.8%	74.2%	6.9%	93.2%	42..31%	57.7%	20.8%	79.2%
Residence Hall Assistant	34.9%	65.0%	38.1%	61.9%	19.2%	80.8%	40.4%	59.6%	28.6%	71.4%
Info table at special events	20.3%	79.6%	14.2%	85.8%	6.9%	93.2%	19.4%	80.6%	16.7%	83.3%
Club or meeting	18.4%	81.4%	12.3%	87.7%	49.3%	50.7%	11.7%	88.4%	24.5%	75.5%
Class on EE	9.4%	90.5%	5.8%	94.2%	11.0%	89.0%	7.8%	92.2%	10.2%	89.8%
Special event/ challenge	5.2%	94.6%	3.9%	96.1%	8.2%	91.8%	1.0%	99.0%	2.0%	98.0%
Other	6.4%	93.6%	9.2%	90.9%	1.4%	98.6%	0.0%	100.0%	8.2%	91.8%

CSU Chico: Students at Chico gained awareness of the program through all outlets except for classes on Energy Efficiency. The most effective means of communication were:

- Flyers or Posters
- Table top information

Of all the schools surveyed Chico had the lowest number of students seeing information through their Resident Hall Assistants, overall, close to 40% of students saw information through their Resident Hall Assistants while at Chico the number was closer to 10%.

CSU San Bernardino: Information about the program was passed on to the students in four main ways:

- Flyers or posters
- Residence hall assistant information/presentation
- Informational table at special event
- Table top information

The other methods for getting information across are not as effective and only 3% of students had seen information through special challenges or events.

HSU Humboldt: Overall Humboldt students were very aware of the Green Campus programs. Of all the schools surveyed they had the highest percentage of students that had seen information on programs in every category. All of the sources were effective except classes on energy efficiency. However, there was still higher percentage of students finding information through this outlet at Humboldt than from any other school. The most successful sources of information were:

- Flyers or posters
- Residence hall assistant information/presentation
- Informational table at special event
- Table top information

Humboldt was the only school surveyed at which a special event/challenge was successful in passing information across to students.

SSU Sonoma: Students saw information in three main ways:

- Flyers or Posters
- Table top information
- Residence hall assistant information/presentation

Special events/challenges had very little effect in spreading information on the program.

UC Berkeley: Berkeley had a very high percentage of students who gathered information on the program through both posters and their Resident Hall assistants. The most effective methods for relaying information were:

- Flyers or posters
- Residence hall assistant information/presentation
- Table top information

As with many of the other schools, special events/challenges were not very effective at Berkeley.

UC Irvine: Students overall were not very aware of the Green Campus program at Irvine. They have the lowest percent of students receiving information on programs in almost every category. For all schools 73% of students saw information through posters, by far the most popular means of getting information across, while at UCI only 32% of students saw information from this source. The one anomaly at Irvine was that it had by far the largest percentage of students responding to information from a club or meeting, 49%, well above the 18% from all schools. The most useful source of information at Irvine is:

- Club or meeting

UC Santa Barbara: Overall students were aware of the programs at Santa Barbara. Three methods were very effective here for passing along information. They are:

- Flyers or Posters
- Table top information
- Residence hall assistant information/presentation

All three of these sources had higher percentages of students responding in the survey than the overall percentage. However, special events/challenges were ineffective at UCSB. Also, this was the only school to have none of their students gather information from a source not listed on the survey.

UC San Diego: Students here mainly found out about the program through posters, much like the other schools surveyed, but clubs and meeting did play a larger role than at most of the schools. The best ways to get information across were:

- Flyers or posters
- Residence hall assistant information/presentation
- Club or Meeting
- Table top information

Table 5-8 is similar to 5-7 but with a few distinct differences, the foremost being that it is derived from the end of the year survey (EOY), giving the Green Campus interns two semesters to disperse information. Also, unlike the beginning of the year (BOY) survey, the EOY survey gave students the chance to answer whether or not they participated in any Green Campus events throughout the year. Unfortunately there were not as many points of data for the end of year surveys. *UC Berkeley* and *UC Irvine* did not return end of the year surveys while *CSU Chico* had only one respondent and *HSU Humboldt* had only three. These low n values at the two schools do not effect the overall percentage, but when analyzing the individual schools they make for a skewed set of data.

Similar to the BOY, the EOY surveys showed that the most popular means of relaying information to the students are:

- Flyers or Posters

Unlike the BOY survey, the Resident Assistants were not perceived by the students as passing along Green Campus information, as only 13% overall said they received information from this source. As the year progressed students were able to garner more information from energy challenges or competitions. The BOY survey found that only 5.% of students received information through this route while the EOY survey shows 20% of students used this as a source of information.

The two sources that incited the most students to participate in activities were:

- Flyers or Posters
- Residence hall energy challenge or competition

Results by campus are described in more detail following the table

Table 5-8 Awareness/Presence of Energy Conservation Information and Incentives End of Year, Year 2
Percent of Respondents Answering 0-100%

Info EOY	All		CSU		CSUSB		HSU		SSU		UCB		UCSB		UCSD	
	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See	Saw	Didn't See
Flyers or Posters	49%	51%	0%	100%	43%	57%	66%	33%	38%	62%	—	—	55%	45%	75%	25%
Participated[19]	*17.9%*	*82.1%*	*0.0%*	*100.0%*	*14.9%*	*85.1%*	*66.7%*	*33.3%*	*13.7%*	*86.3%*	—	—	*23.7%*	*76.3%*	*17.1%*	*82.9%*
Table Top / Special Event Table Info	22%	78%	100%	1%	21%	79%	100%	0%	11%	89%	—	—	37%	63%	17%	83%
Residence Hall Info	13%	87%	0%	100%	11%	89%	33%	67%	12%	88%	—	—	13%	86%	17%	83%
Participated	*4.3%*	95.7%	0.0%	100.0%	*4.3%*	*95.7%*	*33.3%*	*66.7%*	*2.1%*	*97.9%*	—	—	*5.3%*	*94.7%*	*5.7%*	*94.3%*
Energy Challenge / Competition	20%	80%	0%	100%	13%	87%	0%	100%	7%	93%	—	—	16%	84%	72%	28%
Participated	*13.2%*	*86.8%*	*0.0%*	*100.0%*	*2.1%*	*97.9%*	*0.0%*	*100.0%*	*4.2%*	*95.8%*	—	—	*10.5%*	*89.5%*	*58.3%*	*41.7%*
Club or Meeting	13%	87%	100%	0%	4%	96%	67%	33%	7%	93%	—	—	18%	82%	19%	81%
Participated	*7.0%*	*93.0%*	*0.0%*	*100.0%*	*2.1%*	*97.9%*	*66.7%*	*33.3%*	*2.1%*	*97.9%*	—	—	*9.2%*	*90.8%*	*13.9%*	*86.1%*
Class on EE	8%	92%	0%	100%	6%	94%	33%	67%	11%	89%	—	—	9%	91%	0%	100%
Participated	*5.8%*	*94.2%*	*0.0%*	*100.0%*	*2.1%*	*97.9%*	*0.0%*	*100.0%*	*7.4%*	*92.6%*	—	—	*9.2%*	*90.8%*	*0.0%*	*100.0%*
Walk Instead of Ride the Elevator Day	8%	92%	0%	100%	13%	87%	33%	67%	2%	98%	—	—	7%	93%	17%	83%
Participated	*8.9%*	*91.1%*	*0.0%*	*100.0%*	*91.5%*	*8.5%*	*33.3%*	*66.7%*	*12.6%*	*87.4%*	—	—	*6.6%*	*93.4%*	*2.8%*	*97.2%*
Other	5%	95%	0%	100%	2%	98%	0%	100%	6%	94%	—	—	8%	92%	3%	97%
Participated	*1.9%*	*98.1%*	*0.0%*	*100.0%*	*2.1%*	*97.9%*	*33.3%*	*66.7%*	*0.0%*	*100.0%*	—	—	*1.3%*	*98.7%*	*5.6%*	*94.4%*
None	67%	33%	0%	100%	40%	60%	0%	100%	48%	52%	—	—	20%	80%	14%	86%
Participated	*33.0%*	*67.0%*	*0.0%*	*100.0%*	*40.4%*	*59.6%*	*0.0%*	*100.0%*	*48.4%*	*51.6%*	—	—	*19.7%*	*80.3%*	*13.9%*	*86.1%*
Participated in CFL Xchange[20]	9.7%	90.3%	0.0%	100.0%	10.6%	89.4%	66.7%	33.3%	4.2%	95.8%	—	—	10.5%	89.5%	17.1%	82.9%

[19] Represents combined data for flyers and posters as well as table top information.
[20] The survey only asked for participation in CFL exchange, not if the students had seen information about it.

CSU Santa Barbara: The sources students used to gather information on Green Campus did not change much throughout the school year. The two most effective sources are:

- Flyers or posters
- Table top information or information table at special event

Students did use special events or energy challenges throughout the year as a way to learn of the program much more than at the beginning of the year. It increased to 13% from only 1% in the BOY survey.

The students participated most when they received information from:

- Flyers or posters

SSU Sonoma: Students at Sonoma were not very cognizant of the program from any of the sources. They are below the overall percent in every category. The SSU students were also below the overall percent to participate in every category of the sources available, the most used was:

- Flyers or posters

This also caused the most students to participate.

UC Santa Barbara: Over half of the students at Santa Barbara saw information about the Programs by the year's end. This was above the average for all schools and UCSB had the largest number of students participating with over 20%. The most effective means for passing along information were:

- Flyers or Posters
- Table top information or information table at special event

Students participated most due to the flyers or posters. All means were had at least some effect on participation and all were seen by the students.

UC San Diego: Both the flyers and posters and energy competitions were very highly visible at San Diego with over 70% of the respondents saying that they saw these modes of communication. The highest response for participation was overwhelmingly energy challenges or competitions with close to 60% of the UCSD students participating in them. Classes on Energy Efficiency were either not offered or had no effect on students.

5.4.1 Best Ways to Inform on Energy Programs

To assist Green Campus to further advance their efforts at outreach, respondents in the first program year were asked to identify the three best ways to inform them of energy conservation information and programs. This data is presented in Table 5-9. On each campus, two of the best ways to reach students are through the campus newspaper, and flyers posted at various combinations of residence halls, cafeterias and unions, or respondent doors. The remaining communication methods making up the “top three” included:

- Email listserv at Sonoma, Santa Barbara, and San Diego, and
- Signs or posters on campus for Humboldt and San Bernardino.

Table 5-9: Best Ways to Inform Students about Energy Issues and Programs
(Ranked by Overall Frequency where 1=Most Frequent, 10= Least Frequent)

Form of Contact	HSU	SSU	UCB	UCSB	CSUSB	UCSD
Campus Newspaper	1	1	n/a	1	3	1
Email Listserv	6	2	n/a	3	5	2
Campus Radio Station	4	5	n/a	8	9	0
Other Radio Station	7	10	n/a	8	10	0
Local TV Station	11	9	n/a	6	7	0
Campus TV	11	5	n/a	8	8	0
Town Newspaper	7	5	n/a	8	11	0
Flyers at Your Door	4	5	n/a	2	1	2
Signs / Posters on Campus	3	3	n/a	3	2	2
Flyers Posted in Residence Halls	2	10	n/a	3	4	1
Flyers at Cafeteria or Unions	7	4	n/a	7	6	1
Other	10	10	n/a	8	11	0

5.5 Appliance Saturations and Energy Star® Equipment

The questionnaire posed a battery of questions to students to identify energy using equipment in their rooms (particularly equipment over which they had control), quantify changes students had made in the equipment, and analyze the influences and reasons underlying the equipment changes. The focuses of this analysis were the discretionary items that have been a focus of the Green Campus program. The focus was not the large-scale equipment provided by the residence halls as part of running the buildings.

Students were asked to inventory key energy using equipment they had in their room. A summary of this information for the fist year evaluation is provided in Table 5-10. The data in Table 5-10 provide information on a number of topics:

- The number of appliances of different types that were in student rooms at the beginning of the year,[21]
- The number of these appliances in the rooms at the end of the year, and
- The number that were Energy Star® at the end of the year.

These data provide information to support:

- Comparisons of the average number of energy using appliances of different types and at different campuses;
- Assessment of whether the number of program-discouraged energy using equipment declined, or the presence of program-encouraged equipment increased during the year;
- Examination of the penetration of Energy Star® equipment in residence hall rooms, both in number and based on the percent of students that owned Energy Star® appliances at the end of the year.
- Combined with other questions on the survey, the data support an examination of the percentage of students that indicated that the Green Campus program had an effect on the quantity of Energy Star® appliances they had in their room.

[21] Note that beginning of year data are not available for San Bernardino, and no data are available for Berkeley.

The table is presented first, and the analysis results follow the table. Two overall averages are presented – on including all responses equally (all respondents), and one averaging the results for each campus equally into the overall average (all schools).

In addition to information on average appliances on campus, the table presents the desired direction of change in ownership of appliances from beginning to end of year. For example, appliances that have fluorescent bulbs would be encouraged by the Program's literature, and those with standard bulbs would be discouraged. Similarly, high percentages of Energy Star® (E*) appliances would also be encouraged by the Green Campus program's outreach and literature. The desired direction of change is noted in the second column of Table 5-10.

The bold, italicized numbers in Table 5-10 denote changes in the average number of appliances over time increase or decrease in the direction encouraged by Green Campus program efforts. Table 5-11 further illustrates these effects by showing the percentage change in these values over time for the lighting measures. Note that it is recognized that students may have limited or no control over overhead lighting equipment; however, changes in this equipment may provide a proxy for the effect that the Green Campus interns are having on energy practices of the campus housing administration.

Table 5-10 Average Number of Appliances in Respondents' Rooms
(Note: "bold" italicized changes are impacts "in the right direction" to indicate improvements encouraged by Green Campus program and literature; does not necessarily express significant difference)

Appliance	Desired program impact	Time of Year/ Energy Star® label?	All Schools[22]	All Respon-dents[23]	HSU N=27	SSU N=11	UCSB N=17	CSUSB N=294	UCSD N=4
Desk lamp/halogen bulb	Decrease	Beg. Of year	*0.62*	*0.58*	0.29	*0.75*	*0.94*	n/a	*0.5*
		End of year	*0.42*	*0.47*	0.34	*0.63*	*0.69*	1	*0*
		Energy Star®?	0.11	0.20	0.06	0	0.18	0.22	0
Desk Lamp/CFL bulb	Increase	Beg. Of year	*0.56*	*0.41*	*0.22*	*0.5*	*0.5*	n/a	1
	High E*	End of year	*0.66*	*0.54*	*0.41*	*0.71*	*0.53*	0.58	1
		Energy Star®?	0.29	0.27	0.29	0.6	0.33	0.26	0
Desk lamp/ standard bulb	Decrease	Beg. Of year	*0.69*	*0.68*	*0.72*	*0.86*	0.5	n/a	0.67
		End of year	*0.61*	*0.57*	*0.52*	*0.71*	0.54	1.25	0.67
		Energy Star®?	0.13	0.26	0.12	0	0.1	0.29	0
Overhead, non-fluorescent tube light(s)	Decrease	Beg. Of year	*0.50*	*0.50*	*0.33*	1.25	0.4	n/a	0
	High E*	End of year	*0.48*	*0.48*	*0.28*	1.25	0.4	0.78	0
		Energy Star®?	0.14	0.17	0.08	0.17	0.25	0.18	0
Overhead fluorescent tube light(s)	Increase	Beg. Of year	1.09	1.01	1.125	1	0.73	n/a	1.5
	High E*	End of year	1.04	0.94	1.04	1	0.6	1.0	1.5
		Energy Star®?	0.10	0.15	0.18	0	0.09	0.16	0
Overhead lights/CFL bulb	Increase	Beg. Of year	*0.32*	*0.30*	*0.15*	*1*	0.14	n/a	0
	High E*	End of year	*0.43*	*0.40*	*0.22*	*1.375*	0.14	0.68	0
		Energy Star®?	0.13	0.19	0.25	0	0.11	0.2	0
Computer	Decrease	Beg. Of year	1.32	1.33	1.22	1.75	1.31	n/a	1
	High E*	End of year	1.35	1.34	1.19	1.88	1.31	1.24	1

[22] Note: The responses for "all schools" exclude CSUSB for beginning and end of year averages, because they would skew the results because beginning of year is not present. The Energy Star® averages include this school.
[23] Note: The responses for "all respondents" exclude CSUSB for beginning and end of year averages, because they would skew the results because beginning of year is not present. The Energy Star® averages include this school.

Appliance	Desired program impact	Time of Year/ Energy Star® label?	All Schools[22]	All Respon-dents[23]	HSU N=27	SSU N=11	UCSB N=17	CSUSB N=294	UCSD N=4
		Energy Star®?	0.52	0.43	0.3	1.17	0.5	.41	0.33
	Decrease	Beg. Of year	1.08	1.17	1.23	1.14	1.19	n/a	0.75
	High E*	End of year	1.11	1.18	1.2	1.29	1.19	1.21	0.75
Printer/scanner		Energy Star ®?	0.36	0.33	0.2	0.6	0.36	0.33	0.33
	Decrease	Beg. Of year	0.53	0.63	0.64	0.88	0.6	n/a	0
	High E*	End of year	0.66	0.77	0.91	0.86	0.6	1.0	0.25
Refrigerator		*Energy Star®?*	0.35	0.51	0.29	0.6	0.15	0.55	0
	Decrease	Beg. Of year	*0.82*	*0.75*	0.6	*1.22*	0.69	n/a	0.75
	High E*	End of year	*0.79*	*0.73*	0.6	*1.13*	0.69	1.0	0.75
Television		*Energy Star®?*	0.32	0.30	0.25	1	0.08	0.3	0
	Decrease	Beg. Of year	0.91	0.88	0.76	1.33	0.81	n/a	0.75
VCR/DVD/CD	High E*	End of year	0.93	0.91	0.83	1.33	0.81	1.4	0.75
player		*Energy Star®?*	0.29	0.35	0.19	0.33	0	0.38	0.5
	Decrease	Beg. Of year	0.58	0.55	0.67	1.13	0	n/a	0.5
	High E*	End of year	0.62	0.60	0.73	1.25	0	0.8	0.5
Microwave		*Energy Star®?*	0.23	0.21	0.31	0.33	0	0.21	0.3
Charger for cell	Decrease	Beg. Of year	1.54	1.34	1.15	1.33	1.44	n/a	2.25
phone or other	High E*	End of year	1.57	1.37	1.16	1.38	1.5	1.36	2.25
item(s)		*Energy Star®?*	0.33	0.24	0.06	0.67	0.07	0.25	0.67
	n/a	Beg. Of year	0.42	0.48	0.47	0.75	0.45	n/a	0
		End of year	0.41	0.48	0.43	0.67	0.55	1.1	0
Other		*Energy Star®?*	0.21	0.18	0.1	0.67	0.13	0.17	0

Table 5-11 Percent Change in Saturation of Efficient Lighting Measures, Comparing Beginning of Year to End of Year

(Note: "bold" italicized changes are impacts "in the right direction" to indicate improvements encouraged by Green Campus program and literature; does not necessarily express significant difference)

Appliance	Desired program impact	All schools	All Respon-dents	HSU N=27	SSU N=11	UCSB N=17	CSUSB N=294	UCSD N=4
Desk Lamp with halogen bulb	Decrease	*-33%*	*-18%*	+17%	*-16%*	*-27%*	NA	*-100%*
Desk lamp with CFL bulb	Increase	*+19%*	*+33%*	*+86%*	*+42%*	+6%	NA	0%
Desk lamp with Standard Bulb	Decrease	*-11%*	*-16%*	*-28%*	*-17%*	+8%	NA	0%
Overhead lights non-fluorescent Tubes	Decrease (but limited student control)[24]	*-3%*	*-5%*	*-15%*	0%	0%	NA	n/a
Overhead lights fluorescent tubes	Increase (but limited student control)	-5%	-8%	-8%	0%	-18%	NA	0%
Overhead lights CFL bulb	Increase (but limited student control)	*+34%*	*+35%*	*+47%*	*+38%*	0%	NA	n/a

[24] It is assumed that students are generally not responsible for replacing bulbs in many overhead fixtures, particularly those with fluorescent or tube-type bulbs. Therefore, the student-directed outreach from Green Campus is assumed to have a more direct effect on equipment change-outs in desk lamps and fixtures without tubes. For the purposes of this evaluation, changes in overhead tube fixtures are assumed to be delivered by campus facility staff, but may still have been influenced by Green Campus work (specifically, the efforts with facility staff and residential housing administration) staff).

5.5.1 Appliance Saturations and Changes Over the Year

An analysis of Tables 5-10 and 5-11 provide information on the saturations of energy using equipment in student rooms. In addition, the tables address the changes that occurred over the course of Year 1 of the Green Campus program.

Percent of Students with Appliances / Saturation of Appliances:

Table 5-10 shows that beyond room lighting supplied as part of the room (overhead lighting), students in residence halls are mostly likely to have a high percent of computers, printers / scanners and cell phone or other chargers. For each of these pieces of energy using equipment, there was an average of at least one per room for the respondents. VCR/DVD/CD players were the next most common piece of equipment in these rooms, with almost one unit per room. About half to three quarters of the rooms have CFL or standard bulb desk lamps, refrigerators, TVs, and microwaves. Analysis of the results by campus showed:

- HSU students reported lower saturations of halogen and CFL desk lamps, overhead CFLs and non-fluorescent tube lighting, TVs and audio/visual equipment, and chargers. They tended to have higher than average saturations of printer/scanners, refrigerators, and microwaves.
- SSU students had higher percentages of most appliances than the average school.
- UCSB students were more likely to have halogen desk lamps, but less likely to have standard bulb desk lamps, overhead fluorescent lamps, overhead CFL fixtures and TVs and VCR/DVD/CD equipment.
- UCSD students tended to have lower saturations of some equipment, but the sample sizes for this campus were small.

Improvements in Saturation of Energy Efficient Appliances during the Year

One focus of the Green Campus program was increasing the efficient lighting measures in student residences during year 1. Particular interest was in overhead lighting, desk lighting, and use of CFL bulbs. This desired change was attempted through methods ranging from distribution of flyers and other assorted literature to residence hall competitions. Data on this subject can be found in Table 5-10.

The results in Table 5-11 show increases in efficient equipment as well as saturations of many energy inefficient appliances that fell over the year in campus residence halls. Inefficient equipment that decreased over the year included halogen and standard bulb desk lamps, overhead non-fluorescent lamps, and TVs. Efficient equipment increased, including CFL desk lamps, and CFL overhead lights. Table 5-11 shows the percent by which these appliances increased or decreased – the energy efficiency of the student rooms improved. The data show that for all the equipment students had fairly direct control over (desk lamps), the changes were in the direction encouraged by the Green Campus Program. The only campus-level exceptions to these results were Humboldt's increase in halogen desk lamps, and UCSB's increase in standard-bulb desk lamps.

On most campuses, saturations of non-fluorescent bulbs in overhead lamps decreased, and CFL saturations increased. Although usually not under the direct control of students, these changes may also have the potential to be influenced by the program, because the Green Campus interns worked with facility staff as well as students.

5.5.2 Energy Star® Equipment in Student Housing

Table 5-11 also shows the number of Energy Star® "units" of equipment in student rooms at the end of the year. Students report that the most common items to have in the room that are Energy Star® include printers / scanners (0.52 units per room), refrigerators, TVs, cell phone chargers (about 0.33 units/room), CFL desk lamps, and VCR/DVD/CD players that are Energy Star® labeled. More than one-quarter of CFL desk lamps and VCR/DVD/CD players are Energy Star® labeled.

Table 5-12 takes the data one step further and shows the percent of the equipment in rooms that is Energy Star® branded. The highest percentages of Energy Star® equipment is reported for CFL desk lamps and overhead lights, microwaves, and computers. Higher than average percentages are found for key energy efficiency equipment categories (CFL desk lamps and computers, for example) at SSU.

Table 5-12 Percentage of Equipment in the Room at Year End Reported to be Energy Star® Labeled

Appliance	All Schools	All Respon-dents	HSU N=27	SSU N=11	UCSB N=17	CSUSB N=284	UCSD N=4
Desk Lamp with halogen bulb	15%	16%	18%	0%	26%	22%	n/a
Desk lamp with CFL bulb	54%	66%	71%	85%	62%	45%	0%
Desk lamp with Standard Bulb	10%	16%	23%	0%	19%	23%	0%
Overhead lights non-fluorescent Tubes	35%	34%	29%	14%	63%	23%	n/a
Overhead lights fluorescent tubes	8%	12%	17%	0%	15%	16%	0%
Overhead lights CFL bulb	64%	75%	n/a	0%	79%	29%	n/a
Computer	40%	36%	25%	62%	38%	33%	33%
Printer/Scanner	34%	28%	17%	47%	30%	27%	44%
Refrigerator	32%	35%	32%	70%	25%	55%	0%
TV	35%	39%	42%	88%	12%	30%	0%
VCR/DVD/CD player	29%	20%	23%	25%	0%	27%	67%
Microwave	43%	28%	42%	26%	n/a	26%	60%
Charger for cell phones and other items	22%	15%	5%	49%	5%	18%	30%
Other	49%	36%	23%	100%	24%	15%	n/a

5.5.3 Green Campus Program Influence on Energy Star® Purchases

The mail survey approach used for the baseline / impact questionnaire made it difficult to ask about the impact of Green Campus program initiatives on the purchase of more efficient equipment. However, it was feasible to ask whether the program had an impact on student purchases of Energy Star® labeled equipment. Table 5-13 shows the percent of respondents that stated that their purchase of Energy Star® equipment was influenced by the program. Table 5-14 describes the effect of Green Campus programs and literature on the appliance consumption habits of the survey participants. The percents listed represent those who said the

programs had an effect on their consumption habits; the rest of the respondents did not answer, said the program had no effect, or did not know.[25]

The table shows that the Green Campus program had greatest effect on microwave oven and printer / scanner purchases. This was considerably stronger than the impacts on light bulbs and other equipment. It is not clear whether the Energy Star® message was most retained for these purchases, or whether students purchase this equipment relatively frequently during their first year. Given the wording of the question (whether the purchase was influenced by Green Campus) should rule out the possibility that the effect results because most or all models of this equipment is Energy Star®.

Table 5-13 Percent of Respondents that Stated Purchase of Energy Star® Equipment was Influenced by Green Campus Program

Appliance	All Schools	All Respon-dents	HSU N=27	SSU N=11	UCSB N=17	CSUSB N=294	UCSD N=4
Desk lamp/halogen bulb	2%	2%	0%	0%	7%	n/a	0%
Desk lamp/ CFL	6%	8%	10%	0%	13%	n/a	0%
Desk lamp/standard bulb	6%	5%	0%	16%	7%	n/a	0%
Overhead lights/non-fluorescent	4%	6%	9%	0%	7%	n/a	0%
Overhead lights/fluorescent	2%	2%	0%	0%	7%	n/a	0%
Overhead lights/CFL	5%	4%	0%	20%	0%	n/a	0%
Computer	2%	2%	0%	0%	7%	n/a	0%
Printer/scanner	16%	8%	6%	0%	7%	n/a	50%
Refrigerator	5%	7%	6%	0%	14%	n/a	0%
Television	4%	5%	7%	0%	7%	n/a	0%
VCR/DVD/CD player	2%	2%	0%	0%	7%	n/a	0%
Microwave	18%	9%	7%	14%	0%	n/a	50%
Charger for cell phone or other item	7%	7%	6%	13%	7%	n/a	0%
Other	2%	3%	0%	0%	9%	n/a	0%

Table 5-14 shows the information in a slightly different form. It displays the ratio of the percent of respondents influenced to buy Energy Star® compared to the units of Energy Star® equipment in the room at the end of the year. This computation represents the percentage of the Energy Star® equipment in the room at Year end that was influenced by the program. This table indicates that the equipment types most influenced by Green Campus Energy Star® literature include: microwave ovens, printers / scanners, and cell phone chargers.

Overall, the proportion that reported an influence of Green Campus on increasing Energy Star® purchases was small. These listed influences are relatively consistent with changes in saturation rates from the beginning to the end of the year as reported by respondents from the four schools (excluding CSUSB). The program most commonly cited as influencing behavior was the free light bulb exchange. The effect of Green Campus literature and programs upon the purchase of Energy Star® rated appliances by students appear to have been relatively small – perhaps because students weren't influenced or perhaps because they do not purchase much equipment after they arrive on campus.

[25] Only the portion that reported an influence on behavior was reported because the question was often left blank *unless* an influence was reported.

Table 5-14 Percent of the Energy Star® Equipment in Rooms that was Influenced by Green Campus Programs

Appliance	All Schools	All Respon-dents	HSU N=27	SSU N=11	UCSB N=17	CSUSB N=294	UCSD N=4
Desk lamp/halogen bulb	9%	13%	0%	n/a	27%	0%	n/a
Desk lamp/ CFL	9%	13%	14%	0%	21%	0%	n/a
Desk lamp/standard bulb	13%	31%	0%	n/a	38%	0%	n/a
Overhead lights/non-fluorescent	11%	18%	32%	0%	11%	0%	n/a
Overhead lights/fluorescent	16%	16%	0%	n/a	47%	0%	n/a
Overhead lights/CFL	0%	5%	0%	n/a	0%	0%	n/a
Computer	4%	6%	0%	0%	18%	0%	0%
Printer/scanner	35%	29%	36%	0%	23%	0%	n/a
Refrigerator	19%	19%	19%	0%	56%	0%	n/a
Television	19%	13%	17%	0%	60%	0%	n/a
VCR/DVD/CD player	0%	10%	0%	0%	n/a	0%	0%
Microwave	38%	32%	16%	53%	n/a	0%	83%
Charger for cell phone or other item	n/a	n/a	n/a	27%	n/a	0%	0%
Other	10%	7%	0%	0%	38%	0%	n/a

Students were also asked about which programs or information caused them to purchase the Energy Star® equipment. `

- CSU Humboldt: For Humboldt, the programs cited as influencing a change in behavior were the free light bulb giveaway, and the Redwood Manor Energy Challenge.
- *SSU Sonoma:* Overall, most SSU respondents were either unaware of or unaffected by Green Campus literature regarding Energy Star® appliances. Though SSU respondents reported some effect or influence on their appliance consumption habits, many remarked that environmental science courses had been the source of their awareness and change. Another possible explanation may have been related to the location of respondent residences off campus. It is likely that these respondents would have been unaware of literature regarding Energy Star® appliances if it was posted in the dormitories more than other campus locations.
- *UCSB Santa Barbara:* A large number of respondents reported Green Campus programs and literature as having had an influence on consumption habits. Equipment most greatly affected by Green Campus programs and literature included CFL bulbs and refrigerators. The Green Campus Program was credited with influencing a change in behavior was the light bulb exchange program. However, some commented that education on which equipment is rated Energy Star® is lacking and would be helpful.
- *UCSD San Diego:* Few respondents from UCSD reported any influence upon their behavior as a result of Green Campus programs or literature regarding Energy Star® appliances.

Other Lighting Results:

- Regarding overhead lighting, which tends to come under the control of residence hall administration, the results indicate only small changes in overhead lighting at SSU and

UCSB, and HSU appears to have the most control and desire to change overhead lighting.
- Changes from non-fluorescent lighting to CFL lighting were not very dramatic. This may be because overhead lighting is usually harder to change- fixtures may be relatively permanent or only take a unique bulb (such as a fluorescent tube). However, there was a decrease in the use of fluorescent tubes by the end of the year.
- The data indicate that the Green Campus program had some success in helping increase the amount of CFL bulbs used in campus residences.

These changes were positive, marking an improvement in the desired program area.

5.5 Appliance Saturations and Energy Star® Equipment Year 2

In the second program year, respondents were again asked how many of the listed appliances they had in their residence. This was asked in both the BOY and EOY surveys. Much like the 1st year of the program, this section of the survey was concerned with the amount of energy using equipment in student's room and what equipment they have. By using both the BOY and EOY surveys it is possible to quantify changes in this equipment throughout the school year. The survey also seeks to determine what appliances are E*, how did the amount of these E* appliances change during the year, and then how many of the installed E* appliances were influenced by the Green Campus information that the respondents saw at school.

Students were asked to inventory the key energy using equipment in their rooms. A summary of this information is provided in the Tables. The data in these Tables provide information on a number of topics:

- The number of appliances of different types that were in student rooms at the beginning of the year
- The number of these appliances in the rooms at the beginning and the end of the year, and
- The number that were Energy Star® at the beginning and end of the year.

These data provide information to support:

- Comparisons of the average number of energy using appliances of different types and at different campuses;
- Assessment of whether the number of program-discouraged energy using equipment declined, or the presence of program-encouraged equipment increased during the year;
- Examination of the penetration of Energy Star® equipment in residence hall rooms, both in number and based on the percent of students that owned Energy Star® appliances at the end of the year.
- The percentage change of all the surveyed appliance throughout the year and
- The percentage change of E* appliances in student rooms during the year
- The percentage change of appliances installed during the year that was due to the influence of the Green Campus program.

The Tables are presented first with the analysis following. The tables display both the overall averages for each campus and the average number of each appliance for each school.

Appliance Saturations and Changes, Year 2

An analysis of Table 5-15 provides information on the saturation of energy using equipment in student's rooms. Comparing with Table 5-16 shows the changes that occurred during the school year in this saturation and what effect Green Campus had on the students.

Table 5-15. Residence Hall Appliances in Place, and Number that are Energy Star®, Year 2 Beginning of Year (BOY)

BOY Average Appliances	Overall	CSU	CSUSB	HSU	SSU	UCB	UCI	UCSB	UCSD
Desk lamp/halogen bulb	0.40	0.39	0.30	0.42	0.22	0.52	0.56	0.46	0.38
Energy Star	0.29	0.08	0.37	0.16	0.28	0.25	0.30	0.48	0.27
Desk Lamp/CFL bulb	0.48	0.08	0.30	0.51	0.50	0.68	0.46	0.55	0.35
Energy Star	0.35	0.00	0.18	0.38	0.50	0.43	0.35	0.45	0.20
Desk lamp/ standard bulb	0.85	1.53	0.53	0.48	1.05	1.08	0.82	0.81	0.57
Energy Star	0.15	0.06	0.15	0.04	0.02	0.24	0.20	0.21	0.03
Overhead lights/CFL bulb	0.60	0.44	0.48	0.72	0.52	0.60	0.75	0.68	0.61
Energy Star	0.25	0.06	0.25	0.17	0.07	0.23	0.38	0.39	0.25
Computer	1.38	1.55	1.00	1.29	1.29	1.85	1.19	1.44	1.29
Energy Star	0.47	0.42	0.29	0.33	0.30	0.73	0.46	0.69	0.21
Printer/scanner	0.30	1.34	0.88	1.03	1.17	1.31	1.07	1.10	1.11
Energy Star	0.30	0.17	0.22	0.28	0.08	0.30	0.40	0.58	0.24
Refrigerator	0.77	1.02	0.78	0.66	0.61	0.82	0.75	0.92	0.70
Energy Star	0.36	0.29	0.37	0.35	0.15	0.33	0.41	0.60	0.18
Television	0.71	0.76	0.96	0.35	0.85	0.62	0.65	0.71	0.52
Energy Star	0.19	0.00	0.35	0.02	0.06	0.12	0.25	0.36	0.05
VCR/DVD/CD player	0.73	0.86	0.94	0.70	1.01	0.49	0.63	0.62	0.55
Energy Star	0.17	0.05	0.29	0.15	0.08	0.09	0.24	0.28	0.03
Microwave	0.48	1.00	0.35	0.33	0.49	0.68	0.53	0.10	0.57
Energy Star	0.18	0.19	0.19	0.12	0.11	0.21	0.33	0.08	0.11
Charger for cell phone or other item(s)	1.49	1.84	1.23	1.31	1.33	1.93	1.31	1.48	1.67
Energy Star	0.21	0.05	0.29	0.13	0.08	0.18	0.28	0.34	0.08
Power Strip	1.46	1.75	1.17	1.59	1.29	1.86	1.27	1.44	1.36
Energy Star	0.37	0.32	0.49	0.33	0.28	0.28	0.43	0.49	0.25
Other	0.52	0.75	0.35	0.54	0.70	0.56	0.56	0.35	0.50
Energy Star	0.12	0.07	0.18	0.03	0.14	0.04	0.30	0.05	0.00

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Table 5-16. Residence Hall Appliances in Place, and Number that are Energy Star®, Year 2 End of Year (EOY)

EOY Average Appliances	Overall	CSUSB	SSU	UCSB	UCSD
Desk lamp/halogen bulb	0.46	0.46	0.54	0.49	0.34
Energy Star	0.14	0.22	0.10	0.16	0.09
Installed due to GC	0.02	0.00	0.01	0.05	0.03
Desk Lamp/CFL bulb	0.38	0.37	0.47	0.40	0.26
Energy Star	0.13	0.20	0.08	0.08	0.14
Installed due to GC	0.07	0.04	0.12	0.07	0.06
Desk lamp/ standard bulb	0.69	0.59	0.89	0.74	0.57
Energy Star	0.06	0.02	0.06	0.13	0.03
Installed due to GC	0.02	0.00	0.03	0.03	0.00
Overhead lights/CFL bulb	0.48	0.72	0.50	0.50	0.21
Energy Star	0.18	0.47	0.07	0.15	0.03
Installed due to GC	0.05	0.07	0.06	0.06	0.03
Computer	1.06	0.83	1.25	1.03	1.14
Energy Star	0.21	0.27	0.16	0.24	0.18
Installed due to GC	0.01	0.00	0.01	0.01	0.03
Printer/scanner	0.92	0.72	1.07	0.79	1.09
Energy Star	0.11	0.13	0.13	0.08	0.11
Installed due to GC	0.01	0.00	0.01	0.00	0.03
Refrigerator	0.68	0.61	0.77	0.53	0.83
Energy Star	0.19	0.24	0.16	0.11	0.26
Installed due to GC	0.01	0.00	0.02	0.00	0.03
Television	0.75	0.96	0.94	0.54	0.54
Energy Star	0.12	0.24	0.11	0.06	0.06
Installed due to GC	0.01	0.00	0.02	0.00	0.00
VCR/DVD/CD player	0.79	1.15	0.97	0.57	0.49
Energy Star	0.14	0.30	0.13	0.06	0.09
Installed due to GC	0.01	0.00	0.03	0.00	0.00
Microwave	0.54	0.59	0.69	0.43	0.46
Energy Star	0.11	0.20	0.09	0.07	0.09
Installed due to GC	0.00	0.00	0.00	0.00	0.00
Charger for cell phone or other item(s)	1.25	0.96	1.42	1.18	1.46
Energy Star	0.09	0.11	0.02	0.11	0.11
Installed due to GC	0.00	0.00	0.00	0.01	0.00
Power Strip	1.35	1.02	1.32	1.24	1.83
Energy Star	0.23	0.43	0.14	0.10	0.26
Installed due to GC	0.01	0.04	0.01	0.00	0.00
Other	0.09	0.09	0.12	0.04	0.11
Energy Star	0.01	0.00	0.01	0.01	0.00
Installed due to GC	0.00	0.00	0.00	0.00	0.00

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Saturation of Appliances and Change During the Year

The table shows that on average students overall had 1 or more of the following in their room:

- Cell phone charger or other item(s)
- Power strip
- Computer
- Printer

Overall students had an average of close to 1 of the following energy using equipment in their rooms:

- Desk lamp with a standard bulb
- Refrigerator

This was similar to the results from year 1 with close to one CD/DVD/VCR per room as well as almost every student having a television. Over half the students started the year with overhead CFL bulbs and nearly half began with desk lamp CFL.

The data shows how the saturation of appliances changed as the year progressed. By looking at the number of appliances at the beginning and the end of year surveys it is possible to ascertain the percentage change over the year. Overall for both the CFL appliances, desk lamps and overhead lights, the percentages decreased 22% and 47% respectively.
A number of appliances decreased though, helping to lower energy consumption. The appliances that decreased in saturation were:

- Computers
- Printers
- Desk lamp with standard bulb
- Refrigerators
- Charger for cell phone or other item(s)

The data also shows the saturation of appliances for each school.

CSU Chico: CSU Chico only returned one data point for the EOY survey so only the BOY data is included in the Table. It is possible to compare the saturation of appliances with the other BOY data. The students here were close to the average for most of the appliances with a few exceptions:

- Less than the average amount of both desktop and overhead lights with CFL bulbs
- A very high amount of desktop lights with standard bulbs, 1.58 per student compared to an average of .85
- A little over twice as many microwaves on average per CSU student

CSU San Bernardino: This was the only one of the schools surveyed to see an increase in the number of overhead CFL lights during the year. The students started the year less than half of the respondents reporting owning overhead CFL lights but the EOY survey saw a 49% increase putting the average number of overhead CFL lights above the overall average. San Bernardino students reported over two thirds of the overheads were CFL while the overall average was under one third. San Bernardino students also reported in Table 5-8 (EOY Awareness/Presence of Energy Conservation) the highest number of students participating in the CFL exchange

program of all schools. This Green Campus program was effective in helping students switch to more efficient bulbs. In addition to this data Santa Barbara also had:

- The lowest number of computers per students of all schools
- The lowest number of printers/scanners
- But the students did report having the highest number of VCR/DVD/CD players and TV's of all schools

HSU Humboldt: Humboldt was another school with a very low number of EOY survey respondents. There were only 3 returned surveys, hence, the lack of inclusion of EOY data. The BOY survey found that:

- Students had less than half the overall average of desk lamps with standard bulbs.
- HSU was the only school where there were more desk lamps with CFL bulbs than standard or halogen bulbs.
- Above the average amount for overhead CFL lights, the only school with more was UC Irvine.
- The least amount of televisions per student of all schools, only .35 units per student surveyed, less than half of the .71 average.

SSU Sonoma: SSU was one of the five schools that had enough of both BOY and EOY data to analyze the change in appliance saturation. The most outstanding points of data at Sonoma were related to the student's desk lamps.

- There was a 141% increase in the number of halogen desk lamps reported by the students
- Standard bulb desk lamps decreased
- CFL bulb desk lamps decreased

In addition to the desk lamps Sonoma also saw an increase in two other energy using appliances:

- A nearly 30% increase in the number of refrigerators
- A 41% increase in the number of microwaves. There were 0.69 microwaves per student at SSU, the highest of any school.

UC Berkeley: Berkeley was one of two schools that were unable to complete the EOY surveys. The data in the Table shows that Berkeley students reported the:

- Highest number of desk lamps with CFL bulbs, close to .7 units per student
- There were however, a large number of halogen bulb desk lamps and over 1 lamp per student with standard bulbs.
- Close to 2 computers per student, the largest number of all the schools
- .68 Microwave ovens per student while the overall average is only .48

UC Irvine: Irvine was the other school that did not report an EOY survey. The data reported by the students at Irvine on a whole was very close to the overall average data from all the school. The one exception to this was:

- Students reported the highest number of overhead lamps with CFL lights at Irvine when compared to the other school. .75 units per student 25% above the overall average.

UC Santa Barbara: The Green Campus program did not effect the Santa Barbara students' use of energy efficient lights as desired. Although over 10% of the students reported participation in the CFL exchange program it did not help the students use more efficient lighting. The students reported a:

- 27% decrease in the use of desk lamps with CFL light bulbs and a 27% decrease of overhead lights with CFL bulbs.
- At the same time there was an increase in the use of halogen desk lights.

UC San Diego: San Diego students were close to the overall school average with most of their appliance saturation. The largest difference was with the overhead CFL lights. They started the year with slightly more than the average amount per students but experienced a 65% decease in overhead CFL bulbs during the school year.

- UCSD had a 65% drop in overhead CFL bulbs to end the year with only .21 units per student

Installation of E* appliances:

Table 5-15 shows the effect that the Green Campus awareness program had on students' installation of E* appliances at the beginning of the year, and Table 5-16 shows the numbers for the end of the year. Although for most appliances the EOY survey shows a drop in the amount of E* appliances per students, it also reports data on how many of the E* applications were due to the influence of the Green Campus program. Overall the program was very successful in effecting the lighting choices of the students.

- 89% of the overhead CFL lights were influenced by the program
- 59% of the desk lamp CFL bulbs were installed due to the program.
- 26% of the E* desk lamps installed were influenced by the program.

5.6 Energy-Related Behaviors, Changes, and Influences

This section of the survey investigated respondent habits and practices of energy consumption and conservation. Specifically, a series of question sets provided information regarding:

- Frequency with which respondents undertook a variety of conservation-related behaviors,
- Changes in those behaviors, and the factors underlying the changes; and
- Participation in Green Campus events that influenced energy awareness

5.6.1 Frequency of Behavior

Table 5-17 describes types and frequencies of respondent energy consumption behavior and activities in the spring of 2005. The results are presented as scores where 1 means the respondent never practices the behavior, and 7 means the respondent always practices the behavior.

Table 5-18 revisits the results by presenting the percent of respondents answering "6" or "7" for each behavior, where 6 or 7 indicating an activity that is undertaken very frequently or always. The variations in frequency of conservation behaviors by campus are summarized and highlighted in Table 5-19.

After providing an estimate of how frequently a given behavior or activity was undertaken, respondents were then asked to compare that frequency to the previous term—which is described in Table 5-20.

Average Frequency of Behavior

For this particular question set, participants were asked to rate how often they undertook a given activity on a scale of 1-7[26]—where 1 indicates the activity is almost never undertaken, 4 indicates that it is undertaken half the time, and 7 indicates that it is undertaken all the time[27]. The results are presented in Table 5-17.

Respondents from the five California institutions participated in the activities listed in Table 5-17 from almost never to a little more than half the time. Activities most frequently (more than half the time- 5 and above) engaged in by respondents included use of power strips,[28] and recycling. Activities least frequently (almost never- 2) engaged in by respondents included purchasing CFL bulbs. All other behaviors were practiced less than half (3) to half (4) the time.

However, SSU reported rates of participation that were higher than rates of participation reported by the other schools, which may have skewed the results to reflect higher rates of participation than was actually the case. Variations in the results for the different campuses are summarized in Table 5-17.

Table 5-17 Average Frequency of Conservation-Related Behaviors This Term

On a Scale of 1-7, 1=never practice, 7=always practice

Behavior	All Schools	HSU	SSU	UCSB	CSUSB	UCSD
Look for yellow energy tags when shopping for appliances	3	2	5	3	2	2
Leave lights on when leaving room	3	3	2	2	3	3
Leave computer monitor on overnight or when not in use	3	3	2	3	3	3
Purchase Energy Star® appliances	3	2	4	3	2	3
Purchase CFLs for room	2	2	3	2	2	2
Purchase Energy Star® CFLs for room	3	2	4	2	2	2
Use power strips	5	5	6	5	5	7
Use air conditioning less than in the past	4	4	5	3	4	2
Use heater less than in the past	4	4	5	3	4	3
Get rid of appliances not used often	4	3	5	4	3	1
Turn off computer when leave room or overnight	4	4	6	4	NA	4
Turn off printer and power chargers when leaving room or overnight	4	3	6	4	NA	1
Look for items with less packaging when shopping	4	3	5	3	3	
Ask for recycled paper	4	3	6	2	2	2
Use two sided copying	3	3	6	2	4	4
Take public transportation or ride bike instead of car	4	5	5	4	2	6
Recycle	6	5	7	6	5	6

[26] The scale in more specific description is as follows: 1=never practiced, 2=almost never practiced, 3=practiced less than half the time, 4=practiced half the time, 5=practiced more than half the time, 6=practiced almost all the time, and 7=practiced all the time.

[27] The activities presented in the Table include both energy efficient and energy inefficient practices; subsequently a behavior that is ranked as practiced all the time does not necessarily indicate an environmentally or energy conscious decision

[28]

Table 5-18 summarizes the results discussed in Table 5-17 further in depth by describing the percentage of responses that fell within the range of being practiced almost all (6) or all (7) the time. Across all campuses, the largest proportion of responses falling within the 6-7 range of frequency was reported in:

- Use of power strips[29]
- Recycling

A moderate to small[30] proportion of respondents reported practicing the other activities in Table 5-17 all or almost all the time. Again, highlights of the variations by campus are shown in Table 5-18.

Table 5-18 Average Frequency of Conservation Behavior; Percent Answering 6 or 7 (very frequently or always) Percent of respondents answering 0-100%

Behavior	All Schools	HSU	SSU	UCSB	CSUSB	UCSD
Look for yellow energy tags when shopping for appliances	10%	0%	36%	10%	3%	0%
Leave lights on when leaving room	10%	12%	18%	5%	15%	0%
Leave computer monitor on overnight or when not in use	15%	23%	18%	10%	26%	0%
Purchase Energy Star® appliances	8%	0%	18%	5%	5%	10%
Purchase CFLs for room	12%	8%	36%	0%	7%	10%
Purchase Energy Star® CFLs for room	14%	0%	45%	5%	10%	10%
Use power strips	58%	58%	73%	35%	48%	75%
Use air conditioning less than in the past	29%	36%	64%	15%	22%	10%
Use heater less than in the past	33%	30%	45%	20%	19%	50%
Get rid of appliances not used often	18%	8%	36%	25%	21%	0%
Turn off computer when leave room or overnight	7%	32%	82%	25%	NA	10%
Turn off printer and power chargers when leaving room or overnight	37%	28%	73%	30%	NA	0%
Look for items with less packaging when shopping	17%	20%	45%	10%	10%	0%
Ask for recycled paper	17%	8%	64%	5%	10%	0%
Use two sided copying	23%	16%	64%	0%	23%	10%
Take public transportation or ride bike instead of car	34%	42%	36%	30%	14%	50%
Recycle	51%	64%	91%	50%	38%	10%

[29] Note that the use of power strips is not an end in itself. Rather, Green Campus encourages use of power strips as a convenient way to turn off appliances (en masse) when not being used, and avoiding phantom loads. However, this refinement was a little complicated to ask on the mail survey.

[30] Moderate to small meaning 7(small) to 37 (moderate) percent of responses.

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Table 5-19. Variations in Adopted Behavior Frequencies by Campus: Most and Least Frequent Conservation-Related Behaviors by Campus (derived from Table 5-7)

Campus / and activity partic. level	Most frequent behaviors (score 5 or higher)	Least frequent behaviors (score 2 or less)	High percentage of scores of 6 or 7 (very frequently or always undertake behavior)
All campuses	• Use of power strips • Recycling	• Purchasing CFL bulbs	• Use of power strips • Recycling
HSU Humboldt / Low	• Utilization of power strips • Taking public transportation or biking instead of driving • Recycling	• Looking for yellow energy tags when shopping for appliances • Purchasing Energy Star® appliances • Purchasing Energy Star® rated and non-Energy Star® rated CFL bulbs	• Use of powers strips • Recycling
SSU Sonoma[31] / High	• Utilization of power strips • Turning computers, printers, and power chargers off overnight or when not in the room • Asking for recycled paper • Two-sided copying • Recycling	• Leaving lights on when not in the room • Leaving the computer monitor on overnight or when not in use	• Use of power strips • Use of air conditioning less than in the past • Turning computers off overnight or when not in the room • Turning printer or power chargers off overnight or when not in the room • Asking for recycled paper • Using two-sided copying • Recycling
UCSB Santa Barbara / Low	• Using power strips • Recycling	• Leaving lights on when not in the room • Purchasing CFL and Energy Star® CFL bulbs • Asking for recycled paper • Using two-sided copying	• Recycling
CSUSB San Bernardino[32]	• Use of power strips • Recycling	• Looking for yellow energy tags when shopping for appliances • Purchasing Energy Star® appliances • Purchasing CFL and Energy Star® CFL bulbs • Asking for recycled paper • Taking public transportation or bicycling instead of driving	• none
UCSD San Diego / Low	• Use of power strips • Taking public transportation or bicycling instead of driving • Recycling	• Looking for yellow energy tags when shopping for appliances • Purchasing CFL and Energy Star® CFL bulbs • Getting rid of appliances that are not used frequently • Turning off printers and power chargers when not in the room or overnight • Asking for recycled paper	• Use of power strips • Using heaters less than in the past • Taking public transportation or bicycling instead of driving

[31] Keep in mind that the sample for SSU may have been biased towards respondents with environmental views and tendencies; many of the activities SSU respondents reported frequent participation in are not consistent with activities reported by respondents from other schools.

[32] The format was different in this portion of the CSUSB survey excluding two categories regarding turning off printers/chargers and computers when not in the room. Overall, while CSUSB respondents reported participation in the activities listed in the Table, the relative frequency of participation tended to fall at the mid to lower end of the scale.

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5.6.2 Changes in Conservation-Related Behaviors

Table 5-20 describes changes in the behavior of respondents for Year 1 compared to the previous academic year. Response data for this portion of the survey is presented in terms of negative and positive percent values.

- Negative percent changes indicate an activity that is practiced less than the previous year.
- Positive percent changes indicate an activity that is practiced more than the previous year.
- Values that are zero percent indicate activities that are practiced with the same frequency as the previous year.

Students were also asked to list why their behavior changed and what barriers existed to improving in other categories.

Generally, the results in the table demonstrate the expected patterns. The second and third rows are negative effects, and most of the campuses show negative changes in those activities (leaving lights or computer monitors on). Most of the remainder (positive) behaviors had positive signs.

Overall, respondents from the five California institutions exhibited modest change in frequency of participation in the activities listed in Table 5-20. Changes were mostly positive; increasing in frequency for those behaviors that are conducive to energy conservation, and decreasing in frequency for those that are negative. The greatest amount of change occurred in recycling and turning off personal computers when not in the room or overnight.

Table 5-20 Average Frequency of Conservation Behaviors Year 1 Compared to Previous Term. *Percent change in behavior -100-100%*

Behavior	All Schools	HSU	SSU	UCSB	CSUSB	UCSD
Look for yellow energy tags	7%	5%	6%	11%	-6%	17%
Leave lights on when leaving room	1%	-5%	-5%	-9%	-3%	26%
Leave computer monitor on overnight or when not in use	1%	2%	-9%	-11%	-2%	26%
Purchase Energy Star® appliances	4%	3%	8%	6%	-5%	9%
Purchase CFLS for room	3%	7%	16%	-2%	-6%	0%
Purchase Energy Star® CFLS	1%	8%	4%	-2%	-5%	0%
Use power strips	6%	9%	12%	5%	2%	0%
Use air conditioning less than in the past	2%	1%	9%	-3%	2%	0%
Use heater less than in past	7%	0%	12%	13%	-1%	9%
Get rid of appliances not often used	3%	4%	10%	2%	1%	0%
Turn off computer when not in room or overnight	13%	10%	16%	11%	n/a	26%
Turn off printer or power chargers overnight or when not in use	4%	2%	14%	5%	n/a	0%
Look for items with less packaging when shopping	6%	1%	10%	-4%	-4%	26%
Ask for recycled paper	2%	0%	16%	0%	-4%	0%
Use two sided copying	11%	9%	16%	2%	1%	26%
Take public transportation	9%	7%	9%	10%	-7%	26%
Recycle	17%	23%	17%	11%	7%	26%
Average for energy conservation-related behavior changes (except 2nd and 3rd items)	5%	5%	11%	4.9%	1.8%	5.2%

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Differences by campus are highlighted below, along with summaries of the reasons for change and the remaining barriers to behavior changes. Those motivating factors that may possibly be Green Campus in origin include parentheses with (GC) at the end.

***HSU Humboldt**:* The greatest changes in frequency of behavior from the previous year were: decreased tendency to leave lights on when not in the room; increased tendencies to turn off the computer overnight and when not in the room, and increased tendency to practice recycling. There was no change from the past term in: use of heaters, and asking for recycled paper.

Reasons for change in behavior were:

- That a student did not have a car
- Recycle bins were available and easily accessible
- Education increased awareness (GC)

Barriers to a change in behavior were:

- Lack of knowledge
- Inability to change certain practices because some options are controlled by the institution (such as overhead lighting)
- Energy efficient measures are more expensive

***SSU Sonoma**:* Respondents noted several changes in their behavior from the previous year. The greatest changes in frequency of behavior from the previous year were:

- Decreased tendency to leave computer monitors on overnight or when not in use
- Increased tendency to purchase CFL bulbs
- Increased tendency to turn off the computer overnight or when not in use
- Increased tendency to ask for recycled paper and use two-sided copying
- Increased tendency to recycle

The least amount of change occurred in the following category:

- Purchasing Energy Star® rated CFL bulbs

Reasons for a change in behavior were:

- Increase in knowledge through enrollment in environmental studies classes[33] (GC)

Barriers to a change in behavior were:

- Cost of more efficient appliances
- Time taken to install those measures

***UCSB Santa Barbara**:* Respondents noted several changes in their behavior from the previous year. The greatest changes in frequency of behavior from the previous year were:

- Increased tendency to look for yellow energy tags
- Decreased tendencies to leave the lights or computer monitor on overnight or when not in the room
- Decreased tendency to use the heater
- Increased tendency to turn the computer off overnight or when not in the room

[33] This is consistent with the composition of and demographic characteristics of the SSU respondent population.

- Increased tendency to recycle

No change in behavior was noted in the following category:
- Asking for recycled paper

Reasons for a change in behavior were:
- Participation in events meant to increase awareness and knowledge regarding energy conservation (GC)
- Personal experience assuming the cost of an electricity bill
- The school's efforts to promote recycling

Barriers to a change in behavior were:
- Cost
- Lack of knowledge
- Inability to recognize the labels that distinguish efficient appliances from others

***CSUSB San Bernardino**:* Respondents tended to undertake the behaviors listed in Table 5-20 less frequently than the previous year. The greatest changes in frequency of behavior from the previous year were:
- Decrease in taking public transportation or bicycling rather than driving
- Increase in recycling

The least amount of change occurred in the following categories:
- Heater use
- Getting rid of appliances not often used
- Use of two-sided copying

Reasons for a change in behavior were:
- Developing a more environmentally conscious outlook
- Convenience—the ease of access due to recycling bins being placed in rooms
- Lack of control over room temperature

Reasons for not changing behavior included:
- Laziness
- Lack of true understanding of the costs associated with excessive energy use because respondents do not have to pay the energy bill
- Hot climate, which lends itself to higher use of air conditioning

Barriers to a change in behavior were:
- Cost
- Knowledge
- Lack of concern

***UCSD San Diego**:* Respondents noted moderate increases in frequency of behavior from the previous year to the current year. However, as there were only four responses, these impacts are not studied in detail. The greatest changes in frequency of behavior from the previous year were increases in:
- leaving the lights on when leaving the room,

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- leaving computer monitors on overnight or when not in use,
- turning off computers when leaving the room or overnight,
- looking for items with less packaging when shopping,
- using two sided copying,
- taking public transportation or bicycling instead of driving, and
- recycling.

Other than looking for yellow energy tags and purchasing Energy Star® appliances, there was no change between terms for the other categories. The primary reason for change in behavior was:

- Enrollment in environmental studies classes (GC)

Barriers to a change in behavior were:

- Cost
- Performance standards[34]

The results show that at each campus, the Green Campus program efforts (outreach, events, or environmental classes) had a role in changing behavior of the target students to embrace more energy efficient behaviors. The information also points out some of the remaining barriers to behavioral change, including:

- Price of energy efficient equipment,
- Equipment that is not in student control,
- Time and hassle for installation of new equipment,
- Missing incentives because students do not pay the energy bill,
- Weather, and other factors.

While these factors can only be addressed to a small degrees by Green Campus staff, additional barriers mentioned – lack of understanding or knowledge about energy efficient equipment, and inability to read the labels distinguishing efficient equipment – can presumably be addressed by Green Campus interns as part of their direct program efforts.

5.6.3 Frequency of Behavior Year 2

Table 5-21 and 5-22 describe types and frequencies of respondent energy consumption behavior and activities in the Fall of 2005 and Spring of 2006 respectively. The results are presented as scores where 1 means the respondent never practices the behavior, and 7 means the respondent always practices the behavior.

The variations in frequency of conservation behaviors by campus are summarized and highlighted in Table 5-23.

Average Frequency of Behavior

For this particular question set, participants were asked to rate how often they undertook a given activity on a scale of 1-7—where 1 indicates the activity is almost never undertaken, 4 indicates that it is undertaken half the time, and 7 indicates that it is undertaken all the time. The results are presented in Table 5-21 for the beginning of the year and 5-22 for the end.

[34] Though the respondent who reported "performance standards" as a barrier to change may have thought that the question was referring to firm behavior rather than that of the individual.

Activities most frequently (more than half the time- 5 and above) engaged in by respondents were “recycling”. There were no activities that scored under 2, showing that students participate somewhat in all the listed activities. All other behaviors were practiced less than half (3) to half (4) the time. Variations in the results for the different campuses are summarized in Tables 5-23 and 5-24.

Table 5-21 Average Frequency of Conservation-Related Behaviors Beginning of Year
On a Scale of 1-7, 1=never practice, 7=always practice

Behavior	All	CSU	CSUB	HSU	SSU	UCB	UCI	UCSB	UCSD
Look for yellow energy tabs	2.3	1.6	2.4	2.5	1.8	2.4	2.8	2.5	2.3
Leave lights on when leaving room	3.0	2.8	2.7	2.7	3.1	3	3.2	2.9	3.3
Leave computer monitor on overnight	3.2	4.1	2.5	2.9	3.2	3	3.4	3.1	3.4
Purchase energy star appliances	2.9	2.7	2.8	2.9	2	2.9	3.3	3.4	3.1
Purchase CFLs for your room	2.9	2.1	2.6	2.9	2	2.9	3.6	3.1	3.8
Purchase E* CFLs for your room	2.6	2.2	2.6	2.4	2	2.5	3.2	2.8	2.9
Use power strips to turn off appliances when not in room	2.7	2.4	2.7	3.3	1.9	2.3	3.3	2.6	2.9
Use air conditioning less than in the past	4.0	3.6	3.4	4.6	3.2	4.2	4.5	4	4.3
Use heater less than in the past	3.8	3.3	3.3	4.2	2.8	4.2	4.4	4	4.3
Get rid of appliances you don’t use that often	3.5	3.3	3.5	3.9	2.7	3.2	3.9	3.8	3.6
Look for items with less packaging when shopping	3.0	2.2	2.9	3.6	2.1	2.9	3.5	3.2	3.2
Ask for recycled paper	2.8	2.2	2.5	3.6	2.2	2.3	3.4	3.3	3
Use two sided copying	3.5	3.4	3	3.7	2.9	4	4	3.8	3.5
Take public transportation or bike instead of car	3.9	3.8	2.5	4.4	2.8	5	3.7	5	3.7
Recycle	5.2	5.1	4.7	5.7	5.6	5.4	4.7	5.5	5

Table 5-22 Average Frequency of Conservation-Related Behaviors End of Year
On a Scale of 1-7, 1=never practice, 7=always practice

Behavior	All	CSUSB	SSU	UCSB	UCSD
Look for yellow energy tabs	3.9	3.7	3.6	4.3	4.1
Leave lights on when leaving room	3.1	2.6	3.6	3.2	3.1
Leave computer monitor on overnight	3.3	2.6	3.8	3.3	3.4
Purchase Energy Star appliances	3.9	3.8	3.7	4.1	3.9
Purchase CFLs for your room	4.0	3.8	3.8	4.2	4
Purchase E* CFLs for your room	3.9	3.9	3.7	4.2	3.9
Use power strips to turn off appliances when not in room	3.9	4	3.5	4.3	3.7
Use Air conditioning less than in the past	3.9	4.2	3.7	3.9	3.8
Use heater less than in the past	3.9	3.8	3.8	3.9	4
Get rid of appliances you don’t use that often	4.0	3.8	3.9	4.1	4
Look for items with less packaging when shopping	4.0	3.9	3.8	4.5	3.9
Ask for recycled paper	4.2	3.9	3.9	4.7	4.1
Use two sided copying	4.3	4.1	3.9	4.8	4.2
Take public transportation or bike instead of car	4.2	3.3	3.8	5.3	4.5
Recycle	4.9	5	4.8	5.3	4.6

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Table 5-23. Variations in Adopted Behavior Frequencies by Campus: Most and Least Frequent Conservation-Related Behaviors by Campus Beginning of Year

Campus	Most Frequent Behaviors (Score of 4 or Higher)	Least Frequent Behaviors (Score 2 or Less)
All	• Use air conditioning less • Recycle	• None
CSU/ Chico	• Recycle	• Look for yellow energy tags
CSUSB/ San Bernardino	• Recycle	• None
HSU/ Humboldt	• Recycle • Use air conditioning less • Take public transportation or bike instead of car • Use heater less	• None
SSU/ Sonoma	• Recycle	• Purchase Energy Star Appliances • Purchase CFLs for room • Purchase E* CFLs for room • Use air conditioning less • Look for yellow energy tags
UCB/ Berkeley	• Recycle • Take public transportation or bike instead of car • Use air conditioning less • Use heater less • Use two-sided copying	• None
UCI/ Irvine	• Recycle • Use air conditioning less • Use heater less • Use two-sided copying	• None
UCSB/ Santa Barbara	• Recycle • Take public transportation or bike instead of car • Use air conditioning leas • Use heater less	• None
UCSD/ San Diego	• Recycle • Use air conditioning less • Use heater less	• None

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Table 5-24. Variations in Adopted Behavior Frequencies by Campus: Most and Least Frequent Conservation-Related Behaviors by Campus End of Year

Campus	Most Frequent Behaviors (Score of 4 or Higher)	Least Frequent Behaviors (Score of 2 or less)
All	• Recycle • Take public transportation or bike instead of car • Use two-sided copying • Ask for recycled paper • Look for items with less packaging when shopping • Purchase CFLs for room	• None
UCSB/ San Bernardino	• Recycle • Use air conditioning less • Use two-sided copying • Use power strips to turn off appliances when not in room	• None
SSU/ Sonoma	• Recycle	• None
UCSB/ Santa Barbara	• Recycle • Take public transportation or bike instead of car • Use two-sided copying • Ask for recycled paper • Look for items with less packaging when shopping • Use power strips to turn off appliances when not in room • Purchase CFLs for room • Purchase E* CFLS for room • Look for yellow energy tags • Purchase E* appliances	• None
UCSD/ San Diego	• Recycle • Take public transportation or bike instead of car • Use two-sided copying • Ask for recycled paper • Look for yellow energy tags • Purchase CFLs for room • Use heater less • Get rid of appliances you don't use that often	• None

5.6.4 Changes in Conservation-Related Behaviors

55-20 describes changes in the behavior of respondents for the year derived from differences in the beginning and end of year surveys. Response data for this portion of the survey is presented in terms of negative and positive percent values.

- Negative percent changes indicate an activity that is practiced less than the previous survey.
- Positive percent changes indicate an activity that is practiced more than the previous survey.
- Values that are zero percent indicate activities that are practiced with the same frequency as the previous survey.

Results are only shown for the four schools that submitted both beginning and end of year surveys and for the average overall percent change.

Generally, the results in the table show an increase in conservation related behavior. The behaviors that changed by the largest percent were:

- Look for yellow light tags
- Purchase E* CFLs for lights in your room
- Ask for recycled paper
- Use power strips to turn off appliances when not in room

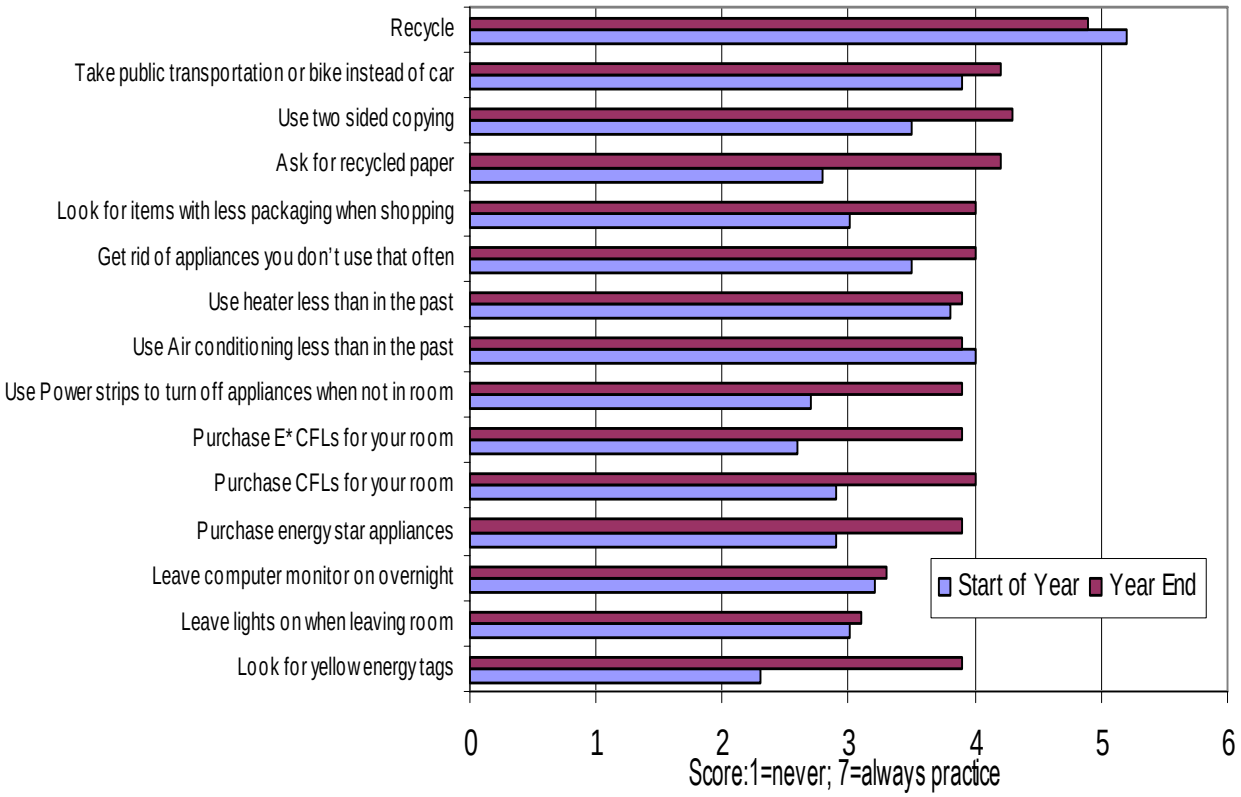
Table 5-25 Average Frequency of Conservation Behaviors Beginning Compared to end of Year *Percent change in behavior -100-100%*

Behavior	ALL	CSUSB	SSU	UCSB	UCSD
Look for yellow energy tabs	72%	54%	100%	72%	78%
Leave lights on when leaving room	5%	-4%	16%	10%	-6%
Leave computer monitor on overnight	2%	4%	19%	6%	0%
Purchase energy star appliances	34%	36%	85%	21%	26%
Purchase CFLs for your room	37%	46%	90%	35%	5%
Purchase E* CFLs for your room	52%	50%	85%	50%	34%
Use Power strips to turn off appliances when not in room	45%	48%	84%	65%	28%
Use Air conditioning less than in the past	-2%	24%	16%	-3%	-12%
Use heater less than in the past	2%	15%	36%	-3%	-7%
Get rid of appliances you don't use that often	13%	9%	44%	8%	11%
Look for items with less packaging when shopping	36%	34%	81%	41%	22%
Ask for recycled paper	48%	56%	77%	42%	37%
Use two sided copying	20%	37%	34%	26%	20%
Take public transportation or bike instead of car	9%	32%	36%	6%	22%
Recycle	-6%	6%	-14%	-4%	-8%

The results from the second year evaluation are also displayed in Figure 5-1. This table takes the data from the beginning and the end of the year and compares them side by side. By looking at the bar chart it is apparent that the behaviors that changed most throughout the second year were:

- Look for yellow energy tags
- Purchase Energy Star® CFLs for your room
- Ask for recycled paper

Table 5-1 Comparison of Energy Related Behaviors



5.6.5 Satisfaction and Behaviors Year 2

This portion of the survey allowed the students to express their level of agreement with a number of statements regarding conservation and its effect on behaviors. These questions show how the students feel toward conservation measures on a broad scale. Students were asked to write whether they agree or disagree with the statements by applying a numeric value to each statement with 1 indicating they strongly disagree to 5 indicating they strongly agree. Tables 5-26 and 5-27 show the students response to these questions from both the beginning and end of the year surveys.

Table 5-26, Attitudinal Responses from Students, Year 2, Beginning of Year
(1=strongly disagree, 5-strongly agree)

Behaviors (Year 2, Beginning of year)	All	CSU	CSUB	HSU	SSU	UCB	UCI	UCSB	UCSD
What I do only makes a difference if others do it too	2.7	2.6	2.5	2.7	2.5	2.9	3.1	2.7	2.7
Each of us has to be responsible	4.0	3.8	4	4.2	3.9	4.1	3.8	4.2	4
There is not much I can do to decrease the amount of resource use in my dorm	2.4	2.4	2.4	2.3	2.3	2.4	2.7	2.4	2.4
Conservation is an easy, commonsense way to reduce energy use	3.8	3.6	3.7	4	3.7	4	3.7	4	3.8
Whether or not I conserve makes little difference to future generations or the environment	2.2	2.1	2.3	2.1	2.2	2.2	2.5	2.1	2
I don't believe conservation does much to reduce pollution	2.1	2.3	2.3	2	2	2	2.5	1.9	2.1
Conservation can provide an easy way for the School to control energy cost	3.7	3.6	3.6	4	3.7	3.8	3.4	3.9	3.5
We are using up our resources too fast	3.8	3.4	3.6	4.2	3.8	4.1	3.6	4.1	3.8
Convenience is more important to me than saving resources	2.7	3	2.8	2.5	2.5	2.7	2.7	2.6	2.7

Table 5-27 Attitudinal Responses from Students, Year 2, End of Year
(1=strongly disagree, 5=strongly agree)

Attitudes (Year 2, End of Year)	All	CSUSB	SSU	UCSB	UCSD
What I do only makes a difference if others do it too	2.73	2.7	3.1	2.5	2.6
Each of us has to be responsible	4.30	4.3	4.2	4.3	4.4
There is not much I can do to decrease the amount of resource use in my dorm	2.25	2.2	2.3	2	2.5
Conservation is an easy, commonsense way to reduce energy use	4.03	3.8	4.1	3.9	4.3
Whether or not I conserve makes little difference to future generations or the environment	2.18	2.7	2.1	2.2	1.7
I don't believe conservation does much to reduce pollution	1.95	2.3	2	1.7	1.8
Conservation can provide an easy way for the School to control energy cost	3.90	3.7	4.1	3.7	4.1
We are using up our resources too fast	4.13	3.9	4.3	4.1	4.2
Convenience is more important to me than saving resources	2.48	2.5	2.4	2.5	2.5

The statements that students overall most strongly agreed with in the beginning of the year survey were:

- Each of us has to be responsible, what I do makes a difference
- Conservation is an easy, common sense way to reduce energy use
- We are using up our resources too fast

On the other hand, statements that student most strongly disagreed with were:

- I don't believe conservation does much to reduce pollution
- Whether or not I conserve makes little difference to future generations or the environment

Through the Green Campus program students were given the chance to see information regarding conservation and energy saving methods which affected their opinions on these statements. The end of year survey asked the students to once again say whether they 1=strongly disagree with the statements or 5=strongly agree. While the statements that were

most agreed or disagreed with did not change, the answers were more polarized at the end of the year. Table 5-28 shows the percentage change of opinion for the schools that returned both beginning and end of year surveys. Response data for this portion of the survey is presented in terms of negative and positive percent values.

- Negative percent changes indicate a statement that is disagreed with more than in the beginning of the year.
- Positive percent changes indicate a statement that is more strongly agreed with than in the beginning of the year.
- Values that are zero percent indicate statements about which opinions remained the same.

The statements that students most strongly agreed with at the end of the year were:

- Each of us has to be responsible, what I do makes a difference
- Conservation is an easy, common sense way to reduce energy use
- We are using up our resources too fast

Once again the statements that students most strongly disagreed with were:

- I don't believe conservation does much to reduce pollution
- Whether or not I conserve makes little difference to future generations or the environment

The difference between the two surveys is in how strongly the students agreed or disagreed. In the BOY survey the average score for the statement "Each of us has to be responsible, what I do makes a difference." was 4 while at the EOY it was elevated to 4.3. This can be seen numerically in Table 5-29, expressed as the percent change between the two surveys. The results show an increase in their feeling of power. There are increases overall in the responses that indicate self-efficacy and environmental responsibility (b, d, g, h), and a decrease in those for which a negative would indicate increases in self-efficacy and environmental awareness (c, e, f, and i). This would tend to indicate a shift in attitudes – perhaps from Green Campus efforts.[35]

Table 5-28 Percent Change in the Average Attitudinal Score (Year 2)

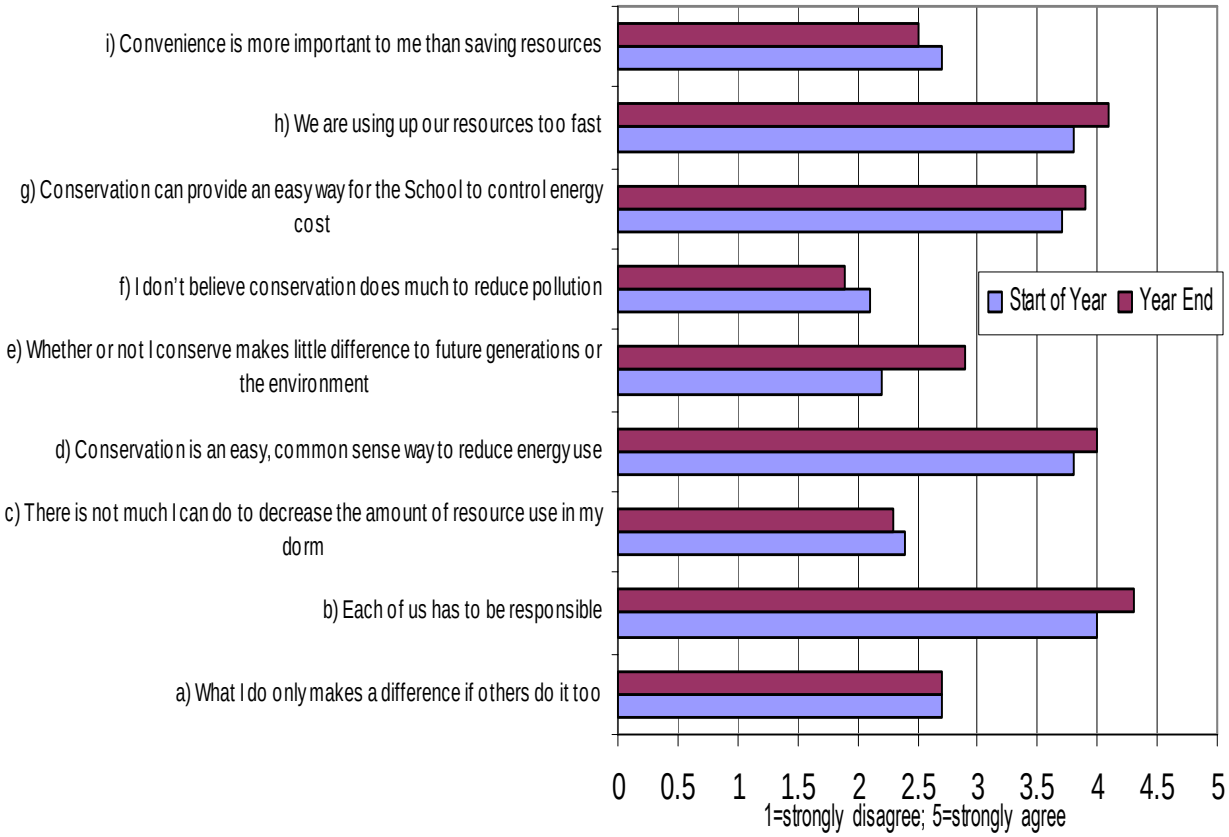
Behavior	ALL	CSUSB	SSU	UCSB	UCSD
a) What I do only makes a difference if others do it too	0%	4%	24%	-7%	-4%
b) Each of us has to be responsible	8%	13%	8%	2%	10%
c) There is not much I can do to decrease the amount of resource use in my dorm	-7%	-8%	0%	-17%	4%
d) Conservation is an easy, common sense way to reduce energy use	6%	6%	11%	-3%	13%
e) Whether or not I conserve makes little difference to future generations or the environment	-1%	29%	-5%	5%	-15%
f) I don't believe conservation does much to reduce pollution	-9%	0%	0%	-11%	-14%
g) Conservation can provide an easy way for the School to control energy cost	6%	3%	11%	-5%	17%
h) We are using up our resources too fast	8%	15%	13%	0%	11%
i) Convenience is more important to me than saving resources	-8%	-17%	-4%	-4%	-7%

[35]Given budget constraints, we focused on this simple reporting of these attitudinal issues rather than using more complex analytical techniques.

The following figure displays the overall attitudinal score from the beginning and the end of the year side by side in a bar chart. This allows the reader to graphically see which self efficacy behaviors changed the most throughout the second year of the green campus.

- Each of us has to be responsible
- Convenience is more important to me than saving resources
- We are using up our resources too fast

Figure 5-2 Comparison of Self Efficacy in Second Year Evaluation



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5.6.6 Participation in Events to Increase Awareness

This portion of the survey investigated available opportunities to increase awareness of energy conservation measures and whether respondents took part in them. Response data regarding average respondent participation in events to increase awareness is presented in Table 5-29.

Response data regarding participation in events meant to increase awareness of energy conservation and environmental issues was obtained from four[36] schools. On average, participants from those four schools attended at least one of each listed event this year and last year. The event that received the most frequent participation was enrollment in an environmental class.[37] Variations by campus are illustrated in the Table.

Table 5-29 Average Number of On-Campus Environmental Events Respondents Participated In. Presented in number of times of occurrence

Event	All Schools	HSU	SSU	UCSB	CSUSB	UCSD
Attended campus event on env. Issues this year.	1	1	5	NA	0	0
Number attended last year?	1	1	2	NA	0	0
Visited energy conservation booth at campus event this year	1	1	1	NA	0	0
Visited booth last year?	1	0	1	NA	0	1
Taken an environmental class this year	2	1	4	NA	NA	1
Taken an environmental class last year?	2	1	5	NA	NA	2

5.7 Omitted Program Effects: Perceived Non-Energy Benefits

The energy savings derived from changes in energy appliance ownership, use, and energy behaviors represent the bulk of the direct effects from the program. However, a significant body of work has developed around recognizing and measuring net non-energy benefits (NEBs). NEBs[38] include a variety of program impacts — positive and negative — that result from the Program. NEBs represent important "omitted program effects" – impacts attributable to the program, but often ignored in program evaluation work.

NEBs also represent key reasons that many participants elect to participate in energy efficiency (EE) programs or adopt energy efficiency measures. When asked, participants routinely cite non-energy impacts and considerations either as a component of decision-making or as benefits they recognized after installing energy efficient equipment. These NEB effects are being examined for many programs, and are being considered by more and more utilities and regulators for benefit-cost, program design, and outreach / targeting purposes. The convention

[36] UCSB eliminated these questions from the survey.

[37] However, note that the averages represented in the "total" column in the Table are higher than they might be—response data from SSU relayed much higher rates of participation in the listed events than response data from other schools. Also, some surveys lacked the last two questions, reducing confidence in the results about enrollment in environmental classes.

[38] Note that the literature has used the designation "non-energy benefits" although it includes both positive and negative impacts from energy efficiency measures. Although the conventional term NEB is used here, the name refers to "net" non-energy benefits.

has been established to separate these benefits into three "perspectives"[39], and the survey work conducted as part of this project provides information related to the participant benefits.

The mail questionnaire used in this first year evaluation of the Green Campus program included a battery of questions designed to assess NEBs. Respondents were asked to report whether they recognized positive (1), neutral (0), or negative (-1) effects from the use of energy efficient appliances compared to standard efficiency equipment.[40] Responses were recorded for each of 8 predetermined categories of impacts. Table 5-30 summarizes the results of the positive or negative impacts respondents (and thus represent the net share of respondents recognizing effects) associated with the use of energy efficient appliances.

Response data from five schools was obtained regarding the direction and degree of participant associations with possible outcomes arising from use of energy efficient appliances. Across all schools, respondents reported positive net impacts from each of the benefit categories. Those benefits that are most commonly recognized as positive by students include:

- Environmental impacts, or doing good for the environment (the net of positive, negative, and neutral impacts resulted in 55% of respondents recognizing this as a benefit);
- Improved equipment performance;
- Improved equipment reliability,
- Enhanced quality of the light in the room, and
- Improved ability to study productively in the room.

The assessment of benefits varies between campuses, with some more positive regarding specific benefit categories. Also, in particular, some of the values from UCSD are negative. This indicates that more students, on balance, at this campus believe that energy efficient equipment has associated maintenance, noise, and aesthetic problems.[41]

Table 5-30 Net Non-Energy Benefits Perceived In Association with Energy Efficient Equipment Comparisons made relative to standard efficiency equipment. Average of Respondent answers from the following scale: 1=positive, 0=neutral, -1=negative

Outcome	All Schools	HSU	SSU	UCSB	CSUSB	UCSD
Quality of light in the room	0.35	0.31	0.22	0.38	0.39	0.33
Your productivity/ability to work or study	0.35	0.20	0.44	0.31	0.35	0.67
Aesthetics/look of the equipment	0.29	0.07	0.67	0.13	0.32	-0.33
How well the equipment works	0.38	0.40	0.67	0.38	0.37	0.33
Maintenance of the equipment	0.34	0.15	0.44	0.19	0.37	-0.50
Reliability of the equipment	0.37	0.31	0.67	0.25	0.36	0
Impacts on the environment	0.55	0.54	0.89	0.56	0.54	0.33
Noise from equipment	0.33	0.15	0.33	0.19	0.35	-0.50
Other	0.19	0.20	-0.33	0.22	0.21	NA

[39] Utility NEBs that represent reductions in lower revenue requirements; societal NEBs including economic development, emissions, and other benefits; and participant benefits. See for additional explanations of these benefit categories. Skumatz, 1997. "Recognizing all Program Benefits: Estimating the Non-Energy Benefits of PG&E's Venture Partner Pilot Program", 1997 IEPEC Energy Evaluation Conference, Chicago, Illinois.

[40] The questionnaire format for this question set seemed to create difficulties in terms of understanding the rating system among respondents across all schools. Many did not understand that they only needed to mark one column for each category, and subsequently returned multiple answers for each of the questions.

[41] In future evaluations of the program, if evaluation interviews are conducted with students and staff, specific equipment can be addressed, and the values quantified in dollar terms.

The second year surveys once again asked the students to measure NEBs by giving a positive or negative response to energy efficient equipment. However, Year 2 added more options for the student response. Instead of limiting answers to better (1), same (0), or worse (-1), students could also reply much better with a value of 2 or much worse and assign a value of -2 to the answer. Table 5-31 summarizes the results of both surveys from the second year. The answers from the EOY responses are marked in bold. In both surveys students assessed positive impacts overall for every category. The beginning of the year survey found that the students saw a positive impact of the equipment in all of the categories. They responded that the outcome most effected by energy efficient appliances or lighting were:

- Impacts on the environment
- Maintenance needs of the equipment

The outcomes least affected in a positive direction by the energy efficient measures were:

- Quality of light in the room
- Your productivity/ability to work or study

The end of the year survey also saw positive responses in all categories, the main difference was the level of positive responses at the end of the year versus the beginning. In the BOY survey only one of the categories, impacts on the environment, garnered a response level over .26. The EOY survey had positive responses for all categories over .26 and a large increase of perceived NEBs from the equipment in every category. The outcomes most affected by the energy efficient equipment were:

- Impacts on the environment
- Overall benefits
- Maintenance needs on the equipment
- Quality of light in the room

Categories that saw the largest change in opinion were:

- Quality of light in the room
- Aesthetics/ look of the equipment
- Your productivity/look of the equipment

All of these outcomes could be affected by the student's exposure and interaction with energy saving equipment/ lighting or conservation measures. Once the students were actually able to see and use this equipment they could drop some of the widespread and preconceived ideas about it and form their own opinions based on working knowledge of the equipment.

Table 5-31 Comparison of Non-Energy Benefit Perceptions for Year 2, Beginning to End of Year
Comparisons made relative to standard efficiency equipment. Average of Respondent answers from the following scale: 1=positive, 0=neutral, -1=negative

Outcome	All Schools (BOY)	All Schools (EOY)	CSU (BOY)	CSUSB (BOY)	CSUSB (EOY)	HSU (BOY)	SSU (BOY)	SSU (EOY)	UCB (BOY)	UCI (BOY)	UCSB (BOY)	UCSB (EOY)	UCSD (BOY)	UCSD (EOY)
Quality of Light in Room	0.09	0.37	-0.02	0.18	0.47	0.1	-0.1	0.29	0.12	0.23	0.2	0.45	-0.01	0.26
Your Productivity	0.09	0.29	0.05	0.16	0.31	0.08	-0.02	0.2	0.11	0.13	0.18	0.43	0.01	0.23
Aesthetics	0.10	0.40	-0.02	0.2	0.42	0.13	0.06	0.37	0.09	0.13	0.29	0.46	-0.08	0.33
How well the equipment works	0.13	0.35	0.02	0.19	0.3	0.18	0.13	0.28	0.15	0.06	0.23	0.53	0.08	0.3
Maintenance need of the equipment	0.18	0.39	0.17	0.3	0.4	0.2	0.11	0.29	0.22	0.17	0.29	0.53	0.01	0.33
Reliability of equipment	0.26	0.43	0.13	0.35	0.45	0.36	0.18	0.36	0.31	0.23	0.38	0.48	0.12	0.43
Impacts on the Environment	0.61	1.15	0.46	0.49	1.3	0.85	0.61	0.76	0.81	0.44	0.71	1.25	0.52	1.27
Noise from equipment	0.14	0.45	0.02	0.19	0.64	0.27	0.04	0.18	0.18	0.18	0.21	0.61	0.06	0.37
Safety Issues(EOY Only)	–	0.41	–	–	0.52	–	–	0.25	–	–	–	0.53	–	0.33
Overall(EOY only)	–	0.67	–	–	0.61	–	–	0.5	–	–	–	0.98	–	0.58
Other (BOY Only)	0.15	–	-0.1	0.14	–	0.22	0.29	–	0.1	0.33	0.15	–	0.09	–
Other (BOY Only)	0.14	–	-0.13	0.33	–	0.33	0.11	–	-0.06	0.38	0.09	–	0.05	–

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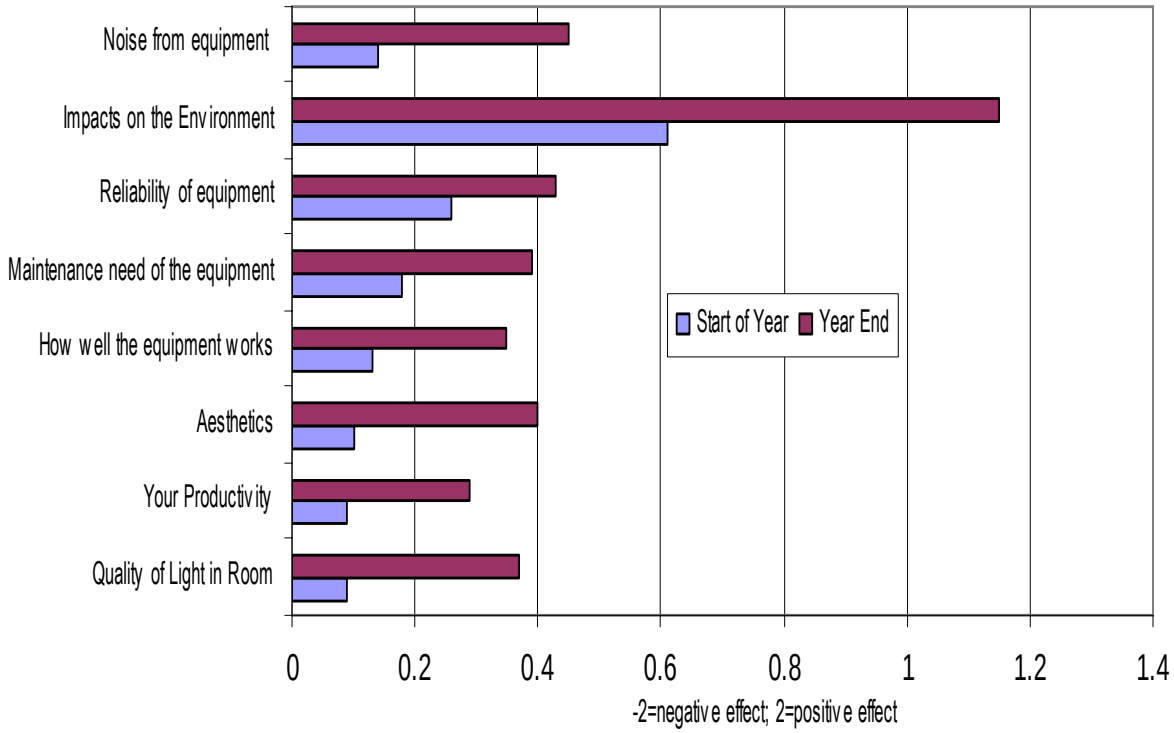
Figure 5.3 again compares the effects of the non-energy benefits from the second year evaluation but does so graphically in a bar chart. It compares the changes in perceptions for all of the non-energy benefit categories for the average score of all the schools studied.

Figure 5-3 Comparison of Total Non-Energy Benefits



5.8 Conclusions and Recommendations from Student Surveys

In order to evaluate awareness, behavior, and satisfaction of students as well as the effectiveness of the Green Campus program, a survey was distributed to six higher education campuses in California: Humboldt (HSU), Sonoma (SSU), Berkeley (USB), Santa Barbara (UCSB), San Bernardino (CSUSB), and San Diego (UCSD). While more in depth and explanatory information can be found in previous sections of this report, there are several overarching conclusions that can be drawn.

Survey Administration: Similar surveys were administered at all campuses; however, there were some variations. These variations led to occasional informational gaps. Despite these differences, a great deal of useful and dependable information was provided to assess the program. More than 350 surveys were analyzed for this evaluation of Green Campus efforts to increase energy efficiency on campuses, particularly in residence halls.

Satisfaction with Campus Residence Hall Efforts in Energy: Students were asked to assess the energy services and equipment in place on campus and in student housing. The responses varied by campus. Although HSU and SSU did relatively well on their own (A's and B's), the average for all schools was C or worse in every category, and students gave some campuses a "D" or below. The most striking deficiency, according to students, is a lack of energy efficient equipment or appliances in campus classrooms. Students feel there is room for improvement – a void the Green Campus program is designed to help address. When asked, students provided feedback on an array of conservation-related activities that campus staff might consider implementing. These results provide a background and context for the Green Campus program efforts.

Awareness of Green Campus: One of the Green Campus program's strengths was increasing students' awareness of energy conservation measures. Particularly successful were the incentive programs such as the free CFL bulb give- away. More than one-third of respondents reported being aware of the program and its activities. Of these efforts, posters, Green Campus program information, and flyers/brochures were the most successful media items in terms of students taking notice. In addition, about half of students were inspired by their enrollment in classes on environmental or energy conservation issues.

Appliance Saturations in On-Campus Housing: Overall, the data showed a trend of using more energy efficient appliances and using fewer standard efficiency appliances. Computers are leading the way, and CFLs have also been making inroads. With devices such as free light bulb give-a-ways, students' awareness of CFLs increased to about half the student body by the end of the year. Encouragement of CFL usage has been one of the most successful aspects of the Green Campus program. The results are summarized in Table 5-32.

Table 5-32 Summary of Appliance Saturation and Energy Star® Results

Most Common Appliances in Residence Hall Rooms	
• Computers • Printers / scanners • Cell phone or other chargers • VCR/DVD/CD players	• CFL or standard bulb desk lamps • Refrigerators • TVs • Microwave ovens
Equipment Most Likely to "Improve" in Saturation (increase in efficient equipment, decrease in inefficient equipment)	
• CFL desk lamps increased • CFL overhead lights increased	• Halogen desk lamps decreased • Standard bulb desk lamps decreased
Most Common Equipment to be Reported as Energy Star®	
• Computers • Printer/scanner • Refrigerator	• Cell phone chargers • Televisions and VC/DVD/CD players • CFL desk lams
Highest Percentage of Equipment in Room that is Energy Star®	
• CFL desk lamps • CFL overhead lights	• Microwave ovens • Computers
Energy Star® Equipment Purchases Most Influenced by Green Campus Literature	
• Microwave ovens	• Printer / scanners

Another focus of the survey was Energy Star® appliance saturation, which varied across the campus communities. The most common Energy Star® appliances were bulbs, either desk

lamp or overhead styles. The Green Campus influence also seemed to result in positive lighting measure changes across the participating universities. Responding students noted a significant increase in the use of CFL bulbs for desk lamps, corresponding with a decrease in standard bulbs used for the same purpose. The survey results indicate students attribute some of the improvements in saturations to the Green Campus program. There was also a small but notable change in overhead lighting.

Energy Related Behavior and Effects from Green Campus: Students were asked how frequently they carry out energy related / conservation behaviors. The results showed that well less than one-third of the respondents have fully adopted key behaviors promoted by the program (including turning off computers overnight when not in use, and using heaters and air conditioners less frequently). Only one eighth of respondents are purchasing CFLs. On the other hand, recycling – a non-energy behavior – had been adopted as standard behavior by more than half the students. Well less than one-eighth of students indicated that over the last year, they had increased the frequency with which they adopted many of the behaviors promoted by the program. However, the survey results indicate there is room for improvement in Green Campus outreach and programs.

Participation in events to increase awareness of energy conservation was a more difficult area in which to involve students. Other than enrollment in an environmental class, interest was relatively low. Overall, students took an average of two environmentally focused classes. For the rest of the activities, students attended, on average, about one energy/environmental related event per year.

Non-Energy Benefits: Finally, the survey provided feedback on whether energy efficiency measures also deliver other positive benefits overall. The results show generally positive perceptions of efficiency equipment, especially in their ability to help the environment, and in providing equipment performance, reliability, quality of light, and other advantages.

Recommendations: The results make it clear that students perceive a need for more attention to energy efficiency topics on the participating campuses. The Green Campus program should consider the following.

- Increasing attention to facility staff activities and work to change overhead lighting in residence halls, and increase the efficiency of equipment in classrooms and elsewhere, per survey respondent suggestions.

- Leveraging on the results of the NEB work, continue to emphasize the environmental and performance benefits of the energy efficient equipment promoted through the program. The results indicate these messages should resonate with students.

- In the cases where immediate “bangs” are desired for the program, Green Campus staff may want to review which appliances are actually purchased by students during their stay in on-campus housing. The list may be relatively short. If so, Green Campus may want to mail pre-arrival packets early enough that they can influence purchase of new computers, electronics, refrigerators, and other equipment prior to arrival on campus.

- In addition, changes in behavior may need to become a greater focus of the program – an area with potential, since relatively few students have fully adopted many of the key behaviors promoted by the Green Campus program.

Recommended Evaluation Enhancements. In Year 1, process evaluation work was emphasized to provide real-time input to the evolving program. Technical difficulties, including difficulties getting approval to administer surveys on campus, complicated the timing and plan for the baseline / program effects surveys on the campuses. The sample was not as large or well-distributed as expected, hampering the ability to conduct a robust analysis. In Year 1, a number of recommendations for changes to the evaluation efforts were made; however, midway through Year 2, the planned evaluation budget was reduced. The recommendations follow, and the follow-though on those recommendations are also provided.

- Recommendation: Introduce a separate baseline survey, with follow-up impact survey conducted at the end of the year. The evaluation team is working with the interns on appropriate implementation methods. The separate survey approach was introduced in Year 2, and it provided advantages in that students did not have to try to recall their familiarity or behaviors from the beginning of the year. It was hoped that providing the survey in two pieces would allow the instrument to be shorter, but there was little difference in length – although complexity was reduced. The Green Campus program should require a version of the survey to be administered by interns (possibly with RA assistance) to a sample of students at each campus. This is one of the few reliable methods by which interns can gauge progress in awareness and attitudes from their efforts.

- Recommendation: Expand the survey to include a more extensive non-energy benefits (NEBs) battery. Survey length, and the fact that students do not pay energy bills made introducing a longer NEB battery a low priority. The most effective way of gauging value of NEBs is by comparing non-energy features to the value from the energy savings from the measure. Given students do not recognize these savings, the savings would need to be gauged to another metric. Certainly any number would be available, but the complexity can increase. The survey length was already longer than optimal. The students did not realize the major portion of the program's benefits other than environmental effects, and valuations were difficult to obtain without detailed interviews. In the future, detailed interviews with smaller groups of students should allow estimation of these values – and these NEB interviews should be extended to the facility staff who may realize additional NEBs.

- Recommendation: Have interns conduct focus groups on campus. Training and training materials on this topic were provided to interns; only one focus group was conducted, but additional focus groups are likely to be conducted in the future. Focus groups are well-suited to the capabilities of the interns, and provide an additional way to "test" program ideas and program effects..

- Recommendation: Expand development of indicators, goals, and basic logic and researchable questions for the program, which will be used to support a more enhanced evaluation for Year 2. The program made significant progress in developing indicators and goals. Researchable questions and logic were not a focus. We also provided suggestions on measurement techniques for the program, including survey procedures, focus groups, and purchase of room-level plug load meters for monitoring energy use in test and control rooms on campuses.

- Recommendation: Questions remain on the ability to conduct limited phone surveys with students and other issues. Direct contact with students by an outside evaluator remains difficult, although the paper survey approach was successfully implemented using RAs. However, if detailed interviews are useful as part of future evaluation efforts, they will likely need to be conducted by interns themselves.

- Recommendation: If it can be arranged, a survey may be attempted at a non-participating campus as a comparison baseline. Given budget issues, and the difficulty of getting campus buy-off on conducting surveys, this was not pursued in Year 2. However, it may be appropriate, as the program expands, to ask the new campuses to conduct the survey prior to implementation to provide some control measurements and, at the same time, provide a "before" case for the same campus.

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