Rocky Mountain Views
Rocky Mountain Association of Higher Education Facilities Officers
June 2007

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Upcoming APPA Events

SCUP-42 Annual Conference
July 7-11 at Chicago, Illinois

APPA 2007 Annual Conference
July 15-17 at Baltimore, Maryland

NACUBO 2007 Annual Meeting
July 21-24 at New Orleans, Louisiana

Deploying Green Facilities
Web Conference Series
July 31-August 7 Online

2007 APWA International Public Works Conference and Exposition
Sept 8-12 at San Antonio, Texas

APPA's 2007 Institute for Facilities Mgt
Sept 9-13 at Phoenix, Arizona

NAEC 58th Annual Convention/EXPO
Sept 17-20 at Atlantic City, New Jersey

AUID Annual Conference
Sept 25-28 at Louisville, Kentucky

Labs21 2007 Annual Conference
October 2-4 at Charleston, NC

College & University Science Buildings
October 4-5 at Albuquerque, NM

RMA/PCAPPA Joint Annual Meeting
October 10-13 at Albuquerque, NM

2007 ACUHO-I/APPA Housing Facilities Conference
October 12-15 at St. Louis, Missouri

For a complete list of upcoming APPA events please go to: **www.appa.org**

President's Message

Summer is upon us as students graduate, faculty disappears and we put our noses to the grindstone to get everything accomplished before the fall. I truly appreciate those of you who have volunteered to participate in our various committees. You are the strength of the organization! We have a couple of spots left if you're interested just give our Committee Chairs a call:

Info & Research - Lorenzo Cotton (lorenzo.cotton@pima.edu)
Education – Shari Philpott (shari.philpott@colorado.edu)
Professional Affairs – Dave Button (dave.button@uregina.ca)
Awards & Recognition – Jeff Butler (Jbutler@montana.edu)
Membership - Jimmie Grutzmacher (jimmie.grutzmacher@usu.edu

We had our RMA Board meeting in Albuquerque mid-February and the University of New Mexico has done a great job preparing for our October 10th - 13th annual conference. Just as a heads up, it's at the same time as the Balloon Festival so please make your reservations early!

Congratulations to Nancy Hurt (Colorado State University) for being elected Secretary-Treasurer of APPA. Looking forward to seeing many of you at the "Back to the Future" national conference in Baltimore, July 15th - 17th.

- Eakle

Sustaining a Balanced Mission

RMA PCAPPA NEW MEXICO Albuquerque 2007

October 10-13, 2007, Albuquerque, New Mexico

APPA Report

Correspondent: Jill Amstutz

Back to the Future - Featured Speaker

July 15 - 18 at Baltimore, Maryland

Now to 2015 - What Kind of Leaders Are We Fostering?

Simon T. Bailey is a speaker, coach, author and expert in releasing human potential. With over two decades of experience in leadership, sales and customer service, today he helps people find their passion, take action, improve their lives and make their organizations more productive. Bailey is the founder of the Imagination Institute, Inc., an organization dedicated to building the world's most valuable resource its people. The author of two books, Bailey's writings are intended to change lives. His latest, Release Your Brillance, focuses readers on reshaping their lives from the inside out. The earlier Simon Says Dream: Live a Passionate Life helps people discover their strengths and passion while redefining wealth.

Institute for Facilities Mgt/Supervisor's Toolkit

September 9-13 at Phoenix, Arizona

The Institute for Facilities Management is designed as a four-track course of study, with core programming in General Administration, Maintenance & Operations, Energy & Utilities and Planning, Design & Construction. For more information, register on-line or download a paper application go to www.appa.org.

APPA's Supervisor's Toolkit has been specifically designed to meet the needs of the facilities management professional. It is a structured, open-ended and pragmatic approach to developing supervisors. Go to www.appa.org for the schedule, registration form and hotel/travel information.

APPA's 2007 Election Results

We are pleased to welcome our newly elected officers:

- Bill Elvey, President Elect
- B. Kevin Folsom, VP for Professional Affairs
- Nancy Hurt, Secretary-Treasurer

These candidates will take office at the APPA 2007: Back to the Future conference in Baltimore, Maryland, July 15-17. Visit our election pages at www.appa.org for information on the candidates.

State/Province Reports

Arizona Report

Correspondent: Dave Brixen

Arizona State University

By Joseph Metzger, Associate Director of Facilities Mgt

As warmer temperatures descend upon much of Arizona it was recently reported by a New York Times correspondent that we desert dwellers hunker down in our air conditioned homes and cars and that our downtown areas resemble ghost towns in the late afternoon heat. This is of course utter nonsense. While it is true that we desert dwellers know better than to dawdle about in full summer sun, one can readily observe many of life's common outdoor activities at any time of day. Given New York's miserably cold winters and hot, humid summers, it is ironic that an east coast dweller would make such an observation about Arizona. Certainly a case of the kettle naming the pot...

Another irony is that while the Arizona desert receives approximately 90% of available sunlight, our state has not been at the forefront of the solar energy field. Germany is far more active and has taken an international leadership role in researching alternative and sustainable energy sources.

However, with rapidly escalating costs for traditional energy sources this about to change. Do a Google search on solar energy in Arizona and you will receive approximately 1.5 million hits, many of them startup companies offering solar energy products and services. The primary motivator is of course financial, which is to be expected in a society where everything is measured by potential financial gain.

A new financial model has even emerged. Public and nonprofit institutions can ill afford the high capital costs involved in installing solar equipment. Additionally, these institutions cannot take advantage of local, state, and federal tax incentives available to the private sector. Hence, the new model where a for-profit entity or corporation will "buy the roof", take advantage of the tax credits, and sell the power back to the public/nonprofit institution at an attractive rate. It's a winning scenario: The for-profit makes money and accrues tax benefits, the public/nonprofit entity gets a reduced rate for electricity, and the power is generated from a renewable source.

Arizona State University has taken an active role in the sustainability initiative, thanks in no small part to the strong leadership and commitment from President Crow. The introduction on our sustainability portal reads as follows:

> *At ASU, we believe that the advancement of society is compatible with environmental stewardship. Recognizing that reaching our true potential as an institution is directly linked to realizing the potential of society at large, we imagine the possibilities for positive societal change and are making real investments in the future now.*
>
> *To foster this change, the President's Office formally launched ASU's University-wide Sustainability Initiative with the development of the Global Institute of Sustainability. The Initiative emphasizes a holistic approach to sustainability and encourages close collaboration between colleges, schools, and institutes; research; and operations across the university, bringing together over 550 associated faculty, community and institutional partners. This innovative approach blurs traditional academic lines and creates new ways of thinking about the role of the University.*

A very decent job of wordsmithing, but behind the words is a genuine concern at all levels of the University regarding environmental stewardship. It is sauce for the goose that this heightened level of concern coincides with improved financial viability. Through partnerships with the ASU research community, local power providers, and commercial vendors ASU is making a difference and taking a leadership role in sustainability on both the national and international stage.

In a recent article published in the Arizona Republic, President Crow demonstrated his commitment to sustainability:

> *More than 280 colleges and universities across the country, including ones in Arizona, are pledging to take dramatic steps to reduce their greenhouse-gas emissions and promote the fight against global warming.*
>
> *The effort, being led by Arizona State University President Michael Crow, involves a range of commitments that universities can pick from, including building all new structures to green standards and buying at least 15 percent of electricity from renewable resources. All the schools will promote research on battling global warming.*
>
> *At ASU, the vow will mean higher temperatures in buildings, more solar-energy panels, buying more recycled products, and continued free bus passes for students, faculty and staff. ASU also is exploring using a consultant to devise strategies to slash energy use by more than half over three years.*
>
> *The goal is to make campuses "carbon neutral," producing as little greenhouse gases as possible.*

The Vision is clear: ASU will endeavor to reduce its energy consumption by half over the next three years and become carbon neutral within five years.

Quite a challenge and not easily done. It now falls to us, the Designers, Builders and Maintainers, to make it so. Are we up to the challenge?

For more information on Arizona State University's sustainability initiatives, see our web page at asusustainability.asu.edu.

Idaho Report

Correspondent: Anna Weskerna

University of Idaho

By Darin Saul, Sustainability Coordinator

This spring, University of Idaho became one of only six higher-education institutions to join the Chicago Climate Exchange (CCX), and became a founding member of the leadership circle of the American College and University Presidents Climate Commitment (ACUPCC). These climate commitments followed an earlier pledge to the Talloires Declaration, the first international commitment by higher education to environmental sustainability.

The two climate commitments pose similar but differing challenges to understanding and reducing our operational impacts related to carbon emissions. Due to differences in scope and timelines, the efforts supplement each other, and should enable a more successful effort to reduce emissions over the long-term.

For establishing a baseline, the Chicago Climate Exchange requires the use of either an average for emissions during 1998-2001 calendar years, or the use of emissions from the 2000 calendar year. The University of Idaho began systematic data collection on energy use starting July 1, 2000, and our data has been collected and interpreted using our fiscal year, July-June. Initial efforts to collect data for the first half of 2000 have shown that this is a difficult and labor intensive task, and will probably result in an inaccurate final product. The American College and University Presidents Climate Commitment is more flexible in terms of the time periods for establishing a baseline.

Determining a reasonable scope for the baseline has also posed challenges. Even on our main campus, not all data is routinely collected. A number of auxiliary facilities are responsible for their own utilities, and, in general, have only recorded amounts paid, not energy used. Even getting the account numbers has proven to be a challenge. In addition, utilities for the student apartments owned by the university are billed separately to the occupants. Account numbers for the apartments are changed each time occupancy changes, amounting to thousands of separate accounts over the years, and making inclusion of student apartments in the carbon emission baseline impractical, at least during this first year.

Another issue of scope involves satellite facilities. University of Idaho owns hundreds of buildings which are not on the main Moscow campus. Utilities for these buildings are managed independently, with no previous, centralized collection of energy use data having taken place. Many of these buildings house multiple operations, including leasing space to federal or state agencies, private industry, and so on. The task of including the satellite facilities in the initial emission baseline is well beyond the ability of current staff assigned to the project and will have to wait for future years. As an initial step, a survey will be circulated to the satellite facilities asking for data, which should capture the interest expressed by staff and faculty in some locations. This will start the process while we develop a plan for including all satellite facilities in the future.

Another issue of scope involves what emission sources to include in the baseline. The Chicago Climate Exchange only requires inclusion of emission sources owned by University of Idaho, and so excludes electricity purchases. For University of Idaho, the only emission sources required to be considered are natural gas use and vehicle fuel use. Since most of our steam is generated using a wood-burning boiler, our natural gas use is relatively low, and as a result our CCX carbon emissions baseline will be small. The ACUPCC includes a much more comprehensive estimate of carbon emissions, and is intended to become increasingly comprehensive as our understanding of emissions on campus develops. An initial, rough estimate with the partial data readily available determined a carbon footprint approximately 10 times larger than that identified using the CCX process. In part, because of the more in depth effort required, the ACUPCC process is expected to be completed in a year, while the CCX process needs to be completed within 3 months of signing.

The scope of progress expected under each commitment also differs. The CCX commitment is for a reduction of 1.5% of our emissions below the 2000 baseline for each of 4 years, amounting to a total of 6% reduction in emissions. If you fail to meet the reduction targets, you are expected to buy carbon units to offset your overrun; if you reduce your carbon emissions by more than your target, you can sell the extra emissions reductions to other entities that did not meet their targets. The current market price for carbon is $3.85/metric ton. The ACUPCC also expects short-term reductions in emissions, but as a step towards carbon neutrality, which

for University of Idaho will be a long-term effort. Because of the narrowness of its scope, the CCX will concentrate some of our short-term efforts towards reducing vehicle fuel and natural gas use, while the more comprehensive ACUPCC process takes shape over the next couple of years.

Taken by itself, the CCX tells us little about the University of Idaho's greenhouse gas footprint and will be marginal to making significant operational gains in reducing emissions. The ACUPCC effort is much more comprehensive and meaningful in terms of understanding our emission profile, and in terms of developing a strategic effort to improve our impacts on climate. But the CCX brings additional benefits to the overall effort beyond a short-term focus on natural gas and vehicle fuel use. The trading component of the CCX process has captured the imagination of our College of Business and Economics, has received more attention from our upper administration, and has generated more interest by the media than the ACUPCC commitment. It has broadened the educational and social impacts of the effort, and raised the profile of climate problems and GHG reduction efforts both within and outside of the University of Idaho. These are important benefits that point towards the usefulness of participating in both the CCX and ACUPCC processes.

You may contact me at dsaul@uidaho.edu if you have any questions, or if you would like to discuss this topic further.

Idaho State University

By Anna Weskerna, Facilities Services

ISU's 103rd spring commencement ceremonies were held on May 12. Idaho Governor C.L. "Butch" Otter, accompanied by First Lady Lori Otter, greeted the graduates.
"From the State of Idaho, congratulations," Otter said to the

assembled graduates and the approximately 7,000 guests. "I am honored today to be among such happy and accomplished individuals. You carry with you our best wishes and fondest hopes."

The 1,932 graduates received 2,010 degrees and certificates. Seventy-six students received multiple certificates and/or degrees. ISU President Arthur C. Vailas, PhD, conferred the degrees. The 2007 graduates include those who completed their degree work by December 15, 2006, and May 11, 2007. Three distinguished faculty members were acknowledged and nine alumni were recognized

In addition to the presentation of these degrees and certificates, an honorary Doctor of Science and Humane Letters degree was awarded to L.S. "Sam" Skaggs, who is often credited as the father of the modern super drug-store chain.

Skaggs' honorary Doctor of Science and Humane Letters degree was accepted by his daughter, Claudia Luttrell, of Salt Lake City, Utah. An entrepreneur and philanthropist, Skaggs, who has roots in southeast Idaho, is known for his national and international contributions to education in pharmacy, health sciences and biomedical research through the ALSAM Foundation. The foundation is named after Skaggs and his wife, Aline. Several pharmacy schools in the western United States have benefited from his philanthropy, including Idaho State University's College of Pharmacy which recently received $5 million to acquire teaching and research space in the Treasure Valley. The foundation also provided an additional $250,000 in scholarships for minority students.

With graduation completed, we are in high gear with projects. The State Division of Public Works allotted more funding this year than in the past, so we are fortunate to have a huge list of projects. A few of these include increasing the steam capacity at our heating plant, repairing sections of the steam lines and tunnels, and repairing the boilers. Several of the campus buildings will have the mechanical systems upgraded, roofs repaired, and the repair of outside walls. There is the continual upgrading of building fire alarm systems, elevators, and building accessibility, and numerous renovations and remodels. And this is the time of year for parking lot repairs and the addition of outside lighting.

There are three exciting major projects happening at ISU this summer, one on our main campus in Pocatello, one at ISU--Idaho Falls, and one on the EITC campus in Idaho Falls.

The five-floor Rendezvous Building in Pocatello will open this

August after a long process of design and construction that began in 2001. It is a multi-use building housing classrooms, student housing, and student union functions with a total 255,000 gsf. It includes 50 classrooms ranging from 15 seat seminar rooms to a 250 seat lecture hall, computer lab classrooms, and a 120 seat drop-in computer lab. There are 72 student apartments with 301 beds total, and a 510 seat dining hall, large meeting rooms, and even a "spirit-shop" satellite of the bookstore. In all there are nearly five acres of square footage in this facility. MHTN Architects out of Salt Lake City are the designers and Brennan Construction of Pocatello is the construction manager.

The 44,660 gsf Health Education Building on the EITC campus is a joint project between Eastern Idaho Technical college and ISU. It will also open this August with 11 classrooms and numerous labs including an operating room, clinical labs, inpatient care lab, respiratory therapy, micro biology, biology, and a full dental suite for a working walk-in clinic. Among the spaces in the two-story building are offices for EITC and ISU, computer labs, and two video classrooms. This project's design-build team is McAlvain Construction/ZGA architects from Boise.

The Center for Advanced Energy Studies (CAES) Building is slated to start construction north of the present ISU--Idaho Falls campus. This is a 55,633 gsf green building planned to achieve LEED Silver level. It will have two floors with labs and offices for a collaborative research center housing graduate students and researchers from ISU, U of I, Boise State, and the INL. The first part of this project has recently gone out to bid. It will open in the summer of 2008 with a hydrogen lab, advanced materials lab, imaging suite, radiochemistry lab, analytical instrumentation lab, chemistry lab

and systems modeling labs. This will include a visualization cave and power wall.

An Energy System Technology & Education Center (ESTEC) is being developed to support both regionally and nationally the need for trained energy systems electrical, mechanical, and instrumentation and control technicians capable of building and maintaining energy generation facilities. The Center will have both an instructional focus and an industrial focus and a hands-on laboratory-based curriculum. The first phase is scheduled to open this coming fall.

Last December, the U.S. Department of Labor announced Idaho State University's College of Technology as one of 72 recipients receiving a President's Community-Based Job Training Grant. As a result, the University is developing the ESTEC. Idaho State University, the Idaho National Laboratory, and Partners for Prosperity are working collaboratively in this effort. The Energy Systems and Technology Education Center has three major components: education and workforce development, economic development, and community development. ESTEC is intended to help offset the growing national shortage of energy systems technicians and is expected to facilitate regional economic competitiveness, increased job growth and provide new opportunities for all employees.

The ACCORD (Action to Control Cardiovascular Risk in Diabetes) study at Idaho State University's Family Medicine Clinical Research Center is increasing knowledge of how to treat and control diabetes. In the long run, this may help prevent the complications of diabetes that threaten life, limb and vision. In the shorter term, it is helping to save lives now.

The National Institutes of Health chose ISU as one of 80 sites for this prestigious study. ACCORD has 10,800 patients nationwide, 146 of them at ISU. The study started in 2001, will run through 2009 and is sponsored by the National Heart, Lung, and Blood Institute.

For questions or comments, contact Anna at weskanna@isu.edu. Wishing all a fun and fantastic summer!

Montana Report

Correspondent: Jonathan Ford

Montana State University

By Jonathan Ford, Manager Environmental Services

To Irrigate or Not To Irrigate

It is hard to get in the right frame of mind about the chosen topic for this article, campus irrigation, because it is snowing heavily here in Bozeman, Montana in late May. This is not unusual for this place, and at least today it is not going to stack up against the storm of June 13, 2001 when we got 14.3 inches of snow and qualified for FEMA money. But it is hard to imagine hot, bone-dry, windy days with wilting trees and crispy patches of grass, which is most certainly due to arrive soon. When the jet stream flexes into its persistent summer arch of high pressure over the northern Rocky Mountains, the moisture and humidity cease as surely as someone shutting off a faucet. When that happens, it is only a few days until we must start putting water on the campus to keep it alive and attractive.

Most universities seek to provide and maintain the cleanest, safest and most aesthetically pleasing outside environment possible for teaching and research. A now-famous Carnegie Foundation study performed in the 1980's and validated by subsequent research found that the appearance of buildings and grounds is an extremely important factor influencing graduating high school students to select a college or university that they had visited. Obviously, the aesthetic appeal of a university campus as a clean and pleasant place in which to work and learn is paramount to the viability of the institution. A manicured, well-maintained campus landscape pays dividends in its positive impact to University recruitment and retention. To achieve this goal requires efforts to nurture and safeguard the significant capital investment represented by the existing campus ornamental landscape. In the standard campus landscape, with its large, open areas of lawn, this is not possible without significant amounts of irrigation water and considerable maintenance.

At this time in our culture, people in the United States continue to respond positively to landscapes dominated by manicured lawns. This is reflected in untold numbers of glossy photographs in school catalogues and marketing brochures everywhere showing happy co-eds studying or playing on the grass under campus trees. There are some indications of change in this paradigm, however. For example, water-conscious people often point to ornamental turf grass as an extravagant, water-wasting landscape idea imported from Europe several hundred years ago and totally inappropriate for the arid West. Their alternative is known as xeriscaping, a concept originating in the desert southwest in which native plants that use little water are used as landscape ornamentals. Xeriscaping is often referenced as a direction universities should take to demonstrate responsible water conservation.

Xeriscaping works well in the southwest because of the extreme harshness of the climate and the availability of a small number of highly adapted native plant species that can survive without much water. Most introduced species, or "weeds", are not as well adapted to the climate as the natives and cannot effectively compete. The result is an attractive "native" look to the landscape with little weed control or other maintenance necessary.

Here in Bozeman, as well as in many other areas in our region, the climate is not nearly as harsh. Lots of plants species thrive here, both native and non-native. The native plant communities evolved in an environment dominated by grazing bison punctuated with occasional grass fires. Both of these conditions, which would favor the native species over the alien species, are impossible to duplicate on campus for obvious reasons. An ornamental native planting in Bozeman becomes a high maintenance area because of the need to constantly remove aggressive, less attractive, non-native plant species. This type of landscape may become acceptable given enough exposure, but currently, most people would be shocked if they saw sagebrush, prickly pear cactus, unmowed bunch grass (the natives), along with tumbleweeds (a.k.a. Russian thistle, a species introduced to North America in a shipload of flax seed from Russia in 1872) spotted knapweed, Canadian thistle, and the ubiquitous dandelion growing and blowing around a major academic building. The look of the ghost town and former territorial capital, Bannock, Montana comes to mind. Since increased enrollments are one of the primary goals of most universities, there is a risk associated with creating a less-accepted, misunderstood campus appearance, even if it lessens the need for irrigation water.

From a facilities maintenance standpoint, the most important characteristic of turf grass is its ability to control mud and dust. Campuses are heavy traffic areas, with vehicles and pedestrians off the pavement everywhere. Turf grass provides a self-repairing surface that does an amazing job of supporting this traffic, and at the same time forms a carpet that prevents most of the mud or dust underneath from moving inside the buildings on people's feet and abrading the interior building surfaces. The native species of a xeroscape suited for Bozeman would not be able to tolerate the traffic, nor would they be able to develop a continuous vegetative barrier (i.e., sod) between the traffic and the soil. The open ground in a xeroscape would allow incredible amounts of mud and dust to move into the buildings.

Another function of turf grass that is often not considered is weed control. The forcing of grass into a prolonged juvenile state to form turf takes advantage of the species' adaptation to grazing. Constant grazing, which is simulated on campus by mowing, is an extreme environment for plants that reduces the number of competitors to a few, highly adapted species. This is not unlike how the extreme heat and dryness of the southwest favors cacti and similar water hoarders. In the turf grass environment, only those plants that have growing points below the mowing level survive. Turf grass cultivation greatly reduces the number of unwanted plants that would readily invade the open ground in a xeroscape or any other less severe environment, requiring lots of labor for mechanical removal or worse, chemical applications.

Turf grass cools the ground surface and therefore increases the comfort of campus users. It provides a clean place to sit or lie down while outdoors. The turf also provides a cushioned, self-repairing playing surface with good traction characteristics. Without turf grass, what other landscape ornamental can serve the same purpose?

Given that supplemental irrigation to keep the grass and trees alive is essential in a high elevation semi-desert such as Bozeman and many other areas in the RMAPPA region, the trick is how to accomplish it efficiently and judiciously while minimizing the amount of water used.

Until the mid-1980's, MSU had irrigated with filtered, chlorinated domestic water from the municipal system. When the campus would attempt to irrigate with its five miles of garden hose and old-fashioned sprinkler heads, the pressure drop on the system would be so dramatic that the City would call and force MSU to stop irrigating until peak water use periods were over. In 1985, a 4.5 million gallon reservoir and pump system was built as the first step in getting off the limiting City system and utilizing already existing irrigation ditch resources that had fallen into disuse as agricultural research activities had moved off the growing central campus.

Since that time, the automated underground irrigation system using this ditch-delivered water has grown to cover 95% of the central MSU campus and involve more than 10,000 sprinkler heads. We use Rain Bird's MAXICOM system, a cutting edge irrigation management system that uses a central computer to control all functions. This system conserves a great deal of water by giving us control, both manually and automatically, over how much water we put down and when. Some of the advantages:

- It provides total control of the run-times and schedules of all zones from the computer console with fine adjustment down to the minute.
- It allows quick adjustments to the watering schedule to outdoor events requiring rescheduling of irrigation that can also be scheduled months in advance of the event.
- It has its own dedicated weather station that inputs evapotranspiration, temperature, humidity and precipitation data to the central computer, which then adjusts run-times automatically to deliver only the amount of water truly needed.
- It takes into account the type of soil, microclimate, and precipitation rate of each zone, to adjust run-times to accommodate each zone's specific needs.
- If the computer senses that a zone is flowing too much water, as in the case of a leak, it will automatically shut down everything downstream of the flow meter to save water, and in addition, sends an electronic message to the operator saying that it has detected a problem and where.
- It will automatically shut the system down during a precipitation event (rain) and will not start up again until it calculates, from the data received by the weather station, a need for additional water.
- The central computer can be accessed remotely from the operator's home, and it is possible (we don't have this feature) to control all this remotely via cell phone.

The only way we could get more economical in our water use at this point would be to change the nature of our landscape regime (as discussed above) or to use more drip irrigation. However, our ditch system water is not filtered and, while it works fine with the turbine irrigation heads, the dirt and debris tends to plug up the emitters. The problem with a drip system is that you can only detect a plugged emitter when the plant it is supposed to be watering dies from the lack of water, which is a little too late. We do have a filter system on our wish list, but it is down below a new reservoir liner, a pump intake pier and some other large ticket items. Someday, we will eventually pick this one off the list like we have all the other features of the system and continue move towards becoming more efficient water stewards.

Water use will continue to grow as an issue for campuses across the country as the commodity becomes scarcer compared to the growing demand. It is important that facilities managers face that fact and begin to move towards more efficient irrigation practices, even if it takes decades of incremental purchases and installments to get there. Luckily, today's advanced computer technology has made the management of water use infinitely easier for those charged with keeping a campus attractive and inviting.

Utah Report

Correspondent: Brian Nielson

University of Utah

By Brian Nielson, Associate Director Buildings & Grounds

Campus Heating Solution

In 1963, the University of Utah constructed the main campus high temperature water (HTW) plant. Two 60 mmbtu generators were installed with coal burning capabilities. In 1969, the plant was expanded and two 105 mmbtu generators were added. The fifth HTW generator, also 105 mmbtu, was installed in 1971. All five generators were capable of burning both coal and natural gas. In 1994, the University switched to natural gas as the primary fuel and used coal only as a back-up when gas delivery was curtailed. In 2004,

the University eliminated the use of coal as a back-up to ensure compliance with Utah Department of Environmental Quality (DEQ) requirements. Due to significant age-related mechanical failures, generators 1 and 2 were no longer functional and were permanently removed from service in 2004. The University was forced to look at options for assuring uninterrupted delivery of high temperature water to the main campus.

A firm was selected and a feasibility study was performed in 2005, which determined that the construction of a cogeneration facility was the most effective way to proceed. Cogeneration offers the production of high temperature water with the additional benefit of electricity. The proposed project would remove generators 1 and 2 and install a 7 megawatt turbine in their place. A high pressure gas line will be constructed to provide a more reliable supply of natural gas to the facility without the use of a gas compressor with its high maintenance costs. The turbine will have a heat recovery unit and duct burner to utilize the waste heat from the turbine. For approximately 12% more gas than is currently burned, or 34% more gas than new high temperature generators, the University's heating load is met and roughly 45% of the power currently provided by the utility through the Stadium Substation (52,000,000 kwh) will be replaced by on-site generation. This generation is sufficient enough to create net annual savings of $477,000 at current electric and gas rates.

While replacing the current generators with new, more efficient generators is a solid financial option, it does not provide the additional benefits offered by cogeneration. We felt that this was not solely a financial decision, and consideration of future value is essential. Additionally, the cogeneration project will provide some upgrades to the University's side of the Stadium Substation, which will be required in the future due to the utility's move from 46kv to 138kv on their transmission system. Coordinating the construction of the substation as part of this project may result in some economies of scale.

The analysis performed in determining the feasibility of the cogeneration facility required multiple assumptions to be made. These assumptions were derived through a review of historical information and discussions with external entities, including, but not limited to, Rocky Mountain Power, Questar Gas, the State of Utah, and material suppliers. These assumptions were reviewed by two consulting firms for reasonableness from a technical and financial standpoint.

Based on these assumptions, one of the benefits of the cogeneration facility is the cost savings from offset electrical purchases. While there is an increase in natural gas consumption compared to the high temperature generators, it is more than offset by the production of electricity. Also, the construction of a cogeneration facility will defer, and in some cases eliminate, some additional upgrades for the high temperature water plant.

While there is additional financial exposure by constructing a cogeneration facility, it is more than offset by improved reliability, improved efficiency, negotiating leverage with utility companies, diversification of our electric portfolio, and reduced overall emissions.

The alternative to installing a cogeneration plant to meet the University's need for high temperature hot water was studied and evaluated extensively. The facts and analysis lead to the conclusion that the University gains a greater overall benefit from the cogeneration approach than a simple boiler replacement.

With all approvals and financing in place, construction has begun. There are significant lead times on the turbine and heat recovery unit. However, we anticipate meeting the scheduled construction completion date of March 1, 2008.

Behavioral Program

In 2001, the University completed a $44 million performance contract that has proved successful. However, we felt that while we had addressed one-half of the equation, efficiency, the other side, consumption/conservation, was left unchecked. Therefore, three years ago, the University entered into an agreement with a firm to operate a behavioral program to reduce energy consumption.

The scope of this engagement was to make the campus community more aware of its actions, audit buildings on a regular basis to make sure they are operating as intended, and identify opportunities for equipment upgrades. As with performance contracting, a baseline was established in order to identify savings from this effort. In the first year, the University avoided $850,000 in utility expense, which was about a 13% reduction in consumption. Year two improved to roughly $1.2 million in savings. Now, nearing the end of year three, we anticipate matching year two's avoidance of $1.2 million.

In addition to the cost avoidance, like performance contracting, there are significant reductions in emissions that satisfy the increasing sustainability commitments and provide good public relations for the institution.

For further information or questions, contact Orfeo Kostrencich at orfeo.kostrencich@fm.utah.edu or (801) 581-5503.

Editor's Corner

I recently had the opportunity to attend my first session at the APPA Leadership Academy. I found the content provocative and the APPA faculty exceptional. One thing that caught my attention was that our section facilitators were polite and courteous to each other, excessively so at times.

Upon reflection it occurred to me that I'd seen this behavior before, a very long time ago. It was my parents that routinely behaved in this manner, thanking others for small favours and services, at all times treating people with dignity and respect.

Where once we were a genteel and cultured society, we have become abrupt, rushed and impolite. Nowhere is this more prevalent than when we drive our automobiles! In our workplaces we rush from one meeting to the next, barely acknowledging those whom we pass in the halls. Within those meetings we often talk at and over each other, often formulating responses within our minds even as others are speaking.

In the Academy we learned of Covey's fifth habit, the importance of empathic listening: Seek first to understand, then to be understood. It is an underutilized skill. I like the concept of the Talking Stick. Ironically, this wisdom was given to us by a people once characterized as savage. The facsimile I received in training now occupies a prominent position upon my desk. It serves to remind me, a natural pontificator if ever there was one, to keep my yap shut when others are speaking!

Until next time I remain…

Your **N**ormally **A**greeable **G**azetteer - JM

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Rocky Mountain Views
Rocky Mountain Association of Higher Education Facilities Officers

Newsletter of the Rocky Mountain Education Facilities Higher Education Facilities Officers (RMA)

The ROCKY MOUNTAIN ASSOCIATION OF PHYSICAL PLANT ADMINSTRATORS OF UNIVERSITIES AND COLLEGES was organized in February of 1953 for the purpose of promoting the common interest in the planning, maintenance and operation of physical plants of Universities and Colleges in the Rocky Mountain Region: to foster a professional spirit among those engaged in this work; and to support and supplement the activities of its parent organization, the Association of Higher Education Facilities Officers (APPA). The Rocky Mountain Region encompasses the states of Arizona, Colorado, Idaho, Montana, New Mexico, Utah, Wyoming and in Canada the Provinces of Alberta and Saskatchewan and the Northwest Territories.

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FUTURE MEETINGS

2007 Annual Meeting	Albuquerque, NM	University of New Mexico
2008 Annual Meeting	Ogden, UT	Webber State University