



weber green

Weber State University's Environmental Issues Committee -

Our Mission

The Environmental Issues Committee shall help facilitate the modeling of best practices for economic and environmental sustainability at WSU. The committee shall serve as a local and state-wide source for scientifically based information and for leadership on environmental issues affecting Utah, the Wasatch Front, and WSU Campus Committees.

Your Green Link

news and information

October 2015

Upcoming Events:

Dr. George Handley

- Oct. 28, Wednesday
- 12:30 pm in the Ogden LDS Institute Chapel (across from campus on Edvalson St.)
- Speaking on Mormon theology and the environment

Dr. Dan McCool

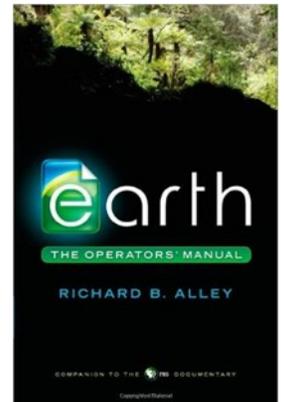
- Nov. 4, Wednesday
- 12:30 pm in Elizabeth Hall, Room 229
- "American Indian Land and Water: Confronting many challenges"

Native Symposium with Goshute Tribes

- Nov. 10, Tuesday
- "Respecting Sacred Land: Conversations on Water, Waste, and Sustainability"
- [Full Schedule Here!](#)

Prominent Climate Scientist, Dr. Richard Alley, Visiting WSU in December

Climate scientist and climate science communicator, Dr. Richard Alley, received the prestigious Day Prize in science communication from the National Academy of Sciences. A cross between Carl Sagan and Woody Allen, he describes himself as a registered Republican who plays soccer and goes to church. If anyone can persuade skeptics that climate change is real, it's Richard Alley. [See more](#) of Dr. Alley in the 2011 TV series *Earth: The Operators' Manual* online at www.earththeoperatorsmanual.com.



When: Friday, December 11, 12:30 pm

Where: Wildcat Theater

AND

When: Friday, December 11, 5:30 pm

Where: Union Station in downtown Ogden

Save the Date!

7th Annual Intermountain Sustainability Summit at WSU—March 24-25, 2016

Please watch for call for session proposals and encourage students to submit research posters.

Susie Hulet Community Solar Program Harnessing the Sun's Power for Residents



The Sustainability Practices and Research Center (SPARC) launched its first community program this summer. This solar program, created in partnership by WSU and donations to honor Susie Hulet, a proponent and benefactor of sustainability and environmental conservation, is simplifying the process of installing solar power for residents in Weber, Davis, and Morgan counties. A volunteer committee vetted installers and selected Gardner Energy from Ogden. Utah Clean Energy, a non-profit organization focused on renewable energy, has been helping SPARC administer the project. The community response has been amazing: 650 residents took the solar survey to express interest in installing a solar

power system. Over 70 households have contracted to install solar thus far. The program has **already exceeded its goal** of 300 kilowatts installed! If you want to learn more about how to get residential solar power, visit www.weberstatesolar.org.

You are Invited! Drop in to Shades of Green!

This semester an experimental multi-disciplinary course/lunch and learn focused on sustainability is underway. The one-credit course, housed in geography, is Shades of Green: Perspectives on Sustainability for People, Environment and Economic Prosperity. It meets Tuesdays, noon-1:15 in SS 390, and is open to anyone in the WSU community. Drop in and hear the week's presentation. Twenty faculty members representing 15 disciplines take turns leading. Presentations include lectures, game playing, discussion, films, and story telling as well as questions and interaction among those attending. Come see for yourself! The semester's schedule is found [here](#).

Faculty/Student Sustainability Projects:

Faculty and Students' Project at Thai Orphanage Incorporates Sustainability



In May, following a spring semester course of academic, planning, and fund-raising preparation, 35 students accompanied Julie Rich (geography), Jeremy Farnar (engineering technology), Mike Moon (Center for Community Engaged Learning) and Carey Anson (Student Support Services) to Thailand to provide improvements for an orphanage in Thaton village. As Dr. Farnar reported, "Our team completed 4 projects. The most pressing was building a combined sanitary kitchen and dining/meeting area for the children where



they could eat together. Another was creating a rainwater collection system on every building to channel water to a concrete in-ground tank; this holds approximately 50,000 liters of water to be used for irrigation during the dry season. We improved the irrigation system and revitalized and planted a garden so the orphanage can grow, harvest, and serve its produce while the children learn gardening techniques. We cultivated the mango orchard to increase its yield. Other projects included painting and cleaning the schoolhouse and furnishing it with chairs and tables, and clearing a playground, which we filled

with clean sand and equipment. Furthermore, in order to stimulate the local economy, we bought building materials and equipment in the neighborhood." To see this work and its outcomes, check out the project documentary at:

<https://vimeo.com/wsucel/thailand2015>.

Heads Up! Peru Will be the Next Location for Spring and Summer 2016 Project

The same methodology used in Thailand will be applied to needs in Peru. The project focus is to provide a community water source for a village that currently relies on having drinking water trucked in weekly. The team plans to install rainwater-harvesting tanks on all appropriate buildings. If enough funds are raised, it will install a solar array on the local police station with battery backup. The WSU team will work alongside a local contractor so as to use their tools and provide jobs. Building materials will be sourced from a local construction supply company to ensure availability of replacement products as well as minimize the carbon footprint. Anyone interested in participating in the course and project should contact Dr. Julie Rich in geography or submit an application by [clicking here](#). Applications are due by December 7, 2015.

A Living Laboratory - Net Zero Home Being Built by WSU Students in Ogden

One of the first Net Zero homes in Ogden is being constructed by WSU students as a senior project under Jeremy Farners' (engineering technology) mentorship. The house is basically a living lab where a couple could reside in a 320 square foot main level studio apartment with a 150 square foot loft bedroom. It will contain the latest green technologies, including a solar array designed to offset 100% of electric consumption. The fully functioning kitchen, laundry, bathroom, and great room will be all electric. The house will feature on-demand water heaters for sinks and shower and a composting toilet. A gray water recycling system will deposit into a bio swale; a rainwater harvesting system will provide irrigation water for the garden. The house will be built to *Passivhaus* standards: R44 exterior walls, R60 ceilings, and triple-pane windows with a U factor of .22 to ensure a tight structure. A rocket stove that uses thermal massing will deliver long-term auxiliary heat by burning small sticks that are plentiful on site, which is a thicket of scrub brush. Passive solar techniques incorporate the landscape as well: windows are shaded in summer but allow beneficial solar heat gain in cold seasons; the electric and hot water solar arrays have maximum solar exposure. Exterior walls will be built of barn wood from a razed shed and natural stone collected from a small rockslide, both near the site.

Collaborative Emissions Research on Cold Engine Starts and Air Quality

The National Center for Automotive Science and Technology has partnered with WSU and USU to perform a comprehensive study of cold start and idle emissions. The objectives were two-fold: 1) examining tailpipe emissions to determine how long emissions control devices could remain at effective temperatures in Utah's seasonal conditions and 2) measuring amount of tailpipe emissions during cold starts, hots starts, and continuous idle at various temperatures. Sixty-five vehicles were selected to represent the most popular models and years registered in Cache and Wasatch counties. The study measured the volume of emissions the entire time, including when the engine was turned off for short intervals. Some of the more interesting findings are that 95% of vehicle start-up emissions occurs during a cold start event, and most modern vehicles had only a very slight reduction in total emissions when shut off and then re-started during the 5, 10, and 20-minute restart tests. This supports other studies that have found **the biggest threat to air quality is allowing a cold engine to idle rather than being driven to bring it to operating temperature quickly.**

Campus Sustainability Projects/Initiatives

This Year in Water Conservation at Weber State

WSU stands as a model of conscientious water use for the community regardless of drought conditions. Major factors in water conservation success across campus have been the recent creation of a part-time water conservation specialist position as well as increased training for the landscaping crew. These new strategies ultimately save both money and water.



The specialist, Bart Hancock, has reduced water waste markedly by auditing the irrigation system and adjusting run-times for sprinklers, and by monitoring water meters and developing data trends that reveal unobserved problems. Newly installed "smart" irrigation controllers on outlying properties adjust water output according to weather conditions. The central campus irrigation controller is also being adjusted to work more efficiently with the on-campus weather station.

An investment in education for several landscapers, who received QWEL (qualified water-efficient landscaping) training, has motivated them to install drought-tolerant plants and adjust sprinklers to avoid hardscapes. It seems that education pays.

Miller Administration Gets a Facelift & Important Energy Upgrades

Without doubt the Miller Administration building, constructed in 1970, called for love and attention. The building's interior was dark, outdated, and in dire need of an upgrade for the mechanical/electrical systems. Therefore, during the summer of 2015, all building occupants were relocated for 90 days while facilities management project manager Travis Hogge oversaw an incredibly fast building renovation.

In addition to new paint, carpet, and finishes that make the interior brighter and more inviting, the building received energy-efficient windows and lighting. One of the largest components of the remodel was the mechanical system upgrade from a dual-duct (HVAC) system to variable refrigerant flow (VRF) system. The old HVAC system, especially as it was wearing out, resulted in loss of temperature control for individual offices and hence occupant discomfort.

The new VRF system is more efficient at delivering the right temperature, costs less to maintain, reduces noise, and increases space, as bulky ductwork is eliminated. Some studies indicate that energy savings are in the 30-40% range.

Occupant comfort has been significantly improved with the VRF system. Each space has its own thermostat and air-handling device. Finally, no more personal space heaters, fans, and additional office clothing to deal with erratic temperatures. No more fighting with coworkers over thermostat control!

Sustainability Technology Conference Hosted at WSU

WSU hosted the third annual Institute of Electronic and Electric Engineers (IEEE) Conference on Technologies for Sustainability (SusTech) July 30 through August 1. Julianne McCulley, associate professor of Electronic Engineering Technology (EET), served as conference vice-chair, and Dr. Fred Chiou, assistant professor of EET, served as publication chair. The goal of the SusTech conference is to promote advances in technology while eliminating or reducing pollution, global warming, electronics waste, and negative impacts to overall health.



Over 100 scientists and engineers gathered to explore technologies related to sustainability in the areas of agriculture, energy efficiency, transportation, alternative energy, smart grid, and sustainable electronics. The three-day conference featured workshops, keynote speakers, and presentations of contributed technical papers in addition to invited speakers on research, technologies, methodologies, and case studies.

An undergraduate research session featuring a technical poster contest was added this year to inspire college students to participate in a professional conference. Two student research projects from Weber State won awards, third place and an honorable mention.



Several faculty members from WSU participated as invited speakers or presented technical papers. Dr. Kristin Rabosky, assistant professor of physics, presented "Beyond Silicon: Alternative Photovoltaic Technologies." Dr. Stephen Clark, professor of botany, spoke on "Old, New, or In-between: The Indigenous Dilemma." Julanne McCulley presented a technical paper, "Portable Solar Power: Mobile Elemental Power Plant II," and Dr. Fred



Chiou presented a technical paper, "Solar Energy for Electric Vehicles."

The Engineering Technology department at WSU is committed to research efforts in the areas of renewable energy and sustainability promoted by the Energy and Sustainability Office and the Office of Undergraduate Research.

Environmental Ambassadors Update

This semester the Environmental Ambassadors have been implementing Student Fee Recommendation Committee projects and restructuring the recycling program. Kristi Mak led the recycling project, which began with of an audit of every building, room by room. Ambassadors purchased bins to ensure that all rooms contain the right number in addition to new standardized signs above them. The hope is that, with a standardized system, recycling rates will improve.

The Environmental Ambassadors also began a new fellowship program in hopes of creating a sustainable group of members. The fellowship will offer students a chance to have real world experience to add to their resumes. There is potential for these fellowships to develop into paid positions in the WSU Energy and Sustainability Office.

 RECYCLING		 LANDFILL		
 PAPER <small>Coated paper, newspapers, magazines, junk mail, books</small>	 CARDBOARD <small>Corrugated cardboard, cereal boxes, frozen food packaging, CLEAN pizza boxes</small>	 CANDY WRAPPERS & CHIP BAGS	 FOOD WASTE	 STYROFOAM & PLASTIC UTENSILS
 PLASTIC <small>#1-7 CLEAN plastic, take-out containers, cups, bottles, jugs</small>	 METALS <small>Aluminum and tin cans, CLEAN foil, metal lids, soda cans</small>	 TISSUES, PAPER TOWELS & NAPKINS	 SOILED FOOD CONTAINERS	 PAPER PLATES & CUPS
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;"> NO CONTAMINANTS <small>No liquids, food, or soiled products</small> </div> <div style="text-align: center;">  </div> </div> <p style="font-size: small; margin-top: 5px;">Glass recycling drop-off available at Stewart Stadium</p>				