

# ShopTalk

Plant Operations Support Consortium

Volume 17, Number 3

Winter 2013

## Smoky Discontent – Reliving the 2012 Fires of Central Washington

By Bryan Visscher, Guest Writer

The night of Saturday, September 8, 2012 was an amazing show of fireworks as lightning storms blanketed North Central Washington. The next day was just as mesmerizing as I watched a sight that I had never seen before. Driving downtown, I could see fires in the hills just west of Wenatchee. Almost immediately I began seeing fire trucks coming from around the region. This was exciting!

Monday morning, I rode to work on my motorcycle. The heavy smoke smell and low visibility were alarming, but the experience was still new and exciting. It didn't take long, however, for the gravity of the situation to set in.

By Friday afternoon, the fires were still burning and visibility in the vicinity of Wenatchee High School had dropped to less than a few hundred yards. At 2:45 p.m., the end-of-day release lights went on and the students exited the



A lightning strike hits near Wenatchee.

Photo credit: [www.komonews.com/news/local/lightning-sparks-more-than-60-new-fires-in-Wash-169101386.html](http://www.komonews.com/news/local/lightning-sparks-more-than-60-new-fires-in-Wash-169101386.html)

building just as the air handlers shut down into night-setback mode for energy savings. The smoke poured in as the building

See **Smoky** on page 6

*Bryan Visscher is a long-time Consortium member and the director of facilities and risk management with the Wenatchee School District. He graciously shares his experiences of the 2012 Central Washington fires that caused major concern and reduced air quality to hazardous levels.*

# ShopTalk



WSU Energy Program  
Plant Operations Support Consortium

Volume 17, Number 3  
Winter 2013

## In This Issue

Smoky Discontent – Reliving the 2012 Fires of Central Washington .....	1
WSU Energy Library Another Invaluable Facilities Tool .....	3
A Baker's Dozen Energy Saving Ideas .....	4
New EFC Innovations Award – Share Your Case Studies of Best Practices .....	8
Consortium Members .....	8

*Shop Talk* is a quarterly electronic newsletter of the Plant Operations Support Consortium, providing information focused on facility operations. We welcome feedback from readers. To provide feedback or to subscribe to the Consortium electronic Listserv, email us at [PlantOps@energy.wsu.edu](mailto:PlantOps@energy.wsu.edu).

Archived issues of *Shop Talk* are available at:

[www.energy.wsu.edu/PublicFacilitiesSupport/PlantOperations/ShopTalk.aspx](http://www.energy.wsu.edu/PublicFacilitiesSupport/PlantOperations/ShopTalk.aspx)

### Consortium contacts:

Edwin Valbert (360) 956-2055  
[valberte@energy.wsu.edu](mailto:valberte@energy.wsu.edu)

Phil Partington (360) 956-2057  
[phil@energy.wsu.edu](mailto:phil@energy.wsu.edu)

© 2013 Washington State University Energy Program

This publication contains material written and produced for public distribution. You may reprint this written material, provided you do not use it to endorse a commercial product. Please reference by title and credit the Washington State University Energy Program.

Editing: Melinda T. Spencer  
Design: Gerry Rasmussen

WSUEEP13-017 • March 2013

## Shop Notes

By Edwin Valbert,  
Consortium Manager

To call or not to call – that is the question. While some Consortium members call us almost every week, others call much less often. Given the choice, we would prefer to hear from each and every member regularly; our ability to help you and increase the value of your membership is directly related to communication with each member.

We make it a goal to initiate that communication with you as much as possible, but we need your help.

It is difficult for us to assist you if we don't know what you need. Add us to your speed dial, keep your Consortium magnet with contact information close by and keep our e-mail address near ([plantops@energy.wsu.edu](mailto:plantops@energy.wsu.edu)), because we want to hear from you.

Put us to the test. While the Consortium has always been known for brokering equipment exchanges (and we love doing that), there are a lot more ways we can help. For example, we recently assisted members with:

- Internet searches for products and/or vendors;
- Contract review and feedback;
- Custodial assessments;
- Facility condition assessments;
- Energy audits;
- Professional staffing guidance, including interview questions, position descriptions and participating in



Edwin Valbert

- interview panels;
- Feedback on equipment options for new buildings;
- Tour arrangements so members can learn from each other;
- Indoor air quality walkthroughs;
- Portfolio Manager data entry and assistance;
- Greenhouse gas reporting assistance; and
- Much more!

The bottom line is, your organization is paying for its membership, so use and abuse us. **Call your Consortium first.** If we don't have the answer, chances are good that another member does. Either way, we will work to find the answer you need so you can focus on more pressing assignments. Take a brief look at your to do list. We are confident that there are at least one or two things the Consortium could help with.

To call or not to call, the choice is yours, but rest assured that a friendly voice will pick up the phone and be excited to help. ✖

Edwin

# WSU Energy Library Another Invaluable Facilities Tool

With so much emphasis on saving energy these days, it can be a challenge to locate all the resources available to help reach energy-saving goals. An easy-to-use option that facilities professionals often overlook – or do not know about – is the Washington State University (WSU) Energy Library.

The Energy Library is one of just a few full-service libraries in the country that is dedicated to energy research. Its specialized collection includes thousands of books, reports and government documents; hundreds of trade journals and newsletters; and access to a wide assortment of commercial electronic databases. Additionally, many of its contents and services are free to the public. Government agencies, public and private utilities and Washington state citizens are all able to access the library at no cost.

The Energy Librarians can help facilities professionals by:

- Looking for books or scientific journals on a specific topic,
- Locating a book outside of the WSU Library system,



Angela Santamaria and her staff of librarians are among the WSU Energy Program's best assets.

- Providing utility rebates and tax incentives for energy-related projects, and
- Assisting with certain research assignments.

The WSU Energy Library is an invaluable tool for Consortium members to tap into. A few Energy Library online resources are listed below. Pay special attention to Delicious Bookmarks, where the WSU Energy Librarians have saved their favorite sites for reliable energy information. It is indexed for easy access.

- **WSU Energy Library Home Page** – <http://www.energy.wsu.edu/EnergyLibrary.aspx>

- **Energy Newsbriefs** – <http://www.energy.wsu.edu/EnergyLibrary/Newsbriefs.aspx>
- **Delicious Bookmarks** – [https://previous.delicious.com/energy\\_library/tags?sort=alpha%20](https://previous.delicious.com/energy_library/tags?sort=alpha%20)

For additional information on how you can use the WSU Energy Library, contact Angela Santamaria, (360) 956-2076 or e-mail [library@energy.wsu.edu](mailto:library@energy.wsu.edu). ✉

**Mark Your Calendars!**

**ENERGY/FACILITIES CONNECTIONS**

WASHINGTON STATE UNIVERSITY  
EXTENSION ENERGY PROGRAM



**2013 Energy/Facilities Connections Conference**  
**From Coveralls to the Corner Office**  
**May 7 - 9, 2013**

Enzian Inn • Leavenworth, Washington

Check out the EFC 2013 page at  
[www.energy.wsu.edu/efc](http://www.energy.wsu.edu/efc),

or call Consortium staff at (360) 956-2057 or  
e-mail [plantops@energy.wsu.edu](mailto:plantops@energy.wsu.edu) for additional information.



# A Baker's Dozen Energy Saving Ideas

(Part One of Two)

By Alan R. Mulak, PE and William A. Turner, MS, PE

## Introduction and Overview:

Energy prices have gone up in recent months and all indications and expectations are they will continue to do so. Budgeting for this upward trend is difficult at best. While clear that something must be done ASAP, it is often hard to know where to begin.

There are plenty of expensive, hi-tech gizmos out there with complicated guarantees of huge energy savings. These may be in your future, but first it is worth starting with the basics, addressing the simple, often low-tech (and sometimes low-cost) solutions. When doing this, it is also important not to inadvertently sabotage indoor air quality (IAQ), especially in the damper climates of the East Coast and the Pacific Northwest.

The following, in no particular order, are 13 energy efficiency actions, activities, and equipment purchases that will start saving energy tomorrow, with some basic guidance regarding IAQ implications.

### 1. Throw Away all Incandescent Bulbs.

If nothing else, get rid of every incandescent bulb in your facility and your home as well. Compact fluorescent lamps (also known as CFLs) are just the ticket and have

This article is reprinted with permission of the *Building Operator Certification*. Learn more about BOC online: <http://www.theboc.info/>



improved dramatically over the CFLs that first hit the market two decades ago. Modern CFLs can be dimmed, come in all sizes, start in the cold, and provide "warmer" light. Some even look like old-fashioned bulbs and still others come with reflectors attached! Make sure you know how to dispose of CFLs properly in your state because most contain some mercury just like fluorescent tubes and other light bulbs.

### 2. In Gyms, Garages or Warehouses, Replace Aging HID Fixtures with T5\* High-Output Fixtures.

Perhaps the most significant recent advancement in lighting technology is the arrival of T5 High-Output (T5HO) lamps and ballasts. By every measure, T5HO is the best metal halide HID (high-intensity discharge) technology and, perhaps most important,

\* The "T" in T5 indicates thickness or diameter of the lamp, in eighths of an inch. Therefore, a T5 is 5/8 of an inch in diameter, a T8 is 8/8 of an inch, and so on.

T5HOs can be controlled with readily available occupancy sensors. This is huge, since old-fashioned HID fixtures take so long to re-strike (get back up to full brightness) that no one turns them off, even when the room is empty. The photo below is a gym where

HIDs have been replaced with T5HOs. The result is more light, lights that are easy to turn off, and a 44 percent reduction in



electricity usage. The tennis and basketball players give a "thumbs up!" As energy engineering associate and BOC instructor Rich Vaillencourt is fond of saying, "You cannot save more energy than when the lights are off."

### 3. Install High Performance T-8s everywhere else.

Now that you have replaced those obsolete HID fixtures, take a look

See *Ideas* on page 5

## Ideas

Continued from page 4

at all the other fluorescent lights. Current practice is to replace all the lamps and ballasts with high-performance T8 systems. These use one-third less energy than 32-watt units, thus saving electric energy and reducing the air conditioning costs as well! Most utility and energy service companies offer incentives to help you with this cost-effective investment.

### 4. Install Occupancy Sensors.

This is a slam-dunk. For all office spaces, classrooms, rest rooms, conference rooms, gyms, warehouses, garages, and every other space where occupancy is not 100 percent, install occupancy sensors. Dual-sensing ceiling-mounted devices are perfect for a classroom setting. Even in an elementary school, studies have shown classrooms are empty at least 10 percent of the school day. Occupancy sensors will remember to turn off the lights, even when the occupant forgets, and this reduces the air conditioning load as well.

*Hint: Be sure to specify dual-sensing occupancy sensors. These might cost a few dollars more, but will eliminate the annoying situation when the lights go out on occupants who are sitting still.*

### 5. Know Thy Utility Account Rep and/or Your State Energy Contacts!

It is astounding how many facility managers do not know who their

utility representatives are and what type of incentive programs are available. In these times of rising energy costs, utility and state programs with their generous cash subsidies are more important than ever. Additionally, these trained individuals can advise on new products, financing, training programs, and a host of other energy-related services. In short, these folks are your friends! And by all means, ask for an energy audit of your facility. These folks know what to look for.

### 6. Have an Electric Motor Game Plan.

Believe it or not, your buildings have many electric motors running at this very moment. In almost any type of building, electric motors consume a significant portion of the total energy usage. Electric motors drive pumps, turn fans, and perform a variety of other behind-the-scenes tasks.

The best time to upgrade your motor is when it burns out, but generally, it is a minor crisis when this happens. Old habits die hard and we often buy the same motor from the same source, ignoring newer and better options. Have a game plan to replace these inefficient devices with premium efficiency counterparts. The utility will very often pay you the incremental difference to do so! Do you have a plan to upgrade? ❌



Check out part two of this article in the next issue of *Shop Talk*.

## WSU Energy Program Can Help You Tell Your Story

If you want to increase your visibility with your tenants, community or constituents but do not have an internal marketing department to craft your message, please ask Consortium staff for guidance.

For a fee, communications staff with the WSU Energy Program can help you convey your team's highlights and challenges. These specialists will help you:

- Identify your audience,
- Clarify what you want your audience to know about your program, and
- Craft your message so it is appealing and effective.

Whether you want to tell your story in a press release, factsheet, grant application, website write-up or magazine article, our technical writing and graphic design staff can help.

Contact Consortium staff for more information at 360-956-2055 or email [plantops@energy.wsu.edu](mailto:plantops@energy.wsu.edu). ❌

## Smoky

Continued from page 1

went into a negative pressure state and smoke alarms throughout the building sent trouble signals to the fire panel. And so began the long, smoky fall of 2012.

It was not possible to reset the fire alarms until the smoke had cleared out of the building and the smoke detectors were cleaned of residue. The Wenatchee School Superintendent, Brian Flones, was alerted that the high school may not be able to open the following Monday morning if the fire alarm could not be reset.

The fire alarm technician and a custodian worked overtime on Saturday and Sunday to clean the smoke detectors. Staff was called in for 24-hour fire watch. Fortunately, by Sunday morning, the fire alarm was reset...and it held. HVAC technicians were tasked with taking all the school buildings out of night setback 24/7 mode so they would remain in a pressurized state.

### Proactive air-handler management helps to keep the schools open

This episode with the high school forced the first of many discussions we had about closing schools. Having never experienced this type of crisis before, district staff had very little context from which to draw on to make decisions. The districts in the valley relied heavily on the direction of Chelan Douglas Health Department (CDHD).

Because of our experience at the high school, a decision was made to take several strategic steps to protect the indoor air quality at all schools in the district:

- All building economizers were closed to minimum settings while air handlers were set to run 24/7, keeping buildings in a positive air pressure. This ensured that a minimum amount of air entered the building and did so in a controlled fashion – through the filters.
- Entry into and out of the building was limited to as few doors as possible, and all recesses were held inside the buildings.
- N95 masks were purchased and given to schools for use by staff and students at their discretion.

“



Photo courtesy: <http://mypetnannyblog.wordpress.com/tag/canyons-fire/>

***For approximately six weeks, we lived in low visibility grayness, crouching inside like hermits and doing our best to keep our spirits up.***

”

During the second week of the wildfire crisis, Canfield & Associates, the Wenatchee School District insurance provider, stepped in to help. One of their first steps was to provide large 500 to 1000 CFM air scrubbers at each building, which were placed in common areas close to entries. The environmental consultant instructed us on building “air locks” at entries with Visqueen plastic sheets. Canfield also approved the purchase of a large number of small, single-room air purifiers. We scoured local stores to scoop up every air purifier in stock. Lowes was pulling stock in from all over the West Coast to satisfy the demand of the school district and the rest of the valley.

At this time, we started tracking the expenses that were piling up from Maintenance & Operations and other departments. Transportation was changing engine air filters on their mountain-route buses much more often than usual. Every day, the athletic department was bussing students out of town for practice and moved football, cross country and soccer

See **Smoky** on page 7



## Smoky

Continued from page 6

competitions to Moses Lake, which was less affected by the wildfires. This included the Eastmont vs. Wenatchee "Battle of the Bridge" football game, the single largest annual revenue source for the Associated Student Body.

Visibility outside was dismal, but the visibility of district support staff going the extra mile was as clear as could be. The phones rang off the hook as building staff called the district office and maintenance department to register dissatisfaction with the air quality and to ask for assistance. Walking through the buildings, listening to staff and offering assistance whenever possible was a huge investment in keeping the discontent to a dull roar.

These building visits also helped district staff resolve several problems that would never have been properly understood without face-to-face contact and being "in the zone." HVAC systems do not always do what the computer says they are doing, so having techs on site to verify assumptions – or to verify that assumptions were unfounded – was invaluable.

District staff established which schools were at the most risk based on the age of the students and the types of concerns being reported from each building. Walking through classrooms with CDHD Environmental Health Specialist Brian Dickey and his particulate meter enabled us to confirm that the rooms were free of pollutants. This process, along with talking to staff and allaying

their concerns with real-time data as much as possible, helped us provide comfort and alleviate fear in a stressful situation. Data can be a powerful tool.

At one point, we walked into a classroom where an air purifier had been turned off because the teacher said it was "making the air worse." We considered that feedback and immediately moved the purifier to another classroom where it was hugely appreciated.

The CDHD frequently tested air quality throughout town and, on request, tested inside and outside of the school buildings. Their meter gave readings ranging from 0 to 500 (above 300 is considered hazardous to one's health). The reading outside of Lincoln Elementary School was 600 (on that scale of 0 to 500) while the inside readings were 0 to 30, which is considered healthy. Our air pressurization strategy coupled with the air scrubbers was working.

It was these air sampling assessments by various agencies, and the resulting air quality scores calculated by the Wenatchee Air Quality Agency, that Barry Kling of CDHD relied on to make recommendations about whether or not to close the schools. Wenatchee Superintendent Fiones followed CDHD recommendations and decided to keep schools open.



Bryan Visscher

In contrast, Cashmere numbers were in the 900 range on that 0-to-500 scale, and so Superintendent Glenn Johnson followed Kling's recommendations and closed schools.

For approximately six weeks, we lived in low visibility grayness, crouching inside like

hermits and doing our best to keep our spirits up. Personally, I refused to wear a mask and rode my motorcycle as long as possible just to say to that smoke, "You can't beat me down!"

One last and most important mention: To the firefighters who came to town from as far away as Oklahoma and Texas, camped for weeks on the ground in the smoke at Confluence State Park, and went out every day to battle fires in the hills and protect our homes and community – a big Thank You! ❄️

Contact Bryan Visscher with questions about the lessons learned and his experience in the 2012 Central Washington fires, call (509) 663-0555 or e-mail [Visscher.b@mail.wsd.wednet.edu](mailto:Visscher.b@mail.wsd.wednet.edu).

Additionally, Visscher and Cashmere School District Superintendent Glenn Johnson will give a presentation on their experiences of the fires with an eye toward emergency preparedness and response at the 2013 Annual Energy/Facilities Connections Conference. Check out the conference page ([www.energy.wsu.edu/efc](http://www.energy.wsu.edu/efc)) for more details.

## New EFC Innovations Award – Share Your Case Studies of Best Practices

By Phil Partington, Consortium Staff

We are all facing tough challenges amid staff, budget and resource cutbacks. This road is easier to travel if we share ideas and innovations that have helped our organizations overcome these challenges and reach our goals.

Your Consortium hopes to recognize the innovations and best practices employed at public, non-profit and tribal organizations in a new annual award called the EFC Innovations Award. Our goal is to share these case studies with Consortium members so you can avoid reinventing the wheel. We are all in this together, after all.



Formal introduction of the award will take place at the 2013 EFC Conference in Leavenworth, Washington, May 7-9, 2013. Attendance at the conference is not required in order to be eligible.

Stay tuned for more award details on the Consortium web page: [www.energy.wsu.edu/plantoperations](http://www.energy.wsu.edu/plantoperations).

Additional conference details are available at [www.energy.wsu.edu/efc](http://www.energy.wsu.edu/efc). ✂

### Consortium Members

#### K-12 Schools

Bridgeport  
Camas  
Centralia  
Chilliwack, BC  
Coquitlam, BC  
Delta, BC  
Eatonville  
Enumclaw  
ESD 101  
ESD 114  
ESD 121  
Federal Way  
Forest Ridge School of  
the Sacred Heart  
Highline  
Hoquiam  
Inchelium  
LaCrosse  
Marysville  
Mission, BC  
Nine Mile Falls  
**North Thurston**  
Odessa  
Okanagan Skaha, BC  
Olympia  
Orcas Island  
Orondo

Orting  
Pateros  
Peninsula  
Portland Public  
Schools, OR  
Reardan-Edwall  
Renton  
San Juan Island  
Selkirk  
Shoreline  
Snohomish  
Surrey, BC  
Wenatchee  
White River  
Wishkah Valley  
Yakima

#### Universities/Colleges

Bates Technical College  
Bellevue College  
Clark College  
Community Colleges of  
Spokane  
**Edmonds Community  
College**  
Everett Community  
College

Highline Community  
College  
North Seattle  
Community College  
Olympic College  
Pierce College  
Seattle Central  
Community College  
South Puget Sound  
Community College  
The Evergreen State  
College  
Washington  
State University  
Energy Program  
Wenatchee Valley  
College

#### Municipalities

City of Centralia  
City of Des Moines  
**City of Edmonds**  
City of Hoquiam  
City of Longview  
City of Tumwater  
Clark County

Cowlitz County  
Cowlitz County PUD #1  
Grays Harbor Public  
Development Authority  
Jefferson County  
King County Department  
of Executive Services  
Lakehaven Utility  
District  
Lewis County  
Pierce County Library  
System  
Skamania County  
Snohomish County  
Tacoma-Pierce County  
Health Department  
Thurston County  
Whatcom County

#### States/Tribal/Misc.

Muckleshoot Tribe  
Squaxin Island Tribe  
Hopelink

#### Washington State Agencies

Corrections  
Ecology  
Health  
Licensing  
Liquor Control Board  
Natural Resources  
Parks & Recreation  
School for the Blind  
Social & Health Services  
State Patrol  
Transportation  
Veteran's Affairs

*Our warm welcome to new members in **bold blue** type. We look forward to serving your facility and operations needs.*