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## 2011: THE END OF BETC AS WE KNOW IT

The Oregon Business Energy Tax Credit (BETC) program was started in 1979 as a means to encourage growth of renewable energy sources and the conservation of energy. For many years it has been a useful tool in the energy conservation field to encourage owners to implement energy-saving projects by providing a 35% tax credit for eligible costs of energy saving projects that had paybacks ranging from 1 year to 15 years. Several organizations (The Oregonian, Tax Fairness Oregon) began to put this program on the public's radar by pointing out the explosive growth of the tax credit due to some large scale wind projects, and some individual 'abuses' of the BETC program. There was one large wind farm that applied for tax credits on ten \$10m projects (instead of one \$100m project) in order to maximize the tax credits received. There was one transportation company that was headquartered outside of Oregon that used a local PO Box to claim tax credits for upgrades to 18-wheelers that spent very little of their time travelling in Oregon. Because of these 'abuses' and the downturn in the economy, political pressure has been mounting to curtail this tax credit program, and has culminated in Oregon House Bill (HB) 3672.

HB 3672 was signed into law by Governor Kitzhaber on August 5th, 2011. This bill effectively ends (phases out) the Business Energy Tax Credit (BETC) program in Oregon while creating three new energy incentive programs. The bill retroactively stopped Oregon Department of Energy from accepting BETC applications after April 15, 2011, and from issuing preliminary certification for BETC projects after June 30, 2011. No new tax credit applications are currently being accepted by ODOE, and it is not known exactly when new applications can be submitted. Along with a number of non-energy related tax credits HB 3672 creates 1) A Renewable Energy Development Subaccount, 2) A Tax Credit for Energy Conservation Projects, 3) A Tax Credit for Transportation Projects, & 4) A Tax Credit for Residential Energy Projects.

The statutes for HB 3672 consist of 42 pages of tax law and legalese shrouded in a fog of confusion. We are all hoping that the fog will lift and the specifics about implementation and rules related to these new programs will be clarified when the Oregon Administrative Rules (OAR) for this measure are announced. Note: in Oregon laws are referred to as Oregon Revised Statutes (ORS) and the rules for administration and enforcement of statutory law are referred to as the Oregon Administrative Rules (OAR). Oregon Department of Energy (ODOE) is currently working on the OAR's for HB 3672 and for several other related energy measures. Limited public review and input is accepted during the (administrative) rule making process. Contact ODOE and let them know if you are interested in being involved in the review process.

ODOE is expecting to have temporary Administrative Rules in place by the beginning of October 2011 when the bill goes into effect. If the temporary rules are in place by early October, that would mean an application process would be defined and applications for the three energy tax credits would 'soon' be available. Based on past turn-around time for BETC applications it would seem possible that projects could be approved for construction (or implementation) as early as the first quarter of 2012.

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# PRESIDENT'S CORNER



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[www.oregonapem.org](http://www.oregonapem.org)

## Board Officers

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Will Miller



The dust has settled, the smoke is starting to clear. The results of the 2011 summer legislative sessions, both for Oregon and nationally, have been signed into law. The Debt Ceiling has been raised, but the nation has lost its AAA credit rating.

Oregon's Business Energy Tax Credit (BETC) is now relegated to history. But it will be months, maybe years before we know the fallout, the full effect on the energy industry, energy programs, energy incentives, on your and my livelihood, and on the health of the planet.

As Oregonians, like all West Coasters, we have reaped great benefits from government incentives and regulations to encourage energy efficiency. California's Title 24 has long served as a model and benchmark for other state's energy codes. Oregon and Washington have taken turns leading and then following California's lead on energy codes; energy codes that make last year's innovative energy efficiency measure this year's code requirement. The Energy Trust of Oregon (ETO) has been a leader in providing incentives to encourage energy efficiency for both new construction and existing buildings. The Business Energy Tax Credit has also been helping to drive the economics to favor the purchase of energy efficient equipment for 25 years. The BPA has offered great utility programs and almost single-handedly driven the requirements for measurement and verification of savings on energy efficiency projects. These local programs have all helped to encourage the green industry by giving incentives for LEED projects and for renewable energy projects. These local programs have made the west coast states leaders in energy efficiency and in the sheer number of LEED construction projects.

The budget shortfalls and austerity measures at the Federal and State levels will make some of these programs dry up, or least make it more difficult to qualify for incentive funding. These changes are going to make it harder to sell energy efficiency projects. We are going to need to bone up on our finances and know how to talk about the "cost of money". There will still be plenty of opportunities to implement energy efficiency and conservation measures. Keep your eyes open for the opportunities! Remember that when equipment is being replaced, the energy efficiency upgrade almost always makes sense and will sell itself, but the owner needs to be made aware of the opportunity. We need to be prepared to repeatedly and relentlessly show that ENERGY EFFICIENCY DOESN'T COST MONEY, IT MAKES MONEY.

The more difficult task will be selling renewable and alternative energy projects. These industries require incentives. Since there currently is no cost for emitting carbon or pollution, they have to be subsidized to allow them to compete with coal and hydro-carbons. Our hope for climate stabilization and reduced global carbon footprint are all dependent on rapid ramp up of clean, renewable, and alternative energy. Don't give up! Push the facilities managers and property owners to go beyond efficiency and to adopt small scale clean energy. Push your utility, your legislators, your Governor, and our President to provide incentives to encourage rapid adoption of clean energy. I think Stewart Brand in Whole Earth Discipline has put it best, "What is a stable climate worth? What should we pay to keep the one we have? Is there some amount where we would say, "Sorry that's just too expensive. We have to let the climate go?"

Reduce your Carbon Footprint! Conserve Local!  
Generate Local! Join Local!

Support Oregon Association of Professional Energy Managers.

See you at the Fall Forum,

**Don Holland**  
President, Oregon APem

## OREGON APem BOARD ELECTIONS COMING UP

Oregon APem Board elections are coming up. If you like what Oregon APem is doing and would like to be part of the creative process that makes it happen, consider serving on the Oregon APem Board of Directors. Express your interest, or nominate one of the many talented energy management professionals that you know, by emailing us at [board@oregonapem.com](mailto:board@oregonapem.com)

or by contacting any of the Board members so that we can get your name on the ballot. Oregon APem is a totally volunteer run organization. We are only as good as our membership and the volunteers on our board. Step up and help Oregon APem continue to be the premier energy management association in Oregon.

# APEM FALL FORUM ON CENTRAL BOILER PLANTS

The Oregon APEM fall forum will focus on boilers and central plant operations. The forum will be held at the Beaverton Round on Friday September 30th from 8:00AM-3:00PM. Topics covered will include boiler types, piping and operating techniques used to increase efficiency during the heating season. We will present the latest boiler retrofit technologies, case studies and strategies used to reduce energy consumption and facility utility cost. Come to find out about current programs within the Northwest for engineers, building operators and central plant technicians to further their knowledge of these facilities. The forum will conclude with an extensive tour of the Beaverton Central Plant which has been designed as a highly efficient heating and cooling system to deliver services to over one million square feet.

## Agenda

- 8:00-8:30** Check-in and Registration
- 8:30-8:35** Welcome by APEM president
- 8:35-9:35** Intro to Boilers
- 9:40-10:00** Break/Networking
- 10:00-11:00** Boiler Piping and Distribution Control Schemes
- 11:05-12:00** High Efficiency Burners, Linkage less controls
- 12:00-1:00** Lunch-BOC-ETO-Networking
- 1:00-2:00** Beaverton Round Case Study
- 2:15-3:00** Beaverton Round Central Plant Tour

## Presenters

- **Paul Campbell, Business Development Manager**  
CHC - Columbia Hydronics Division  
*Topic: Intro to Boilers and High Efficiency Boilers*
- **Roger Ebbage, NEEI**  
*Topic: BOC and Boiler Maintenance*
- **Mike Hatten, PE Principal**  
SOLARC Architecture and Engineering Inc.  
*Topic: Beaverton Round Case Study*
- **Peter Larro, Branch Manager Mechanical Sales – Portland**  
*Topic: High efficiency burners and linkage less controls*
- **Tim Totten, Aercro**  
*Topic: Boiler Piping and Control Schemes*

# REDUCING BOILER LOADS AT THE UO NEW SCIENCE BUILDING

David W. Knighton, PE, LEED® AP, Mechanical Engineer, Balhiser and Hubbard Engineers

The University of Oregon's Lewis Integrative Science Building (LISB), due to be completed in 2012, could be the first LEED-NC v3 laboratory to be awarded LEED Platinum in Oregon and possibly the country. Energy recovery is one of the keys to achieving a LEED Platinum rating. As mechanical engineers for the project, Balhiser and Hubbard Engineers were tasked with maximizing energy efficiency.

One of our solutions was to use air-to-water heat pumps to capture heat from high-temperature air available year-around in the extensive network of campus steam utility tunnels. Temperatures as high as 130°F have been reported in some sections of the tunnel system during the hot summer months. The recovered heat will be delivered to variable air volume terminal unit heating coils and fan coil units used to control temperature in a variety of multi-

use laboratories and office spaces. The recovered heat will replace heat typically provided by central plant steam boilers.



North-side view of the Lewis Integrative Science Building

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# ENERGY MANAGER OF THE YEAR NOMINATIONS

Oregon APEM is now accepting nominations for Energy Manager of the Year. Please take the time to honor fellow warriors in the fight against wasteful energy use by filling out a nomination form found at [www.oregonapem.org](http://www.oregonapem.org) and submitting it to

[board@oregonapem.com](mailto:board@oregonapem.com) by October 15, 2011. Any individual, company, school, or association that has done outstanding work to save energy, raise awareness, or promote the industry is eligible to be nominated for this award.

# CONDENSING BOILER CONTROL APPROACHES

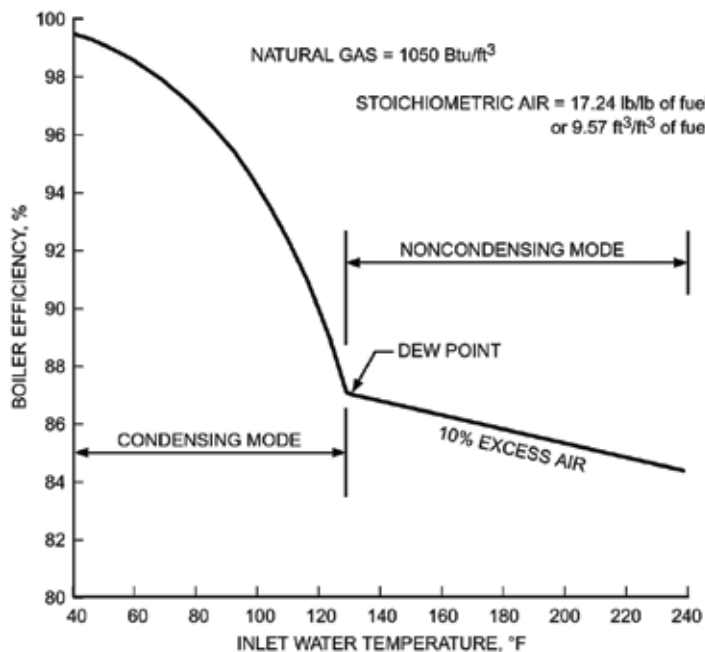
Karl Friesen, PE, LEED AP, Oregon HVAC Systems Branch Manager, Johnson Controls

## What makes condensing boilers different?

Boilers are used to convert energy stored in a fuel to hot water or steam. Energy in the form of natural gas, oil, wood waste, bio-oil etc. is burned and heat as well as CO<sub>2</sub>, water, and combustion by-products are released. For traditional, non-condensing boilers, the water vapor emitted is sent out the stack along with the CO<sub>2</sub> and other waste products entrained in the raw fuel. Since water vapor contains approximately 1050 BTUs per lb of water, the water vapor released out the stack represents a significant energy loss.

Condensing boilers are designed to “condense” the H<sub>2</sub>O molecules before they leave the boiler capturing the energy of the 1050 BTU/lb of water vapor, so it can instead be added to the water being heated by the boiler. This condensing occurs both inside the boiler as well as in the boiler stack.

Condensing the water out of the stack gas stream can't be done if the water vapor remains too hot for condensation on the inside surfaces of the boiler and stack. Condensing boilers target operation below the dew point as shown below. The cooler the boiler operates the greater the amount of condensation, therefore the greater the efficiency. A condensing boiler operating at or above 140°F is fundamentally just a more expensive traditional boiler.



**Fig. 6 Effect of Inlet Water Temperature on Efficiency of Condensing Boilers**

Traditional boilers operate at temperatures where the design intent is to actually avoid condensation of the stack vapors to avoid corrosion of the stack. This limits the maximum thermodynamic efficiency for traditional “boilers” to approximately 85%. Steam boilers operate at even higher temperatures (220°F and higher) and are thermodynamically limited to below 85% or lower efficiency ranges based on the boiler operating pressure.

## How do we control condensing boilers to maximize the efficiencies available?

To maximize the efficiency always operate the boiler at the “coolest” temperature possible to maximize water vapor condensation. This is done by keeping the firing rate and the entering water temperature at the lowest levels, while satisfying the loads being served. To do this we need to increase our focus on the return water temperature, not just the supply water temperature. These two are linked since the load at any given point in time is measured by this delta T and the water flow volume. For example, the building load is identical when the delta T is 20°F regardless of whether the operating range is 140°F return and 160°F supply or 110°F to 130°F. The temperature of air being delivered to the ceiling grill or air handler coil surface will be approximately 30°F cooler which may effect comfort, but the actual quantity of heat being delivered to satisfy the load is the same.

Most condensing boiler manufacturers have limited control optimization modules with control strategies pre-programmed that are specifically designed for their boilers, which allow for a limited number of operations to exploit this thermodynamic reality (principles illustrated in Figure 6 from ASHRAE Handbook). Often this is an outside air reset schedule, which resets the hot water supply temperature based on the outside air temperature – the cooler it is outside, the hotter the water; the warmer it is outside, the cooler the water. This is a basic strategy that has been around for many years, and the maximum and minimum temperatures can be reset by the operator, but it does not rely upon any feedback from the building, and often the operator does make adjustments to increase occupant comfort and compromises the efficiency of the system.

The Facility Management System should be interfaced with the factory pre-programmed controls in order to provide the operator with an easy method to make simple system adjustments from the operator's PC, laptop or tablet interface. The system needs to provide operators with the ability to incrementally adjust up or down the overall system operating temperature within the reset strategy, while still maintaining the optimized reset approach. The operator also needs to be able to adjust the “slope” of the reset curve. Plus some operators may want to have an ability to adjust optimal start stop routines to account for colder than normal weekends or for extended holiday setback periods when the building thermal inertia may need to be overcome prior to the return of occupants. Without this adjustability, too often operators simply will disconnect or manually override to the overall reset strategy.

New construction and retrofit projects will be major disappointments for clients if consideration and resources are not included to allow the facility management system to be re-programmed to give operators simple ways to adjust and fine tune the operation after the construction period. As stated above, condensing boilers may operate seemingly properly at elevated temperatures above the dew point, which will partially or completely eliminate the energy savings expected.

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# CONDENSING BOILER CONTROL APPROACHES

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The Facility Management Control System can be used to interface with the pre-programmed boiler optimization component, or to implement a more advanced control routine. Two other control routines that can be employed to maximize the boiler efficiency by reducing the return water temperature include: Reset based on worst zone or average of worst zones; adjust a pump variable speed drive to maintain a return water temperature.

Resetting the hot water supply temperature based on the worst zone is typically employed when a DDC system has the ability to see what every hot water valve position is in the building. It monitors these valve positions, and when all the valves are below 80% or 90%, the hot water supply temperature is lowered by a degree or two every ten to twenty minutes. If the valves are still below 80% or 90% then the hot water temperature is lowered again. This process continually repeats and the hot water temperature keeps dropping until one of the zones valves is open to the pre-set 80% or 90% level – when this happens then the supply water temperature is raised by a few degrees to meet the increased heat load.

When there is a variable speed drive (VSD) on a hot water loop, the VSD speed can be lowered based on the return water temperature. VSDs are typically modulated to maintain a fixed pressure setpoint at the far end of the hot water loop, which guarantees that there is enough flow at the furthest valve to provide adequate heating. Sometimes a control system can also look at the difference between the hot water supply and return temperatures, and use this to slow the pumps down. If a system is designed for a 40°F drop in temperature, the drives can be slowed down when the system is at part load and only seeing a 20°F drop. By moving half the water flow at the same supply temperature, the return water temperature will be lowered, which will increase the operating efficiency of the boiler. Care must be taken to ensure that the boiler minimum flows are met, and care must be taken to ensure that all zones are receiving adequate flow to provide the heating that is required, but

this is a strategy that has been successfully used to maximize a condensing boiler's system efficiency.

Every building is different, from constant to variable volume hot water or air distribution systems, to tighter or more porous thermal shells, to the systems originally designed hot water temperatures (some are designed for 180°F or 140°F), to air handler or zone level reheat coils. Because of this any control strategy that is implemented will need to be fine-tuned over the course of a year to insure both occupant comfort and maximum efficiency. Often these are set up to only take into account occupant comfort, and this can be achieved most quickly and easily by strategies that end up minimizing the boiler efficiency.

These modifications are dynamic, specific to your application, and need to be accounted for when reviewing proposals and implementing projects. To accommodate this need your Facility Management System partner should be working closely with your project team to make sure the project budgets allow for proper system integration.

Too often in bid situation a winning low bidder may simply have not carried costs to interface the new boiler system with the Facility Management System. Understanding that a significantly modified new operational strategy is needed if the project owner wants to see the energy savings expected is key to a successful effort. If no consideration for interfacing of the systems is made in your project, either the parties involved do not understand condensing boilers or they may not fully understand your project long term goals for success. If your installing contractor tells you "just hook it up as it was before and have it run it like it did before", you most likely will not have a successful project, and your energy savings and incentives may be in jeopardy.

*Karl W. Friesen, PE, LEED® AP, Mechanical Engineer Karl Friesen is the Oregon HVAC Systems Branch Manager for Johnson Controls. He has worked in the Oregon commercial and industrial HVAC market over 25 years.*

## OREGON APEM STUDENT MEMBERS SEEKING OPPORTUNITIES

We are proud to publish a list of the student members of Oregon APEM who are either currently looking for an internship position or full time employment. Any prospective employers can check our website [www.oregonapem.org](http://www.oregonapem.org) for additional information on each student that we couldn't fit here, such as college, grade point average, previous degrees, prior work and internships, and hobbies.

Student Name	Contact Info	Student Name	Contact Info
Zachary Bates	971-322-7024	David Perkins	541-228-8063
Steven Marcyk	541-607-1235	Steven Kyle Mason	541-556-8439
Stephanie Denby	541-514-6415	Michael Jonopulos	541-285-7833
Neil Oliver	541-912-7355	Ryan Bahler	541-510-4258
Travis Faherty	541-206-1867	Matthew Heflin	503-559-3888
Michael H Zmolek	541-914-6629	Ron Scott	541-521-9318
Dan M Hoppe	541-579-4026	Fernando F Ortiz	541-654-1646
Lindsey Mendell	541-228-2923	Jennifer Hendrix	541-525-7904
Bryan Kyllingstad	541-913-3328		

# REDUCING BOILER LOADS AT THE UO NEW SCIENCE BUILDING

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The campus has a central boiler plant that generates steam at 60 psi, and distributes it to over 75 buildings on campus through a large network of steam tunnels. Even though the steam pipes are insulated, the length of pipes and the high temperature of the steam cause some tunnels to get very warm. The University has recently installed temperature sensors in some tunnels and connected them to their facility management system so that they can trend and study the temperatures over time. This summer they have been recording temperatures as high as 119°F, and a low of 96°F. From the University technician's experience they estimate that even in the coldest winter months the temperatures in some tunnels never drop below 80°F. Balzhiser and Hubbard Engineers identified this excess heat as a source of potential energy conservation if it could be converted to useful heat.

The tunnel near the central boiler plant currently has a large exhaust fan that draws air from the steam tunnels and exhausts it to the outside. The tunnels have been extended over the years as new buildings have been added, some tunnels lead directly from the central plant to the buildings, some tunnels connect one building to another. The temperatures vary in the different tunnels, and the airflow between the tunnels also varies. An initial investigation into the airflows has discovered that the airflow direction and velocity varies, and the reason why is not intuitive. The University has decided to conduct further investigation into the airflow dynamics of the tunnels, and is considering adding velocity meters in some tunnels that are connected to the facility management system so that they can better understand the airflow dynamics over time. It is anticipated that by the time the LISB construction is completed, airflow barriers may be installed to help guide the warmest air to the Science Building so that the most heat can be captured by the air source heat pumps.

During the design of the new Science Building Balzhiser and Hubbard Engineers proposed to extract this waste heat and turn it into useful heat. The need to reheat previously cooled air for multi-zone temperature control is one of the largest energy penalties in Science Building HVAC systems. Capturing the waste heat for reheat became a top priority. This will be accomplished by installing three air to water heat pumps in the basement mechanical room of the new Science Building with an opening to a branch of the tunnel network. Air will be extracted from this tunnel and exhausted to the outside after passing through three parallel heat pumps. The heat pumps are each sized for 7,500cfm of airflow, and at the manufacturer's rated entering air temperature of 80°F they can lower the air temperature by 26°F. The heat pumps extract heat from the air, and inject this heat into a combined water loop. Each heat pump delivers a constant 30 gpm to the water loop which is tied into the main building heating water loop serving the VAV reheat boxes and fan coil units in the building. A steam heat exchanger in the main building loop provides supplemental heat and serves as 100% backup heat should the heat pumps be off line due to maintenance or failure. The heat pump water loop will connect into the building return water piping upstream of the steam

heat exchanger to ensure that the heat pumps always provide a baseline source of heat before the heat exchanger is needed. The building automation system varies building loop pump flow, stages the three heat pumps on/off, and coordinates the addition of supplement heat from the steam heat exchanger to meet building demand on a 24 hour operational basis.

During the winter months when the demand for hot water reheat is the greatest, it is anticipated that the building heating load will be satisfied by delivering approximately 180 gpm of hot water at 140°F.

Even during the summer months reheating of the air in the VAV system is required in many zones for temperature control, and is anticipated that the building heating load will be satisfied by delivering at least 50 gpm of hot water at 120°F. Consequently it is anticipated that at least two heat pumps will be required to maintain the hot water loop at a 120°F temperature during the warmest summer months.

The manufacturer rates the heat pumps with an integrated Coefficient of Performance (COP) of 7.0 with 80°F entering the heat pump. With the higher tunnel temperatures observed, the COP of the heat pumps will be higher providing a further boost to the heat capture efficiency.

With a total heating output capacity of 816 MBH, the heat pump water heaters will provide a constant and controllable heat supply year-round, using waste energy to reduce central plant boiler demand. Before the heat pumps were added, building-energy modeling performed by Glumac Engineers estimated the reheat energy of the HVAC system to be 35% of the building's total projected energy use. After adding the air-to-water heat pumps, the entire building savings is projected to be 47%, with one-third of the savings attributed to the air-to-water heat pumps harvesting waste heat from the steam tunnels.

Wescor president Jim McKillip, Colmac Industries' Oregon representative, pointed out that the LISB is not unique in having waste heat available for capture. Almost every campus or corporate facility with a common boiler and cooling plant has utility tunnels. These tunnels are typically hot and humid, requiring ventilation air. This is an ideal condition for converting waste energy to usable energy.

"Waste-energy applications are abundant," McKillip said. "For example, every commercial building has exhaust air with significant waste energy. This typically wasted heat can be captured with hydronic heat pumps and used for heating the building and for heating potable water. Heat pump water heaters work well with even low-temperature exhaust air, with COPs of over 3.5 at 55°F and over 2.0 at 15°F. If potable water heating is desired, there are double-wall heat exchangers approved for potable water. The units proposed in this application can heat water up to 160°F in a single pass. Not only is a high-temperature heat pump necessary for heating potable water, but it can also be used for thermal eradication of bio hazards such as legionella."

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# REDUCING BOILER LOADS AT THE UO NEW SCIENCE BUILDING

Continued from page 6

Other energy saving features incorporated into the building mechanical systems include heat pipe heat reclaim on the laboratory exhaust air systems, variable volume Strobic Air mixed flow exhaust fans controlled to the lowest permissible stack velocities derived from (CFD Computational Fluid Dynamics) wind modeling tests performed on a building model, sash positioner that automatically closes the sash when no activity is detected at the fume hood, unoccupied setback of lab airflows down to as low

as 2.4 air changes per hour in Labs without fume hoods, chilled beams and Demand-Controlled Ventilation.

*Dave Knighton is a senior project manager at Balzhiser and Hubbard Engineers. He has worked on a variety of commercial and institutional projects, including: research laboratories, office buildings, hospitals, public safety facilities, schools, museums, and boiler and chiller plants. His specialized focus is HVAC design for research facilities and Direct Digital Control (DDC) building automation systems.*

*Additional Project Team Members: Energy Analysis: Glumac Engineers, Mitch Dec, LEED AP; Mechanical Peer Review: HDR Architecture Inc., Bruce W. Johnson, PE, LEED AP, Principal; Architects: HDR Architecture Inc. and THA Architecture Inc.*

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## 2011: THE END OF BETC AS WE KNOW IT

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The Energy Trust is also looking closely at what will result from these new tax credits. The tax credit page on their website states "Energy Trust will be studying the impacts of the tax credit legislation and evaluating whether changes to Energy Trust programs are needed in the future to continue delivering cost-effective energy efficiency and clean, renewable energy solutions to our residential, commercial, industrial and agricultural customers."

*In response to the elimination of the BETC program, the Energy Trust has just announced that they are offering increased incentives for certain projects completed this Fall. Increased incentives range from 20% to 50%, and must meet Energy Trust guidelines. Check their website [www.energytrust.org](http://www.energytrust.org) for the latest details and forms.*

The Renewable Energy Subaccount requires the creation of an auction for tax credits with a minimum starting bid of at least \$0.95 per dollar of tax credit. The funds in this subaccount will be available to be used as grants to construct or install renewable energy generation systems. The legislature can choose to supplement the funds generated by the auction. The fund appears to be capped at \$1.5 million per fiscal year. Note: this is equivalent to 1% of what was available under BETC; Renewable Energy Tax Credits were capped at \$300 million per biennium in 2010 under BETC. The amount available for these tax credits can be increased by future legislatures, and hopefully it will be increased significantly when the economy improves.

The funds available for Energy Conservation Projects are capped at \$28 million per biennium. This program appears to have requirements very similar to those that were used for BETC Conservation Projects, although the minimum payback appears to have been raised from 1.5 years to 3 years. It appears that not all tax credit applications that qualify will be accepted, there will be a competitive process so that tax credits are only awarded to energy conservation projects with the "highest savings over the five year credit allowance period".

The Tax Credit for Transportation Projects appears to give preference to infrastructure to support alternative fuel vehicles. Projects other than alternative fuel infrastructure have a phase out of the tax credit. There is a total of \$20 million per biennium available for Transportation Projects.

The list of devices that qualify for the Tax Credit for Residential Energy Devices has been severely restricted; but it does still cover third party installation of alternative energy device. This would appear to allow tax credits for solar panels and other renewable energy generation devices. Statewide there is \$10 million cap on Residential Energy Device tax credits per tax year.

Related legislative measures that effect BETC include HB 2523 which was signed into law on June 23, 2011, and HB 3606 which was signed into law on August 2, 2011. HB 2523 transferred responsibility for administration of income tax credits for renewable energy equipment manufacturing plants to the Oregon Business Development Department; under BETC the renewable energy manufacturing credits were administered by Oregon Department of Energy. HB 3606 contained technical clarifications for holders of existing BETC tax credits. All three of these bills, HB 2523, HB 3606, and HB 3672 have effective dates of September 29, 2011. These bills have not eliminated the pass-through option; non-profits will still be able to apply for tax credits if they have a pass-through partner.

More information is available at the ODOE website under Business Energy Tax Credits:

<http://www.oregon.gov/ENERGY/CONS/BUS/BETC.shtml>

Also at ODOE's BETC website there is a link to sign up for BETC email updates. This list serve should keep you informed on when the rule making process is accepting public input. And they have a frequently asked questions section on their website:

[www.oregon.gov/ENERGY/BUSINESS/docs/HB3672\\_FAQs.pdf](http://www.oregon.gov/ENERGY/BUSINESS/docs/HB3672_FAQs.pdf)

The full text and legislative history for HB 3672 is available at this website:

<http://gov.oregonlive.com/bill/2011/HB3672/>

The three websites below give more information about the Oregon legislative process and about the process of creating Oregon Administrative Rules.

<http://www.leg.state.or.us/faq/lawprocs.pdf>

<http://arcweb.sos.state.or.us/doc/rules/checklists.pdf>

<http://arcweb.sos.state.or.us/doc/rules/overviews.pdf>



**Oregon Association of  
Professional Energy Managers**

P.O. Box 6764  
Portland, OR 97228-6764



**Mission Statement:** To advance the understanding and practice of sound energy and resource management principles, and to provide a network among business, government, and utilities for information, education, and leadership.