

## **OREGON DEPT OF ENERGY**

The Oregon Department of Energy offers the Business Energy Tax Credit to those who invest in energy conservation, recycling, renewable energy resources and less-polluting transportation fuels.

### **Business Energy Tax Credit**

The Oregon Department of Energy (ODOE) offers the Business Energy Tax Credit (BETC) to those who invest in energy conservation, renewable energy resources, and sustainable buildings. Energy-efficiency and renewable energy improvements are right in line with the purpose of public and nonprofit organizations—to serve others. Reducing energy costs frees funds for important projects, and demonstrates the organization's good stewardship of taxpayer or contributor dollars. Energy-efficiency projects have an immediate effect on operating expenses, and many building upgrades return their investment in just three to five years or less. These improvements also create more comfortable conditions for employees, visitors and guests while conserving resources and reducing the organization's environmental impact.

For a range of non-profit organizations Energy Trust can help with cash incentives, technical assistance, finding a contractor, installation and renewable energy solutions like solar electric, solar water heating and more.

Typically trade, business or rental property owners who pay taxes for a business site in Oregon are eligible for the tax credit. However, a project owner can also be an Oregon non-profit organization, such as a religious institution, that partners with an Oregon business or resident who has an Oregon tax liability. This can be done using the Pass-through Option.

### **Pass-Through Option for religious institutions**

The Pass-through Option allows a project owner to transfer their Business Energy Tax Credit project eligibility to a pass-through partner for a lump-sum cash payment. A project owner may be a public entity or non-profit organization, such as a church, with no tax liability or a business with tax liability that chooses to use the Pass-through Option.

### **What Costs Are Eligible?**

The tax credit can cover all costs directly related to retrofit, new construction, and renewable energy projects, including equipment cost, engineering and design fees, materials, supplies and installation costs. Loan fees and permit costs also may be claimed. Replacing equipment at the end of its useful life and equipment required to meet codes or other government regulations are not eligible. Maintenance costs are not eligible.

### **Energy Efficiency Projects**

- Conservation Projects
- Lighting
- Sustainable Buildings

## **BETC – Sustainable Buildings**

Oregonians who build a sustainable commercial building are eligible for a tax credit from the Oregon Department of Energy. Sustainability is generally defined as the use of today's resources in a manner that enables people to meet their current needs and provides for future generation. Sustainable buildings use energy as efficiently as possible by today's standards.

The building must meet an established standard set by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) or be rated by a comparable program approved by the Oregon Department of Energy.

### **Approach**

The sustainable building tax credit offers a different approach for business owners to receive a tax credit. It is based on the square footage of the entire building. (Traditional tax credits are based on the increased cost of a project above the industry standard or the energy code.) See the square footage table in the Sustainable Building section of the Oregon Administrative Rules. The sustainable building tax credit incentive helps offset the cost of applying for the LEED™ rating and the extra design and commissioning costs.

The LEED™ rating system is based on accepted energy and environmental principles that evaluate environmental performance from a "whole building" perspective over a commercial building's life cycle. It provides a definitive standard for what constitutes a "sustainable" building. The Council awards different levels of building certification.

Oregon has selected the second level, or Silver rating, as its standard for the tax credit. In addition, to the credit requirements for the LEED™ Silver rating, the Oregon Department of Energy requires:

- At least two credits are earned for energy efficiency.
- At least one credit for additional commissioning beyond the LEED™ prerequisite requirements.
- A report on the amount of solar radiation to be received by the building annually.

### **How much is the Tax Credit?**

Tax credit amounts vary by the type of project completed. The tax credit is 50 percent of the eligible project costs for:

- High Efficiency Combined Heat and Power
- Renewable Energy Resource Generation
- Renewable Energy Resource Equipment Manufacturing Facilities

The tax credit is generally taken over five years at 10 percent per year.

Tax credit is 35 percent of eligible project costs (the incremental cost of the system or equipment that is beyond standard practice). The owner or partner/investor takes the credit over five years: 10 percent in the first and second years and 5 percent each year thereafter. If

they can't take the full tax credit each year, they may carry the unused credit forward up to eight years. Those with eligible project costs of \$20,000 or less may take the tax credit in one year.

### **Energy Loan Program**

Low-interest, long-term loans are available for businesses and others that invest in energy conservation, produce energy from renewable resources, and use recycled materials to create products. .

### **Lighting in Commercial Facilities**

Lighting systems normally account for 30 percent of the electrical energy use in office, retail or institutional facilities in Oregon. That doesn't take into account any cooling energy required because an inefficient lighting system adds excessive heat inside the building. By having an energy efficient lighting system in your commercial facility, you can reduce energy use and costs.

### **HVAC for Commercial Buildings**

HVAC refers to the equipment, distribution system, and controls that provide heating, ventilation, and air conditioning for buildings. HVAC systems are the main energy consumers in commercial buildings. They account for approximately half of all the energy used in U.S. buildings. In addition to the energy costs, HVAC systems impact building occupants' health, comfort, and productivity. Improving HVAC performance saves energy and promotes a healthier, more comfortable workplace.

### **Demand-Controlled Ventilation Guide**

Ventilation is required so that the human occupants in buildings are provided with fresh air. The purpose is to provide oxygen and dilute other gases such as CO<sub>2</sub> and human odors.

Demand-controlled ventilation adjusts outside ventilation air based on the number of occupants and the ventilation demands that those occupants create. DCV is part of a building's ventilation system control strategy. It may include hardware, software, and control strategy and is an integral part of a building's ventilation design.

Which spaces would benefit from DCV? DCV is a ventilation control strategy that provides just the right amount of outside air that is needed by the occupants. Active control of the ventilation system can provide the opportunity to control indoor air quality. It can save energy. Large assembly spaces such as auditoriums, lecture halls, conference rooms, and church sanctuaries are good candidates for DCV. These spaces are designed for large numbers of people with high outside air requirements; however, they are frequently only partially occupied. It is expected that, in the future, most spaces with ventilation air capacities of at least 1,500 cubic feet per minute (CFM) and serving areas having an average occupant load factor of 20 or less will be designed with DCV features.

### **Building Commissioning**

The commissioning process ensures that the complex equipment providing lighting, heating, cooling, ventilation and other amenities in buildings works together effectively and efficiently. Studies on commissioning show that the process provides average energy savings of 15 to 30 percent.

Commissioning is the process of ensuring that building systems are designed, installed, functionally tested, and capable of being operated and maintained according to the owner's operational needs. Commissioning also can restore existing buildings to high productivity through renovation, upgrade and tune-up of existing systems.

Benefits of commissioning include:

- Early detection of potential problems
- Fewer change orders
- Precise tune-up of HVAC systems and controls
- Better building documentation
- Trained building operators
- Shortened occupancy transition period
- Lower operation and maintenance cost
- Lower utility bills
- Healthy and comfortable work environment

How much commissioning costs depends on the size and complexity of the project. But it accounts for a small portion of construction and renovation budgets. When commissioning is done properly, the savings far outweigh the costs.

### Estimated Commissioning Costs

Commissioning Scope	Estimated Cost	Range
Whole building (controls, electrical, mechanical)		0.5-1.5% of total construction cost
Commissioning from design through acceptance		
HVAC and automated controls system only		1.5-2.5% of mechanical contract
Electrical system only		1-1.5% of electrical contract
Various energy-efficiency measures		53,000 ft <sup>2</sup> avg. \$.08-\$.64 /ft <sup>2</sup>
		102,000 ft <sup>2</sup> avg. \$.13-\$.43/ ft <sup>2</sup>

### Estimated Energy Savings from Commissioning

Energy savings depend on the scope of the commissioning. The following table shows reported savings for certain types of buildings. When commissioning is done properly, the savings can be substantial.

### Savings From Commissioning

Building Type	\$ Savings	Energy Savings
110,000 ft <sup>2</sup> office	\$.11/ft <sup>2</sup> /yr (\$12,276/yr)	279,000 kWh/yr
22,000 ft <sup>2</sup> office	\$.35/ft <sup>2</sup> /yr (\$7,630/yr)	130,800 kWh/yr
60,000 ft <sup>2</sup> high-tech manuf.	\$.20/ft <sup>2</sup> /yr (\$12,000/yr)	336,000 kWh/yr

**Business Energy Tax Credit**

(Source: Database of State Incentives for Renewables &amp; Efficiency-DSIRE)

*Last DSIRE Review: 05/28/2010***Program Overview:**

<b>State:</b>	Oregon
<b>Incentive Type:</b>	Corporate Tax Credit
<b>Eligible Efficiency Technologies:</b>	Lighting, Heat recovery, Caulking/Weather-stripping, Duct/Air sealing, Building Insulation, Comprehensive Measures/Whole Building
<b>Eligible Renewable/Other Technologies:</b>	Passive Solar Space Heat, Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Geothermal Heat Pumps, CHP/Cogeneration, Hydrogen, Industrial Waste, Ethanol, Methanol, Biodiesel, Fuel Cells using Renewable Fuels
<b>Applicable Sectors:</b>	Commercial, Industrial, Construction, Multi-Family Residential, Agricultural, Equipment manufacturers
<b>Amount:</b>	Renewable energy generation, renewable energy equipment manufacturing, high efficiency combined heat and power: 50% of certified project costs, distributed over five years (10% per year) Wind projects over 10 MW: 50% of certified project costs, though only 5% of total project costs are included in certified costs All other projects: 35% of certified project costs, distributed over five years (10% in the first and second years, 5% each year thereafter)
<b>Maximum Incentive:</b>	\$20 million for renewable energy equipment manufacturing facilities; For wind projects over 10 MW: \$3.5 million when preliminary certification is issued from 1/1/2010 to 12/31/2010, \$2.5 million when preliminary certification is issued from 1/1/2011 to 12/31/2011, \$1.5 million when preliminary certification is issued on or after 1/1/2012; and \$10 million for other renewable energy generation projects.
<b>Eligible System Size:</b>	Not specified
<b>Equipment Requirements:</b>	System must be new and in compliance with all applicable performance and safety standards; must pass preliminary and final certification of the ODOE review process. "Sustainable Buildings" must achieve LEED Silver Certification in addition to other ODOE requirements.

Masterplanning Report

**Carryover Provisions:**

Excess credit may be carried forward eight years; those with eligible project costs of \$20,000 or less may take credit in one year.

**Expiration Date:**

7/1/2012

**Web Site:**

<http://egov.oregon.gov/ENERGY/CONS/BUS/BETC.s...>

**ARTICLE: Corvallis leads nation in green-power use The Seattle Times (originally published Monday, February 2, 2009)**

---

**Corvallis buys more renewable energy than any other city in the nation, according to an EPA report.** By The Associated Press

CORVALLIS, Ore. — A report by the Environmental Protection Agency (EPA) says Corvallis buys more renewable energy than any other city in the nation.

"There's a broad range of people who are making a commitment to renewables," said Mayor Charlie Tomlinson. "Many people making small contributions can make a big difference."

Locally, consumers and businesses are given the option of spending a bit more each month to buy power produced by wind, solar and biomass, rather than by coal-fired generators.

Corvallis purchases more than 100 million kilowatt-hours of green power annually, about 13 percent of the city's total purchased electricity.

According to the EPA, Corvallis' green-power purchase is equivalent to avoiding the carbon-dioxide emissions of more than 13,000 passenger vehicles per year, enough electricity to power more than 9,000 average U.S. homes annually.

Green-power options are offered from sources such as Pacific Power's Blue Sky, Consumers' Power Coffin Butte Landfill Gas project and the Bonneville Environmental Foundation.

Oregon cities made up half of the nation's top 10 green-power purchasers. Bellingham was second on the list, which also includes Santa Clara and Palo Alto, Calif.; Boulder, Colo.; and River Falls, Wis.

Lacey, in Thurston County, was No. 11.

Oregon State University is the largest single purchaser of green power in Corvallis, buying enough to meet three-fourths of its needs. "College towns with a university or college that are making a commitment to renewables are that much farther ahead," Tomlinson said. Companies such as Hewlett-Packard also buy large amounts of renewable energy, which help push Corvallis' total over the top.

The Green Power Partnership is a voluntary program that encourages the purchase of green power to reduce the environmental impact of electricity generation and use.

It includes more than 1,000 organizations that buy billions of kilowatt-hours of green power annually. Partners include a wide variety of leading organizations, such as Fortune 500 companies, small and medium-sized businesses, local, state and federal governments, and colleges and universities.

Tomlinson said his next step is to find a way to keep money spent on green power within the community. That could mean local power generation or options for consumers including green-power purchasing from their city utility bill.

Copyright © 2009 The Seattle Times Company

## UUFC SubCommittee Reports

### UUFC SUSTAINABILITY TEAM, Sub- group within the Green Sanctuary Program

A team was formed to address sustainability issues within the fellowship. We heavily leveraged two recent audits that were done: one by the Energy Trust of Oregon on energy efficiency, and another more general sustainability audit from the Get Smart! Resource Efficiency Program of the Corvallis Environmental Center. We separated our efforts into the major areas below:

- Hot Water
- Heating/Cooling
- Lighting
- Kitchen Equipment & Products
- Recycling/Green Products
- Outdoors: plant selection, water use, irrigation system, composting
- Building Envelop
- Water Use
- Office/Equipment Use
- Transportation

Our objective was to first assess the current status in each area, explore options for improvement, make recommendations, then either implement the changes or pass the information on to the appropriate individuals or committees that would do so. We met for a period of four months, until the vast majority of issues were addressed. Many recommendations were developed, particularly for the next phase: education. As we were part of the larger Green Sanctuary structure, and another group was responsible for education, we consciously disbanded, allowing for group members to continue with the education group (once it more formally formed/engaged) or continue some projects on their own.

Below is a brief summary of each area, along with the individual/s who took the initiative work on these areas. I'd like to acknowledge that Martha played a key role in interfacing with staff and other fellowship members to identify previous work that had been done; she has agreed to summarize the team's work and overall recommendations - she's just needed me to send this out!

#### 1. Hot Water & Heating/Cooling – Jeff Goby

Jeff did an amazing job fully assessing the heating systems, crawling under the building as needed, exploring many options and generating a detailed 15 page report that he has discussed and given to the building committee. (Hard copy available from Jeff Goby, Russ Karow or myself.)

#### 2. Lighting – Laura Uhler

See attached summary.

#### 3. Kitchen Equipment & Products - Marjorie Goss

See attached summary... has diligently done some follow-up work as well. I'll note that John took the initiative to clean the coils on the back of the refrigerator.

4. Recycling/Green Products – Clint Kolar

Generated hand written report with many thoughtful suggestions. (Contact Clint, Martha or Louise for a copy)

5. Outdoors: plant selection, water use, irrigation system, composting – Barbara Ashman - See attached summary

6. Building Envelop – Will Staver – See attached summary.

7. Water use – Nancy Kaib

The main recommendation was that toilet tummies be put in the bathrooms. After evaluating the rather spendy commercial models, Nancy did a great job in creatively using some old wine bottles to effectively reduce the toilet water needs.

8. Office/Equipment Use – Martha Clemons

9. Transportation – Susan Christie and John Myers -

Discussions on-going

I was contacted by Cassandra Robertson of the Resource Efficiency Program who performed the original audit; we reviewed the team's actions in respect to the audit items and were deemed to be a consciously conserving organization (signified by sticker/sign to be placed on front door.)

My thanks to everyone for all the efforts.

Respectfully, Laura Uhler

May, 2007

## LIGHTING

By Laura Uhler

- Worked with Wolfgang to replace lights in Foyer with 120W-equivalent compact florescent floods to provide more diffused light, and less energy. (Intentional decision to brighten foyer.)
- Similarly replaced lights outside office areas and in bathrooms with compact fluorescents that provided more illumination with less energy.
- Replaced lights in social hall with compact fluorescents. Spots on back wall not replaced as so very rarely used. When burn-out will replace with energy efficient ones. Removed old bulbs from storage box and replaced with a few compact fluorescents.
- Replaced burnt-out lights in Sanctuary (thanks to ladder and scaffolding availability during implementation of new sound system.) As most lights are on dimmers, cannot use fluorescents, however, these lights are not used very frequently. Replaced those that could with compact florescent floods donated by Energy Trust. As Sanctuary lights burn

out (that are NOT on dimmers), replace with compact fluorescent 90 or 125W equiv floods.

- Left existing lights in sanctuary gallery area that illuminates pictures. Painting committee spend much time and energy evaluating lighting options and purchased very color specific bulbs and replacements some time ago. Best not to replace them, however, asked that they re-evaluate with more energy-efficient lights when all spares have been used.
- Gave nicely printed "Turn out lights" labels to Wolfgang to place under light switches
- Replaced outside lights illuminating walkways with outdoor rated compact fluorescent floodlights.
- Replaced lights outside doorways with energy efficient ones from Energy Trust.
- Decided not to install occupancy sensors as do not see need/value at this point.

## **GROUNDS COMMITTEE**

### **OUTDOORS: plant selection, water use, irrigation system, composting**

After reviewing the very complete history of the development of the Church grounds provided to me by Daryl Ann Peterson and Nancy Lyman, I can only say I am very impressed by the care that has been taken at every step of the way, from grading to installing the sprinklers, to choosing drought resistant and native plantings to arrangement of the plantings. With the help of the City of Corvallis and the local grounds crew recycling and mulching have been taken care of as well.

The only thing that seems to be lacking is involvement of the RE department and some sort of demonstration project. I was told by Nancy Leman that Scott Bruslind is interested in doing something along these lines so I consulted with him. Scott would like to start some sort of gardening project using sustainable methods with his group in the spring. We agreed to check out the building plans to see what space is available and I will try to attend the next meeting of the Planning Committee. Scott and I agreed that the area along the north edge of the church land and near the parking lot would probably be adequate for his needs and could use some work. Laura Uhler has agreed to provide us with a tape from the Community Garden Project which should be a useful place to start. I think our role now is to provide Scott with whatever help we can.

Submitted 12/13/06

Barbara Ashman

## **BUILDING COMMITTEE**

### **WILL'S REPORT ON BUILDING ENVELOPE**

1) UPPER LEVEL RE - ALL WINDOWS DOUBLE PANED

## Masterplanning Report

- 2) NORTH WEST CLASSROOM- 4 SINGLE PANED WINDOWS
- 3) NORTHEAST CLASSROOM-3 SINGLE PANES WINDOWS
- 4) NEED WEATHER STRIPING ON NORTHWEST DOORS, SINGLE PANED WINDOWS
- 5) FOYER AND SANCTUARY - ALL WINDOWS DOUBLE PANED
- 6) NEED WEATHER STRIPING ON SOUTH DOOR
- 7) NURSERY- 8 SINGLE PANES WINDOWS
- 8) TODDLER ROOM- NEED WEATHER STRIPING AND 2 SINGLE PANES WINDOWS
- 9) LIBRARY- 3 SINGLE PANED WINDOWS
- 10) KITCHEN- 2 SINGLE PANES WINDOWS
- 11) REPLACE SINGLE DOOR TO DECK WITH A STORM DOOR, EXISTING IS A THIN DOOR WITH SINGLE PANED WINDOW
- 12) 6 OF THE 9 WINDOWS IN THE SOCIAL HALL ARE SINGLE PANED WINDOWS

## WATER USE:

1 AERATOR MISSING ON FAUCETS-TRYING TO FIND CORRECT SIZE

ALL OF 6 TOILET TANKS HAVE WINE BOTTLES IN THEM TO REDUCE WATER CONSUMPTION. MARKETED PRODUCTS WERE VERY EXPENSIVE.

WILLIAM STAVER

503-831-2007

WILL@KAIBS.COM

## SUSTAINABILITY COMMITTEE

### Kitchen – Recommendations

1. Since the 1992 Frigidaire refrigerator is decreasingly cost effective and is not rated as Energy Efficient, it is recommended that it be replaced within the next year or so.

At Stover, Evey & Jackson, an 18' GE refrigerator, Energy Efficient, now costs \$648

an 18' Frigidaire, Energy Efficient (fashionable black or steel only!) costs \$710

(Interestingly, these appliances in the NON-Energy Efficient models would cost, respectively, \$399 and \$499.)

2. Since it is not economical or ecologically desirable to keep water hot 24/7 for the coffee maker, it is recommended that a convenient breaker switch, with indicator light, be installed nearby. Cathy Johnson estimates \$25-30 for the cost of necessary parts for this conversion, and she would be willing to do the work sometime in the next two or three months, as her hours allow.

## Masterplanning Report

3. The office administrator has contacted the janitor, who provides Fellowship paper products, about buying recycled. He is looking into this. It is recommended that we require this kind of buying in the future.

4. Janet Ranzoni, who looks after the Fellowship kitchen, believes that too often socializing groups use wasteful paper and plastic for serving refreshments. It is recommended that in-house groups be urged to use china and glassware whenever possible.

5. It is recommended that Ms. Ranzoni, who buys the dishwashing liquid for the kitchen, be asked to buy "green" products. Although she feels the minimal use of these products doesn't merit the higher cost, there is an educational dimension to be considered. I doubt that more than six bottles maximum are purchased per year.

## Cost comparison:

Seventh Generation dishwashing liquid, 25 oz. (at Fred Meyer)	\$3.29
Joy, 25 oz. (at Winco)	\$2.05
Palmolive, 25 oz (at Winco)	\$2.28

Submitted by M.Goss

1/23/07