



THE BEND ENERGY CHALLENGE WEEK

AND 15th
ANNUAL GREEN TOUR

EDUCATION + INSPIRATION AHEAD


SEPT. 21-26, 2015

YOUR GUIDE TO
SAVING ENERGY
AND HELPING BEND
WIN \$5 MILLION!

BROUGHT TO YOU BY:



 bendenergychallenge.org/BECweek

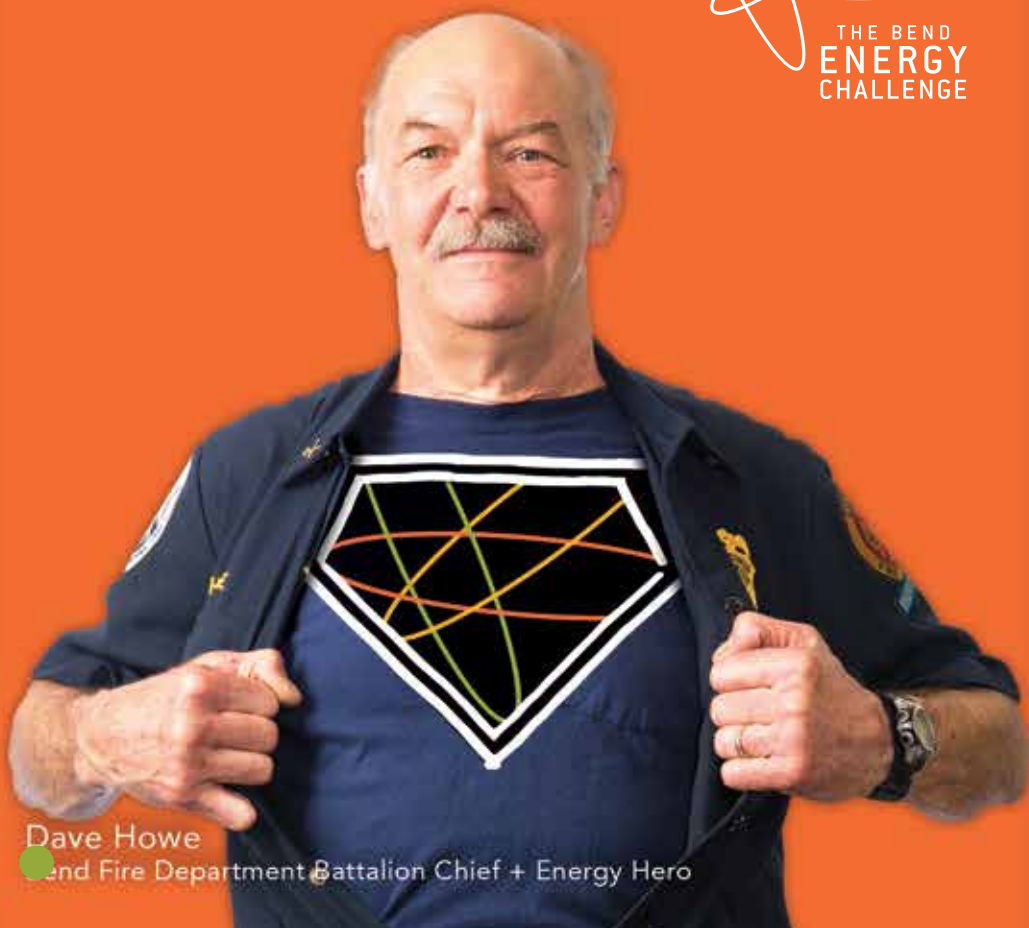
 A PROJECT OF THE ENVIRONMENTAL CENTER



PLEDGE TO EXPOSE YOURSELF.

As an Energy Hero, that is. Join our team of energy heroes by taking the pledge today. Create your custom energy savings plan, get DIY tips—and help Bend win \$5 million. Then get out there and show your true hero colors. So what are you waiting for? Put your speedy hero tights on and get to it!

Take the pledge. Make a difference.
bendenergychallenge.org



Dave Howe
Bend Fire Department Battalion Chief + Energy Hero

Hey there, Energy Heroes!

We're excited to welcome you to **The Bend Energy Challenge**. Created by **The Environmental Center** to help everyone in Bend save energy, The Bend Energy Challenge connects you to the resources and information you need to save energy, save money, and make your home healthier and more comfortable.

Odds are, you're already doing lots of things to save energy, many that you may not even realize have a really big impact on your energy bill. We're here to give you a pat on the back and help you find a few more easy things you can do to make an even bigger difference. Big or small, your actions make a difference. Especially when we get thousands of people in Bend to do the same thing.

You could even help Bend win \$5 million in a national competition to reduce energy use. Five million bucks! These winning funds would be used to help our community save energy, go solar, and honor the spectacular environment that made us fall in love with Bend in the first place.

The Bend Energy Challenge Week and the 15th Annual Green Tour is designed to be a week of inspiration and education for the whole family, so go ahead and check out the week's schedule of workshops and activities on page 23. Mark your calendars and get ready to learn about zero energy homes and how you can make your existing home the energy-saving super star on the block.

The world needs more heroes like you, so come on out and join us to learn how you can help Bend win \$5 million and make it a better place to live.

Thanks for joining us,

Lindsey Hardy
Project Director
The Bend Energy Challenge



WHAT'S UP WITH THAT \$5 MILLION?

Bend is competing against 49 other communities in a national 2-year competition called the Georgetown University Energy Prize. The Prize is meant to spur innovation and action that reduces energy use. In 2017, the winner will be awarded the \$5 million prize.

Learn more at guep.org

HOW DO WE WIN?

By reducing our energy use! We'll be reporting Bend's actual energy use—electricity and natural gas by residents and local government agencies—to the Energy Prize. They want to see a measureable reduction in how much energy we use per person by the end of the competition.

Learn more at guep.org

Thanks to Our Green Sponsors!

BEND ENERGY CHALLENGE WEEK SPONSORS

TITLE

EnergyTrust
of Oregon



SILVER

• Earth Advantage • Saginaw Sunset • ODOE
• Deschutes Brewery
• Bend Parks and Recreation District

BRONZE

• Base Zero • Eco Crush • Miller Paints
• Miller Lumber • Stemach Design
• Neal Huston & Associates Architects Inc.

BEND ENERGY CHALLENGE SPONSORS

SUPER HEROS

PACIFIC POWER

Let's turn the answers on.

HERO



CHAMPION

• Bend Radio Group • Brooks Resources
• Button Up Energy • Cascade Business News
• Clean Energy Works • Deschutes Brewery
• E2 Solar • GreenSavers • Karnopp Petersen
• Neil Kelly Co • St. Charles • Sunlight Solar

Think global. Act local.

Like, really local. Your living room, bathtub and washing machine, for instance.

Things to do TODAY!



Get your free Energy Kit at energytrust.org/free. (This is just for Pacific Power and Cascade Natural Gas Customers). You'll get energy saving goodies such as LED light bulbs and showerheads.



Try to start turning off power strips during the day and when you go to bed. Phantom loads are a real thing! Don't have one yet for your entertainment center? Consider purchasing one this weekend. By using a power strip, you can turn off electronics completely with a single flip of the switch.



Try washing your clothes in cold water. 90% of the energy used to wash clothes goes to heating the water. All you have to do is turn the knob!

Things to do this WEEK!



Let your clothes hang out. Hang your clothes to dry instead of using the dryer—a.k.a. The Most Inefficient Appliance in Your House. Even one load a week makes a difference!



Lower your water heater temperature to 120°. You can still take hot showers. Promise.



Dial in your temperature by programming your thermostat. In cold weather, turn down your thermostat to 65°-68° during the day and 58°-60° at night. In warm weather, set your thermostat or heat pump to 78°.



Change your furnace filter regularly. Changing your furnace filter at least every 3 months can help you save 5 – 15% on your energy bill. Have trouble remembering to do this? Sign up for FilterEasy, a subscription-based furnace filter service that delivers air filters to your home when it's time to change them (at a cost less than the store). Go to: FilterEasy.com and at checkout use promo: ENERGY to get your first shipment for free.



Things to do this MONTH!



Unplug the extra fridge in the garage. We know it probably has beer in it, but depending on how old it is, it's running you an extra \$50 - \$150 per year. How about replacing it with a newer, more energy-efficient model?



Install your free light bulbs and low-flow showerheads from your Energy Saver Kit! You can save up to \$80/year.



Sign up for an energy assessment to find out how your home is using and losing energy. You will also learn about any health issues that should be of concern. Go to bendenergychallenge.org/goenergy.



Sign up for a free solar assessment to see if your home is a good fit for solar. Your contractor will go over available incentives and give you an individualized quote for your home. bendenergychallenge.org/gosolar.



PLEDGE TO MIND YOUR OWN BUSINESS.

By making a difference at work — and encouraging your employees to take part at home as well. We can all save energy and resources every day. Join our team of energy heroes — and help Bend win \$5 million.

Take the pledge. Make a difference.
bendenergychallenge.org/biz

Richard & Rhonda
Strictly Organic Owners + Energy Heroes



Your very own Personal Assistant. For Energy Savings, that is.

What Can It Do For Me?

- Using expert analytics based on data you provide, EnergyCenter creates the personalized My Plan, actions you can take to reduce your energy broken into key categories.
- See a list of all applicable city, state, and federal Rebates for the upgrades you've been thinking about, all in one place!
- Track your savings month to month and see how your actions make a difference.
- Energy Charts show your energy usage and costs to date, with projections on where you're going for the rest of the year. Compare your usage to similar homes around you, and easily view all your utility bills in one place with Energy Data.
- We have a library of Guides in our Learning Center to increase your knowledge about the latest energy efficiency technologies.

WHAT CAN YOU FIND IN THE BEND ENERGY CHALLENGE ENERGYCENTER?



EnergyCenter is a portal that tracks your energy usage and gives you personalized, quantified recommendations on how you can save on your utility bills and gain a whole house energy understanding.



Your personalized energy savings plan

Energy charts to track and compare your progress

How Do I Get Started?

1. Visit bendenergychallenge.org to take the pledge and create your account!
2. Be sure to go to Link My Utilities and connect your electricity and natural gas accounts to EnergyCenter – this ensures you receive the most accurate usage data and savings recommendations.
3. Compare your home's energy use to other similar homes to get motivated.
4. Visit Ways to Save and take a look at My Plan to see what you can do to start saving. Mark off any activities you complete, and browse through Choices to view a catalog of additional savings opportunities.
5. Join a Group and help represent in a friendly competition of energy savings with others in your community!

PLEDGE TO LEARN A LESSON About saving energy, that is.


Sign your group up to get a presentation to learn about the Bend Energy Challenge and how you can all save energy at home. You can even create a group in Energy Center so you can track your savings together, or challenge another group to a friendly competition. Any group can learn a lot whether it be your book club, your neighborhood association, your church, or civic service organization!

Bendenergychallenge.org/group for more information

Out with the Old, in with the New

WRAP YOUR 2015 BRAIN AROUND THIS:

Incandescent light bulbs were invented by Thomas Edison in 1879. It seems like perhaps we should have made some progress since then... Well guess what? We have!



How to Upgrade Lighting in your Home.

You can light your home with better quality light and use much less energy by switching from traditional light bulbs to LEDs. LEDs are extremely long lasting and energy efficient, using up to 85% less energy than a standard incandescent bulb. And one LED bulb can save up to \$80 over its lifetime in energy costs.

LEDs can replace many of the bulbs you currently have in your home, and come in a shape and size for almost any fixture. They can also be used in recessed fixtures and track lighting.

While LEDs may cost more upfront, they have an extremely long life and superior energy efficiency, saving you energy and money for years to come. Plus, you can get instant discounts on qualifying LED bulbs from Energy Trust of Oregon at local retailers to make the switch more affordable. Start by switching the bulbs in your home that you use the most, or those that are on for the longest periods of time to get the biggest energy savings.

PLEDGE TO LIGHTEN UP.

By swapping your lights bulbs for super efficient LED bulbs. During Bend Energy Challenge Week, you can **buy one LED bulb, get one free** at the Bend Area Habitat for Humanity ReStore. Buy a 4-pack of bulbs for \$12.99 and get 4 more bulbs free!

bendenergychallenge.org/lighting

Promotion runs until October 31st or while supplies last.



Discounted bulbs brought to you by:





Jennifer and Sage MacAulay
The Giggling Gardner + Energy Heroes

Here are some shopping tips to help you choose the right LEDs for your home:


- 1

Choose ENERGY STAR® bulbs

These bulbs have been tested for quality and performance.
- 2

Look for Energy Trust Signs

Participating retailers around Bend have placed signs next to qualifying products with discounted pricing.


- 3

Read the Lighting Facts Label

All bulbs have a Lighting Facts label that tells you what you need to know about the bulb: brightness, color tone and energy use.
- 4

Compare Energy Use

LEDs provide the same brightness, or lumens, as traditional bulbs, but use much less energy.
- 5


Choose a Bulb Based on Lumens, not Watts

Lumens tell you how bright a bulb is; the higher the number, the brighter the light. Watts only tell you how much power it uses. A 12-watt LED, 15-watt CFL and 43-watt incandescent all provide 800 lumens, but use different amounts of energy.
- 6

Check the Light Appearance

Not all LED bulbs are bright white! Bulbs range in color from soft and warm to bright white. Light appearance is measured in Kelvin. Lower Kelvin numbers, around 2,700K, have a soft, yellow light and are good for bedrooms and living rooms. Higher numbers around 5,000K have a bright, white light and are good for work areas and kitchens.

To help you find the right LED bulbs for all the fixtures in your home, use Energy Trust's online lighting tool at: www.energytrust.org/lightbulb

LEAST EFFICIENT → MOST EFFICIENT			
	Standard Incandescents	CFLs	LEDs
			
450 lumens	40W* \$5.07/yr**	10W \$1.27/yr	5W \$0.63/yr
800 lumens	60W \$7.61/yr	13W \$1.65/yr	10W \$1.27/yr
1100 lumens	75W \$9.51/yr	16W \$2.03/yr	15W \$1.90/yr
1600 lumens	100W \$12.68/yr	20W \$2.54/yr	19W \$2.41/yr
	RATED LIFE = 1 year***	RATED LIFE = 6-10 years***	RATED LIFE = 15-25 years***

*Energy use **Average Oregon energy cost per year ***Based on three hours of use per day

Zero Energy Homes

More Benefits Than Meets the Eye

No Energy Bills



According to the U.S. Department of Energy, the average homeowner spends about \$2,200 on energy costs. With a Zero Energy Home, homeowners have no energy bills of any kind, other than a monthly electric hook-up fee. That is because a Zero Energy Home is designed and built with so many energy efficient features, such as thicker walls and triple paned windows that it can create as much energy from its solar collectors as the home uses over the course of a year - resulting in a zero “net” energy bill.

Zero Carbon Emissions



Buildings have a huge impact on our environment, especially when it comes to energy consumption and carbon emissions. According to Architecture 2030, buildings account for up to 48% of total energy consumption in the United States and are a major contributor to carbon emissions. According to the Cool Climate Network of U.C. Berkeley, the average home releases close to 10 metric tons of CO2 per year from its electricity and fossil fuel use. **With no energy use, there are no carbon emissions.**

Affordability



Using standard building techniques and energy cost modeling, Zero Energy Homes can be very affordable to build. With the savings from federal tax incentives alone, a Zero Energy Home may cost about 10% more to build than a comparable home built to code. With both federal tax incentives and rebates as well as tax incentives and rebates available in many states, a Zero Energy Home built in a cost effective manner may cost only about 5% more than a similar home that is built to standard building code. Even without available incentives and rebates, zero energy homes may be cost comparable to neighboring homes by designing them to be somewhat smaller in size but with more useful livable spaces and by wisely selecting finishes.

Cost Less to Own



The total cost of ownership of a Zero Energy Home can be considerably less than that of a comparable standard home. Even after the additional 5-10% increase in cost to build the home is factored in, a zero energy home may still cost less to own. That is because the monthly savings on energy bills are often greater than the additional monthly cost of the mortgage that is needed for the energy upgrades. For example, if the higher cost of building a zero energy home adds an additional \$100 month on your mortgage, but your energy savings are \$200 a month, then you are still saving by living in a Zero Energy Home.

Healthier and More Comfortable

Zero Energy Homes are designed to provide the healthiest indoor environment possible by creating an airtight home that:

- Provides superior indoor air quality through an Energy Recovery Ventilation (ERV) or Heat Recovery Ventilation (HRV) system that filters and cleans the air, reducing pollutants and allergens, while retaining heat in the home.
- Prevents moisture build-up that can result in mold problems that can cause major health issues.
- Creates a very comfortable environment with very few or no drafts, and quiet, steady heating or cooling, with minimal dust.
- Creates a quiet home, due to the thick walls, triple paned windows and tight building envelope that keep outside sounds out.
- Maintains a comfortable temperature longer in case of a power outage
- Has no unhealthy fumes from natural gas or propane appliances

Wise Investment

Zero Energy Homes can be a wiser investment than a standard home for several reasons:

- As energy costs increase each year, the energy cost of a zero energy home essentially remains at zero, which will increase the value of the home and provide a hedge against inflation.
- A recent study has demonstrated that the more energy efficient home is, the lower the foreclosure rate.
- Homebuyers are often willing to pay more for energy efficient homes. A study conducted by Vanderbilt University Law School found that on average buyers were willing to pay 5% more for a green labeled home, provided the green label indicated actual energy savings. More highly rated houses commanded a larger premium.
- A study of city owned buildings in Calgary, Canada, found that every added dollar invested in becoming a LEED Gold certified building returned \$10 to \$12 in in triple bottom line benefits, which put a dollar value on social and environmental benefits, as well as standard financial returns.
- Zero Energy homes are robust and more durable, because they are usually built with double walls making them sturdier and their ventilation system makes them drier than standard homes, reducing the risk of rot.

Raise the Bar for Home Construction

Zero Energy Homes set an objective, measurable, standard for energy efficient homes that cannot be easily “green-washed”. When designers, builders, realtors, lenders and homebuyers choose zero energy homes they are helping to raise the bar for energy efficient building in our country. Designing, building, lending for or buying a Zero Energy Home sets a positive example for everyone. There never was a better time for all of us to “think global and act local.”

6 Reasons To Get a Home Energy Assessment Right Now!

By now, you've probably heard all about getting a "home energy assessment." In fact, it might be on your To-Do list right now. Because, let's face it: you are reading this so you are pretty savvy and you know it might save some money. Well, here are six reasons to actually do it.

1. It will save you money

Well duh. But seriously, it does and more so than you might think! You'll continue to save money for as long as you own the home. According to the Department of Energy, the typical home wastes 25% to 40% of the energy put out by the central heating and cooling system. With an energy audit, you'll find out how your home is wasting heated air in the winter, and cooled air in the summer. You may also qualify for energy rebates from your utility company.

2. It will increase your home's value

Buyers are very savvy these days and are looking for homes that have the lowest operating costs which they can now easily find out based on a home's Energy Performance Score (EPS). This includes homes that have been upgraded with the latest and most efficient energy saving appliances including; heating systems, windows, and water heaters.

3. Identify potential health and safety issues

A detailed energy assessment will include information about your home's indoor air quality, which can be a contributing factor to health issues you may not even be aware of. If you have leaky ducts that are not functioning properly, you and your family may be exposed to dust, mold and mildew that can affect your respiratory health. You'll also learn if gas leaks or carbon monoxide are issues because of leaky pipes or malfunctioning appliances.

4. It will protect the environment

Did you know that 16% of greenhouse gases generated in the US comes from residential homes?

5. It will prevent future damage to your home

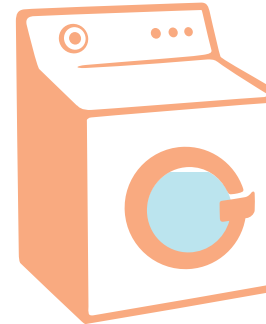
Identify and fix smaller problems now, like faulty ventilation, and you can avoid damage to your home and big-ticket repairs. For example, if your air conditioner or bathroom vents are not properly ventilated and leak into the attic, it can cause mold, and even cause an environment where the structural elements of your home can deteriorate, including roof shingles. Frozen pipes also have the potential to break and flood your home, causing thousands of dollars of damage.

6. You will have a detailed Action Plan

This stuff doesn't have to be overwhelming! A complete energy assessment will always include a detailed and prioritized action plan that can serve as your blue print for you to start saving energy and money. Your customized report will provide information about your home's air leakage, ventilation, R-value, as well as actionable steps for improvement and information about cost-effectiveness and return on investment.

What makes ENERGY STAR® clothes washers more efficient?

STANDARD CLOTHES WASHERS



- Use up to 40 gallons of water per load
- Use almost twice as much water as ENERGY STAR models
- Leave more water in clothing during spin cycle

ENERGY STAR CLOTHES WASHERS



SAVE UP TO 3,000 GALLONS OF WATER PER YEAR!

- Use up to 25 gallons of water per load
- Use 25% less energy than standard washers
- Extract more water during spin cycle, which also helps save on drying

More tips to choose the most efficient washer models

1. Select a washer that offers several water level options, allowing you to adjust the amount of water to the load size
2. Look for pre-soaking and suds-saver options. Both features conserve energy
3. Pick a machine with faster spin cycles. Faster spin cycles can extract more water, reducing drying time and energy use
4. Pay attention to the Modified Energy Factor (MEF). Premium-efficiency washers have an MEF of 2.4 or higher
5. Look for models that qualify for Energy Trust cash incentives

DID YOU KNOW THAT YOU CAN GET UP TO 80% OFF OF A SOLAR INSTALLATION FOR YOUR HOME?

That's what you might call a smokin' good deal.

So you might as well go ahead and pledge to stick it where the sun shines. It's super easy to see if solar is a good fit for your home.

Sign up for a solar assessment at: bendenergychallenge.org/gosolar we'll put you in touch with a qualified local professional to get you started. Your contractor will:

- Assess the solar potential of your home and determine if your home is a good fit for solar power.
- Help you determine which incentive route is the best fit for you
- Provide you with a bid with estimated annual energy production and utility bill savings.
- Help you apply for tax credits and incentives
- Provide you with maintenance and warranty details
- If you decide to go solar, acquire all permits, install your solar electric system, and coordinate all inspections

There are two ways to get a solar electric system installed on your home in Bend.

- 1. Purchasing a System.** A qualified local contractor installs your system and you own all of the equipment. State and federal tax credits and utility incentives can over up to 80% of the total equipment and installation costs.
- 2. Power Purchase Agreement.** A third party owns the system on your roof. You enter into an agreement with that party to purchase all of the power that the system produces for the life of your agreement (usually 20 years). You pay the party a one-time, up-front fee. A qualified local contractor installs the system on behalf of the third party. This option may lower your up-front costs and thus reduce your payback period, and often includes a guarantee on the performance of the system during the life of your agreement.

AVAILABLE INCENTIVES

Cash Incentives

If you are a Pacific Power customer, you may qualify for an Energy Trust of Oregon cash incentive. That means less cash that you must come up with the install your solar system.

Tax Credits

A tax credit is a dollar-for-dollar reduction in the amount of income taxes you owe on either your federal or state income taxes. You must pay taxes in order to claim the credits.*

*Consult your tax professional to learn how tax credits and rules may apply to you.

Federal Tax Credit

As a homeowner, you can file to receive a credit of 30% of your out of pocket cost on your federal taxes for the year that you installed your system, if it is installed before December 31st, 2016. The amount you receive is based on a percentage of your system cost.

State Tax Credit

As an Oregon resident, you can also claim a state tax credit of \$1.70 per watt, up to \$6,000, for a system installed on your home or a second home in Oregon. You can claim a maximum of \$1,500 a year for 4 years for the total of \$6,000. The amount you receive is calculated based on the size of the system.

CHECK OUT THIS EXAMPLE OF SOLAR COST SAVINGS

	Purchasing a System	Power Purchase Agreement
Total system cost	\$15,180	\$15,180
Energy Trust incentive*(Pac Power only)	(\$2,178)	Goes to 3rd party
Your out of pocket cost	\$13,002	\$7,500
Fed tax credit(30% of out of pocket)	(\$3,901)	Goes to 3rd party
OR state tax credit (\$1.70/W x 3,300W)	(\$5,610)	(\$5,610)
Net cost to you	\$3,491	\$1,890

*Energy Trust incentives subject to change

Change is our Choice: Creating Climate Solutions

A new course from the Northwest Earth Institute.

"Hope is a verb with its sleeves rolled up. In contrast to optimism or despair, hope requires that one actually do something to improve the world. Authentic hope comes with an imperative to act."

— DAVID ORR



You create transformative change when you share learning, stories, and challenges with your community, whether on the bus, in the pew, at class, or at work. This new 5-part discussion series from the Northwest Earth Institute helps you take action in your own lives to increase resilience here in Bend. Presented in an interactive ebook, this new discussion course experience integrates video, audio and printed content with action plans that help you roll your sleeves up and get started taking action toward a better tomorrow.

IN THIS FIVE-SESSION DISCUSSION COURSE YOU WILL

- Explore climate change from scientific, psychological and social perspectives.
- Consider how you can take action to build resilience in your own community.
- Make and implement a plan of action to respond to climate change's effects in your community.
- Consider how you can take action on climate change on a larger scale.

You can join an upcoming Change is our Choice course by attending an info session.
Learn more at www.bendenergychallenge.org/course.



Getting your home ready for winter

Looking for ways to escape the cold this winter and cut down on those energy bills? We have compiled a Winter Saving "go-to" checklist to help you do just that. Some of these tips are DIY or low cost, while others you might want to consider using a trained and certified energy saving contractor to help you. Everyone deserves a comfortable home to retreat to after playing in our winter wonderland.

Quick Tips to Keep You Warm

1. Minimize the number of times that outside doors are opened and closed — Cold air from outside enters your home every time the doors open.
2. Close fireplace and wood stove dampers tightly closed when not in use.
3. Open up your blinds and curtains to let warm sunlight heat up your home during the sunniest parts of the day.
4. Close window coverings at night and on windows that don't receive much sunlight. Use heavy curtains that hang to the floor or below the window sill on windows that feel drafty.
5. Change your furnace filter every three months at a minimum—A dirty filter will slow airflow and make your furnace work harder. This also improves the indoor air quality of your home and is especially important in the winter when your home is sealed up.
6. Install a programmable thermostat—Program your thermostat to work around your family's winter schedule. Set your thermostat to 65 – 68 degrees when you are home and 58 – 60 degrees at night or when you are away. With proper use, programmable thermostats can save you about \$180 annually in energy costs.
7. Seal and insulate your ducts — This is a huge bang for your buck both for winter and summer months. Leaky duct work can account for more than 30% of wasted energy. What's the point in heating your home, if half of the heat ends up in the attic? Having an energy assessment and duct blaster test performed will quantify just how leaky those ducts are and where they need to be sealed. This is not the same as duct cleaning! Duct testing and sealing ensures the heated air from your heating system is being properly distributed throughout your home.
8. Seal air leaks, then add insulation—Keep cold outside air from leaking into your home. Inspect the cracks and penetrations around your home. Sealing off cracks and leaks from where cable lines, dryer vents, and telephone lines may penetrate your home will keep your home's inside temperature lower. Adding attic and floor insulation will also help your home stay warm as the outside temperature dips!
9. Maintain your heating system—Find out what maintenance is required to keep your heating system operative efficiently and schedule regular service.



GREEN BUILDING DIRECTORY

Energy Trust of Oregon

Phone: 1.866.368.7878
Web: energytrust.org



Energy Trust of Oregon is an independent nonprofit organization dedicated to providing utility customers with low-cost, clean energy solutions. Our on-the-ground outreach, technical services, cash-back incentives and connections to local contractors have helped participating customers of Portland General Electric, Pacific Power, NW Natural and Cascade Natural Gas save \$1.9 billion on their energy bills, so far. Our work helps keep energy costs as low as possible, and accelerates economic and environmental benefits throughout Oregon.

BASE Zero, LLC

Phone: 541.701.9883
Contact: Bruce Sullivan
Email: bruce@basezero.biz
Web: basezero.biz



30 years experience in building science, energy efficiency and green building gives BASE zero the knowledge and experience to support your success through sustainability. We offer consulting and training services as well as residential energy verifications and home energy ratings.

Button Up Energy

Phone: 541.639.2988
Contact: Jody Howe
Email: jody@buttonupenergy.com
Web: buttonupenergy.com



Making comfortable healthy homes where you can breathe easy, improve sensible energy use and durability. A woman owned business. Certified, Building Analyst, Indoor Air Quality, Thermography, EPS, Solving problems.

Denfeld Miller Paint

Phone: 541.382.4171
Contact: The Miller Lumber Company
Email: denfeldpaints@denfeldpaints.com
Web: denfeldpaints.com
Address: 2121 NE Division, Bend, OR 97701

Denfeld Paints, stirring up the perfect colors for you since 1975, is a full service, family owned and operated business with two convenient locations in Bend and Redmond staffed with trained professionals and representing multiple paint manufacturers.

E2 Solar

Phone: 541.388.1151
Contact: Kelli Hewitt
Email: khewitt@e2solar.com
Web: e2solar.com
Contact: 63056 Lower Meadow Dr Ste. 180
Bend, OR 97701



At E2 Solar we work to exceed expectations with custom-tailored energy solutions while comfortably meeting your goals. Whatever size of solar system, we adhere to the industry's highest standard of excellence as we work to make every project superior in performance, aesthetics and longevity.

EcoCrush

Phone: 541.633.7660
Email: info@ecocrushusa.com
Web: ecocrushusa.com
Contact: 50 SE Scott Street #8, Bend, OR 97702



Crush is an environmentally conscious solution for counter tops featuring engineered stone that utilizes 88% post-consumer recycled content. A solution that has an aesthetic of a naturally formed product with the durability and stain resistance expected from engineered stone.

Energy Conservation Insulation

Phone: 541.678.5566
Contact: Will Lebeda
Email: eci@bendbroadband.com
Web: eciinsulation.com
Address: 114 NE Penn St, Bend, OR 97701



Energy Conservation Insulation prides itself in being a leader in eco-friendly insulation techniques and applications. With over 40 years of combined insulation experience, we provide solutions for all sizes of projects while providing World Class Service to our clients.

GreenSavers

Phone: 541.330.8767
Contact: Kendra Van Note
Email: info@greensaversusa.com
Web: greensaversusa.com
Address: 4 NW Franklin Ave, Bend, OR 97701



GreenSavers guarantees a fair price for the best home performance in Oregon. We take a whole-home perspective to find and fix the issues that matter most. We do all the work ourselves, from installing windows/ insulation to upgrading equipment/appliances.

Home Heating & Cooling

Phone: 541.389.HOME
Contact: Ric Secor
Email: ric@homeheatingbend.com
Web: homeheatingbend.com
Address: 1044 Paiute Way, Ste. #102, Bend, OR 97702



Home Heating and Cooling, family owned and operated, provides maintenance, service, repairs, replacement of heating and air conditioning systems, gas & electric furnaces, duct testing & sealing, ductless heat pumps, dryer vent & range venting, humidifiers, and air purification systems.

Jim Guild / Saginaw Sunset

Phone: 541.388.3569
Contact: Jim Guild
Email: saginaw@seedspring.media
Web: saginawsunset.com



The Saginaw Sunset community is about the home building envelope, energy efficiency, renewable energy and air quality. It's about water conservation, harnessing solar power and preserving old-growth trees within the community. And it's about being an urban infill development – staying in the heart of Bend instead of expanding the City's Urban Growth Boundary (UGB).

Miller Lumber

Phone: 541.382.4301
Contact: The Miller Lumber Company
Web: mlumber.com
Address: 110 NE Greenwood Avenue
Bend, OR 97701



The Miller Lumber Company, supplying lumber and building materials to all of Central Oregon since 1911.

Neal Huston & Associates Architects Inc.

Phone: 541.389.0991
Contact: Neal Huston
Email: ngh@nealhuston.com
Web: nealhuston.com
Address: 520 SW Powerhouse Dr Suite 621
Bend, OR 97702



NHA creates high quality designs which meet or exceed client expectations and functional requirements while executing a broad range of architectural styles. NHA provides full-service architectural design, space planning, interior design, master planning, 3D modeling and sustainable design expertise.

Neil Kelly

Phone: 541.382.7580
Contact: Darek Smith
Email: darek.smith@neilkelly.com
Web: neilkellyenergy.com
Address: 190 NE Irving Ave, Bend, OR 9



Neil Kelly Company, a certified B corporation, is an innovative design-build remodeling firm with locations in Portland, Lake Oswego, Eugene, Bend and Seattle. Services include award-winning design-build remodeling, custom homes, energy upgrades, solar energy systems, and home repairs big and small.

Stemach Design + Architecture

Phone: 541.647.5661
Contact: Stacey or Rachel Stemach
Email: stacey@stemachdesign.com;
rachel@stemachdesign.com
Web: stemachdesign.com
Address: 919 NW Bond St. Suite 214
Bend, OR 97703



Stemach Design implements thoughtful, innovative design based on the core values of economic, environmental and equitable sustainability. We are dedicated to projects embodying careful, coordinated designs that have positive impacts on each project's surroundings.

Sunlight Solar

Phone: 541 322-1910 ext. 306
Contact: Kelly Riley
Email: Kelly.Riley@sunlightsolar.com
Web: sunlightsolar.com
Address: 50 SE Scott St, Bend, OR 97702



With over 25 years of solar installation experience, and as one of Oregon's oldest, grid-tied solar installers, we bring you high quality turn-key installations. We have homegrown roots right here in Oregon and take pride in supporting our communities.

The Shelter Studio

Phone: 541.306.4270
Contact: Jason Offutt
Email: jason@theshelterstudio.com
Web: theshelterstudio.com
Address: 431 NW Franklin Ave #250, Bend, OR 97701

Founded in 2007 in Oregon, The Shelter Studio, Inc., a design firm, set out with a vision of capturing the client's dreams and cultivating them into an innovative, functional, and well detailed home.

Woodcraft Builders

Phone: 541.383.7133
Contact: Michael Scannell
Email: info@woodcraftinc.com
Web: www.woodcraftinc.com
Address: 64405 Deschutes Market Rd
Bend, OR 97701



WoodCraft Building, Inc. has over 35 years of experience in the construction industry and has been building in Bend since 1998. We build award winning, energy efficient homes that combine high-end craftsmanship with sustainable, elegant design that can be as energy efficient as they are affordable.

Please our Tour homes on pages 36 and 37.

GLOSSARY

Advanced framing Technique that significantly reduces the amount of material used to frame a building. Includes strategies such as studs placed 24 inches on center; fully insulated corners; insulated headers; engineered wood products; and roof or floor trusses.

Annual Fuel Utilization Efficiency (AFUE)

Widely-used measure of the fuel efficiency of a heating system. Furnaces sold in the United States must have a minimum AFUE of 78%. High ratings indicate more efficient equipment.

Air Changes per Hour (ACH) Air Changes per Hour, is the total volume of air in a space that is exchanged over in hour.

Back-drafting Indoor air quality problem in which potentially dangerous combustion gases escape into the house instead of going up the chimney. Commonly reference to Carbon Monoxide concerns.

Blower Door Test Used to measure air tightness and identify areas of air infiltration in a home. This multi-part systems uses a large fan that fits in your door frame to create negative pressure and pull air through your home.

British thermal unit (BTU) The quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit.

Building envelope A building's shell, including exterior walls, windows, doors, roof and the bottom floor.

Carbon Footprint Amount of carbon dioxide and other greenhouse gases that is contributed to the atmosphere through energy use, transportation, and other means.

Cellulose insulation Insulation made from wood fiber, primarily recycled newspaper, treated with nontoxic chemicals to retard fire, mold and insects. Loose-fill cellulose can be blown into attic spaces or packed into wall cavities. Damp-spray cellulose is a damp mix of cellulose and adhesives that is sprayed into wall cavities before hanging drywall.

Clerestory A window or row of windows placed high on a wall, often above the main roof line, used for introducing daylight into a room.

Conditioned space An enclosed space supplied with conditioned air from a heating and/or cooling system.

Convection The transfer of heat caused by the movement of a fluid like water or air. When a fluid becomes warmer it becomes lighter and rises.

Daylighting Utilizing light from the sun to help illuminate a room.

Double-glazed window A window with two panes of glass separated by an air space. Compared to single-glazed windows, double-glazed windows significantly reduce heat and sound transmission.

Energy efficiency ratio (EER) A measurement of energy efficiency for air conditioners. The EER is computed by dividing cooling capacity, measured in British Thermal Units per hour (BTUH), by watts of power.

Energy efficiency Using less electricity or fuel than a conventional technology to perform the same task.

ENERGY STAR® A program sponsored jointly by the U.S. Environmental Protection Agency and the U.S. Department of Energy that promotes energy-efficient products, homes and technologies for consumers and businesses. Energy Star qualified products and new homes are often ten to thirty percent more efficient than their conventional counterparts.

EnergyGuide label A yellow sticker required by U.S. law on certain new household appliances, including air conditioners, furnaces, clothes washers, dishwashers, refrigerators and freezers. The label provides information on the amount of energy the appliance will use in one year.

Energy Recovery Ventilator (ERV) A ventilator that recovers energy from the exhaust airstream and transfers it to the incoming airstream. Heat is transferred from the warmer to the cooler airstream and moisture is transferred from the wetter to the dryer airstream. ERVs are used in very cold climates to retain indoor humidity.

EPS™ -brought to you by Energy Trust of Oregon, is an energy performance score that helps you assess a home's energy consumption, energy costs and carbon footprint."

Front-loading washing machine A clothes washer with a horizontal tub instead of a vertical tub that uses significantly less water (annual 2000 gal)—and therefore less energy to heat the water.

Graywater Household wastewater that doesn't contain sewage and can be reused for toilet flushing. Graywater typically comes from showers, lavatories, and clothes washing machines.

Heat gain Heat from the sun, people, electric lights or appliances that cause the temperature in a space to rise.

Heat island effect The tendency of large areas of roofs, asphalt, concrete and paved surfaces to absorb the heat, making urban areas considerably hotter than nearby rural areas.

Heat Recovery ventilation (HRV) system An air-to-air heat exchanger captures heat from indoor air that's about to be vented from a home and transfers that heat to fresh air that's being drawn in from the outside. Exhaust and supply airstreams cross but do not mix. Heat is transferred from warmer to cooler airstream. There are two core types; Cross flow cores and Counter flow cores..

Hydronic radiant-floor heating system A heating system in which warm water circulates through tubes embedded in a concrete floor slab or attached beneath the subflooring. The floor absorbs heat from the tubes and slowly releases it to the room, providing comfortable, quiet, gentle warmth.

Incandescent light bulb A light bulb that consists of a filament inside a glass bulb. Passing electric current through the filament causes it to heat up and produce light. Standard household light bulbs are incandescent bulbs; they are very inefficient, wasting 90% of their energy as heat instead of useful light.

Indoor air quality The level of air pollutants inside a building. Indoor air pollution sources include certain building materials and furnishings; certain cleaning, maintenance, and personal care products; dust mites; pet dander; mold; radon; pesticides; and outdoor air pollution. Inadequate ventilation and high humidity levels can also contribute to indoor air quality problems.

Infill development Building on empty or underutilized lots in cities or older suburban areas instead of building in a previously undeveloped area.

Infiltration The uncontrolled movement of outdoor air into a building through cracks and other defects around plumbing, floor cavities, soffits, chimneys, ducts. Accompanied by an equal outflow of air from indoors to the outdoors.

Insulated concrete form (ICF) Plastic foam shaped into hollow blocks, panels or planks and used as a form to create a concrete wall. After positioning the foam forms, rebar is typically inserted into the cavities to reinforce the walls, and then concrete is poured in. Once the concrete cures, the foam remains in place to insulate the walls. Exterior siding and interior wall finishes are attached to the ICFs.

Insulation A material that has a high resistance to heat flow. Used to keep a home comfortable and reduce the energy needed to heat and cool the home.

Integrated building design A collaborative design process that takes into account the interrelatedness of all parts of a building. It involves designing a building from the outset so that all its components, equipment and systems work together to provide maximum comfort, healthfulness, energy and resource efficiency, and cost effectiveness.

Inverter A device used to convert DC electricity (such as that produced by a photovoltaic system) into AC electricity to power standard household equipment and appliances.

Kilowatt-hour (kWh) A unit of electric energy equal to 3600 kilojoules or 3412 BTUs. (relates to usage)

LED Light emitting diode LEDs are extremely long-lasting (up to 25 years) and use 85% more efficient than standard bulbs.

Lighting controls System or Devices used to manually or automatically dim electric lights or switch them on or off. These devices, which include dimmers, timers, motion sensors and photocell controls, provide convenience and energy savings.

Low-e (low-emissivity) window A very thin metallic coating on window glazing that allows daylight to enter a building but reduces the flow of heat. The appropriate type of low-e glazing for a home will depend on the climate and the window's orientation.

Natural cooling Cooling a building through passive means rather than mechanical systems such as air conditioning. Natural cooling strategies include shading, cross ventilation, and the use of thermal mass to moderate temperatures inside a space.

Net metering This is an agreement with you utility that allows you to feed excess directly to the utility grid any electricity that is generated in excess of your demand. This causes the electricity meter to spin backwards and give you a credit for the excess energy that you can later use to offset your electricity demand.

Net Zero or Net Zero Energy (NZE) Building A building that creates at least as much energy as it uses. The home will be designed to take advantage of passive solar design, and will focus on reducing energy demand with super-insulation and an air-tight envelope. On-site electricity generation such as photovoltaic (PV or solar) panels is essential to achieve net-zero energy use. Use in areas with no utility access are "off grid".

On-demand hot water System to quickly deliver hot water to a bathroom or kitchen when needed, without wasting the water that has been sitting in the hot-water pipes, which circulates back to the water heater.

Pascal A unit of measurement of air pressure

Passive solar design A building specifically designed to collect and store the sun's heat, and release that heat into the interior spaces to help warm the rooms naturally. Depending on the design and climate, passive solar heating can be the sole source of heat for the building or can be supplemented with a heating system.

Phantom load The small amounts of electricity consumed by many appliances and equipment—such as TVs and stereos with remotes, ovens with digital clocks, cell phone chargers and answering machines—even when they're not in use.

Photovoltaic (PV) cell A material that converts sunlight directly into electricity. Electricity generated from sunlight known as Solar electricity.

Polyvinyl chloride (PVC) Also known as vinyl. A family of plastics, derived from vinyl chloride, with a wide range of forms and uses. PVC is used extensively in building products, consumer goods and industrial applications. PVC contains or releases many dangerous chemicals including dioxins, phthalates & vinyl chloride. There is no safe way to manufacture, use or dispose of PVC.

Post-consumer recycled content Products that have been used and discarded by a consumer and are then reprocessed as raw material for a new product.

GLOSSARY_{cont.}

Radiation The transfer of heat from a warm object to a cooler object by means of electromagnetic waves passing through air or space. When you stand in the sun, your skin is warmed by radiation. When you stand next to a cold window, your body radiates heat to the cooler window, making you feel cold.

Radon A radioactive gas derived from the natural decay of uranium. Radon is emitted by some soils and rocks, and can enter a home through cracks and holes in the foundation or through well water. Exposure to radon causes lung cancer.

Rainwater harvesting Collecting rainwater from a catchment area such as a roof and storing it in cisterns or other containers to use for watering a yard or garden, or for other purposes.

Reclaimed material A material that's put to a new beneficial use after it's no longer needed for its original use, such as wood removed from an abandoned building and used to construct a new building.

Renewable resource A material that can be replenished in a relatively short period of time after it is harvested or used. i.e. bamboo, cork, wind, sun, biomass.

R-value A measure of a material's resistance to the passage of heat through it. The higher the R-value, the more effective the material is as insulation. Used to measure insulation levels in buildings.

Sealed-combustion appliance A gas-burning fireplace, furnace or water heater with a sealed combustion chamber. Fresh air is supplied directly to the combustion chamber from outside and harmful combustion by-products are exhausted directly to the outside, keeping them out of the home. Same as direct vent.

Seasonal Energy Efficiency Ratio (SEER) Indicates an air conditioner's energy efficiency. The higher the SEER, the more efficient the air conditioner.

Solar heat gain coefficient (SHGC) An indication of how much of the sun's heat will enter through a window. An SHGC of 0.40, for example, means that forty percent of the sun's heat gets through the window.

Solar thermal or Solar water heating systems The use of concentrated sunlight to heat or preheat water for domestic use and/or space heating. A closed system of Flat-plate or Evacuated-tube solar collector moves hot water from roof to store in a tank in the building.

Stack effect The air flow established in a building from air infiltrating low and exiting high. The pressures created are greatest at the highest and lowest points in the building.

Stormwater runoff Water that flows off of buildings and paved surfaces and over land during a rainstorm.

Stormwater retention Generally refers to the collection of stormwater, with no discharge point. Water is collected and then is allowed to percolate into the ground or evaporate

Tankless water heater A water heater that saves energy by heating water as it is needed, rather than storing hot water in a tank. Also known as an instantaneous or demand water heater.

Thermal bridge A highly conductive material within a building envelope, such as a steel or wood framing member, that allows heat to bypass the insulation.

Thermal mass The ability of a material to absorb and retain heat. Materials with a high thermal mass, such as rocks, earth and concrete, have the capacity to absorb heat during the day and release it when temperatures cool.

Solatube A circular skylight that's much smaller than typical skylights, designed to illuminate interiors with daylight while keeping out excessive heat. It consists of a small, roof-mounted dome attached to a tube lined with reflective material. Light is reflected down the tube, and is transmitted into the room through a translucent ceiling fixture.

U-factor Indicates how easily heat will pass through a construction assembly, such as a window. The lower the U-factor, the lower the rate of heat flow so the more efficient the material is.

Ventilation The movement of air through an area for the purpose of removing moisture, air pollutants, or unwanted heat.

Volatile organic compound (VOC) A class of organic chemicals that readily release gaseous vapors at room temperature. VOCs occur naturally in many materials, and can also be manufactured and added to materials and products. VOCs are released ("offgassed") into a home by common furnishings and building materials, including many types of particleboard, paint, solvents, carpets and synthetic fabrics.

Whole-house fan A powerful fan mounted in a ceiling opening, used to pull air through the home and exhaust it out the attic and through the roof vents. It provides air circulation and cooling in climates where days are warm and nights are cooler, and can often reduce or eliminate the need for air conditioning. A whole-house fan is typically used at night to pull cooler outside air into the home through open windows, and to vent warm air through the attic and roof.

Xeriscape Landscaping design that conserves water by using native or drought-tolerant plants, mulch, and limited or no irrigation.

Glossary adapted from
Good Green Homes: Creating Better Homes for a Healthier Planet,

With permission from the author, Jennifer Roberts.
jenniferroberts.com | goodgreenhomes.com

OPEN THE DOOR TO ENERGY SAVINGS WITH EPS

There's a common theme amongst the newly built homes you'll see throughout the Green Tour. Each is built for quality, comfort and efficiency, and they've all got the EPS™ to prove it. EPS, brought to you by Energy Trust of Oregon, is an energy performance scoring system that gives you an inside look at the energy impact of a home and how much it costs to operate.

With EPS, you can easily compare homes based on efficiency and find those that offer superior comfort and savings. Qualified new homes are built to be at least 10 percent better than code, so when you buy a home with an EPS you know you're getting a higher level of performance.

"They all have better insulation, they're properly sealed, they have highly efficient HVAC systems and windows, so there's improved efficiency and energy cost savings," says Andrew Shepard, a program manager with Energy Trust. "But there's also a comfort factor to these homes that you don't get otherwise."

The benefits don't stop there. Shepard also notes that EPS qualified homes deliver health advantages as well: "Requiring fresh air systems in EPS homes creates a healthier living environment for everyone in the home."

The Green Tour is a great opportunity to learn about the benefits of EPS homes. Here's a closer look at some of the key attributes you can expect to find when you step inside any of the newly built homes on this year's tour:

1. EPS homes are more energy efficient than homes that are just built to code, which sets you up for greater comfort and lower energy costs.
2. EPS allows you to review the home's energy score and estimated utility costs so you know what to expect before you buy.
3. Every newly built EPS home includes energy-saving lighting solutions and efficient built-in appliances such as dishwashers and water heaters.
4. EPS homes feature energy-efficient heating and cooling equipment designed to lower energy bills, enhance comfort and improve indoor air quality.
5. High-performance windows are also included, helping to deflect heat in the summer and retain it in the winter, while well-sealed window frames make for a quieter, cleaner home.
6. Thorough testing ensures that important behind-the-walls details were properly installed and completed.
7. Special framing techniques allow for extra insulation which helps you pay less to stay cool in the summer and warm in the winter.
8. Tight construction comes standard and helps prevent unwanted pollutants and drafts.
9. All ductwork is sealed in order to reduce leaks and minimize potential moisture problems.
10. All EPS homes have mechanical ventilation systems that bring fresh air into the home for healthier indoor air quality.



Be sure to ask about EPS as you explore the featured tour homes, and remember to bring it up with your builder or real estate professional as your home search continues. An EPS home can save you money and energy for years to come. Pick up a Smart Homebuyer Checklist on the tour to get the conversation started, and learn more about EPS at www.energytrust.org/smarthomebuyer.



THE BEND ENERGY CHALLENGE WEEK KICKOFF

Where: Habitat ReStore, 224 NE Thurston Ave, Bend, OR 97701

Date: Tuesday, September 22, 2015 **Time:** 6:00 – 8:00pm

Join us for the BEC Week Kickoff Event at the new Habitat ReStore. Bend Energy Challenge Sponsor, Deschutes Brewery will provide beer and Dump City Dumplings and Bend Soup Company will be on hand to serve up tasty local eats! Come peruse information at our Sponsor booths and check out all that the ReStore has to offer. Enjoy a humorous keynote address by Eric Corey Freed, the acclaimed speaker, architect and author of “Green Building & Remodeling for Dummies,” and hear what an illustrious group of local students is doing to ensure the future livability of Bend.

Aimed at both homeowners and professionals, in Eric's talk: “The Seven Secrets of How Nature Designs: How to Apply the Lessons of Biomimicry to Your Business,” you'll discover how the threat of climate change is already affecting your day to day life. You'll uncover how to become a leader by leveraging the challenges of environmental responsibility. Instead of being a depressing talk on the environment, this hilarious talk will inspire you and transform how you look at the community around you.

Local high school students Kyra Kadhim, Skylar Grayson and Ivy Taylor, from the growing chapter of Youth Climate Action Now (YouCAN) in Bend, are intent on changing minds, hearts and city policies focused on two things: One, increasing City, community and student awareness about the seriousness of global climate change. Two, engaging both community members and local government in the development of lasting legal protection for the environment and quality of life in Central Oregon in the form of science-based carbon emission reduction targets and climate recovery planning. Listen to our kids and walk away inspired!

KEYNOTE BIO: ERIC COREY FREED

Eric Corey Freed is Vice President of the International Living Future Institute, a global hub for visionary programs, including the Living Building Challenge and Living Product Challenge. As a licensed architect, Eric brings over 20 years of experience in helping architects, builders and homeowners use sustainability to improve the design and operational savings for thousands of buildings around the country. Eric has helped thousands of companies monetize sustainability by showing them how to cut their real estate operations costs in half. He has received awards from several Mayors, and worked with dozens of municipalities around the country to help implement sustainable policies.


Eric has co-developed Sustainable Design programs for two universities and currently teaches at Boston Architectural College. He was the founding Chair of Architecture for The San Francisco Design Museum and one of the founders of ecoTECTURE: The Online Journal of Ecological Design. He's a regular contributor for dozens of building-related publications and a sought-after national speaker. Eric is the author of 11 books, including “Green Building & Remodeling for Dummies”, “Sustainable School Architecture” and “GreenSense for your Home.”



PLEDGE TO GO ON TOUR.

Bring your groupies and check out the energy saving and innovative homes on the 2015 Green Tour. Walk through 7 homes, new and old, packed with green and solar features and learn how you can be an energy hero.

Pick up a passport at your first stop and visit at least 5 of the 7 homes to get your free LED light bulb and get entered to win other energy-saving prizes. bendenergychallenge.org/tour

THE BEND ENERGY CHALLENGE WEEK

AND 15th ANNUAL GREEN TOUR

SEPTEMBER 22-26

Jackie Wilson
Sustainability Educator + Energy Hero

Brought to you by: 
EnergyTrust
of Oregon, Inc.

TOUR & SCHEDULE

MONDAY, SEPTEMBER 21ST

Dramatic Savings are Around the Corner

FOR: Homeowners
WHEN: 5:00 pm
WHERE: Neil Kelly Co, 190 NE Irving Ave, Bend
WHO: Neil Kelly Home Performance Professionals

WHAT TO LEARN: Save dramatically on your home's energy consumption while increasing the comfort, safety, durability and value of your most important investment, your home. You will be invited to shadow the crew as they move through your home performing a series of inspections and tests.

TUESDAY, SEPTEMBER 22ND

Bend Energy Challenge Week Kick Off

FOR: Everyone in Bend!
WHEN: 6:00pm
WHERE: The Bend Habitat ReStore
WHO: Eric Corey Freed, VP Global Communications, The International Living Future Institute; Local Youth

WHAT TO LEARN: What the Bend Energy Challenge is and why it's important for our community.

WEDNESDAY, SEPTEMBER 23RD

Durable Buildings: Building for Today, Adapting for Tomorrow

FOR: Designers and Architects (AIA credits available)
WHEN: 10:00am
WHERE: The Environmental Center
WHO: Steve Vinci, Principal, Senior Sustainability and Building Science Specialist, Morison Hershfield

WHAT TO LEARN: For today's buildings to play a role in tomorrow's communities, they need to be built to last and adaptable, rather than simply demolished. In 2004, the Canada Green Building Council added the Durable Building credit to the LEED program in recognition of problems associated with building performance, sustainability and durability. The objective of this presentation is to explain the credit and demonstrate how to achieve it as an Innovation in Design credit on buildings in the U.S. The presentation will outline, via examples, a sample Durability Plan and tables, the logical steps to develop and confidently achieve this credit as well as focus on both expediting construction and minimizing risk of increasingly complex envelope systems.

Marketing Efficiency

FOR: Brokers
WHEN: 12:00pm (RSVP required, \$5, lunch included)
WHERE: McMenamins, Father Luke's Room
WHO: Bruce Sullivan, BASE Zero

WHAT TO LEARN: Home buyers are increasingly interested in green features. Certified green homes sell faster at higher prices. This one-hour seminar will help you communicate with clients about the value and benefits energy efficient and green certified homes. Learn about green home features and how to sell them.

RSVP for required workshops at bendenergychallenge.org/RSVP

WEDNESDAY, SEPTEMBER 23RD

Solar Works! What local governments and utilities need to know

FOR: Municipal and Utility Employees
WHEN: 12:30pm
WHERE: The Environmental Center
WHO: The Oregon Department of Energy, The Energy Trust of Oregon Sunlight Solar

WHAT TO LEARN: Learn how you can use solar energy to recharge the local economy, with presentations from solar installers, local governments, the State building codes division, and utilities. A Q&A Session will follow, with plenty of time to get your questions answered.

Solar Speed Dating—getting to know the basics of solar

FOR: Homeowners & their families
WHEN: 4:30 - 6:30 pm (come by anytime)
WHERE: Bend Parks & Rec District Office, 799 SW Columbia
WHO: The Bend Energy Challenge, Energy Trust of Oregon, Oregon Department of Energy, E2 Solar, Neil Kelly Solar, Sunlight Solar

WHAT TO LEARN: Pick and choose which solar stations to stop by. Learn how solar works, what incentives are available, investigate if your home is a good fit for solar, and check out the latest solar panels. The kids will have their own stations to ear cookies baked by the sun and race solar cars!

Getting to Know Your Home's EPS

FOR: Builders and Designers
WHEN: 5:00pm
WHERE: Central Oregon Builder's Association Office 1051 NE 4th St, Bend
WHO: Matt Douglas, Earth Advantage

WHAT TO LEARN: This 1-hr presentation provides a basic understanding of what energy efficiency and high performance means in today's building industry by examining the leading energy label, EPS (Energy Performance Score), and other Energy Trust of Oregon resources that are available to builders, brokers, and consumers in the region.

THURSDAY, SEPTEMBER 24TH

Building Techniques for Zero-Energy Homes

FOR: Builders
WHEN: 12:00pm (RSVP required, \$5, lunch included)
WHERE: McMenamins, Father Luke's Room
WHO: Bruce Sullivan, BASE Zero

WHAT TO LEARN: How can you build a home that uses no energy for heating, cooling, lights or appliances? Today it's possible to build a zero-energy home using readily available products and proven techniques. Zero-energy homes are going up across America, with many good examples right here in Central Oregon. In this one-hour seminar, learn what takes to take your next project all the way to zero.

SPEAKER BIO: STEVAN VINCI

Stevan serves as the Sustainability Practice Lead for Morrison Hershfield in the Pacific Northwest and has provided Green Building consulting on high performance buildings and sustainability projects in the U.S., Canada, Europe and China. He is the co-chair of Cascadia GBC's High Desert Collaborative and is also one of few people worldwide with Living Future Accreditation (LFA) from the International Living Future Institute (ILFI). He has been a Living Building Challenge ambassador since 2010 providing the presentations/ training on the Living Building Challenge as well as the Materials Petal training. Stevan serves as USGBC Faculty and as a USGBC Pro Reviewer. Most recently he was a key contributor to the USGBC for the education component of the new online reference guide for LEED v4 for the new Building Envelope Commissioning requirements. His experience as a sustainability consultant and building envelope consulting contributes to a better understanding of whole-building systems. He also serves as faculty for the CaGBC lecturing on building envelope durability and is on MH's LEED Certification review team and has completed over 120 LEED project certification reviews on behalf of the CaGBC to date.

SPEAKER BIO: BRUCE SULLIVAN

Bruce operates BASE zero, LLC to promote greater sustainability in residential construction through training, consulting and direct service to contractors. He has been involved in energy efficient construction since 1983. He has worked for Earth Advantage Institute (EAI), Oregon State University Extension Service, Eugene Water & Electric Board and Iris Communications, Inc. He has been the primary content developer for EAI education programs, including Sustainable Homes Professional certification, Building with Ducts Inside Conditioned Space curriculum and the net-zero energy homes program. In 1996, he started Oikos.com one of the world's first web sites dedicated to green building. In 2006, Bruce's personal high-performance residence was honored with the NAHB Research Center's EnergyValue Housing Award and the NAHB Green Building Award. Construction on his most recent project, a small zero energy home is nearly complete.

BEND ENERGY CHALLENGE WEEK SPONSORS

TITLE

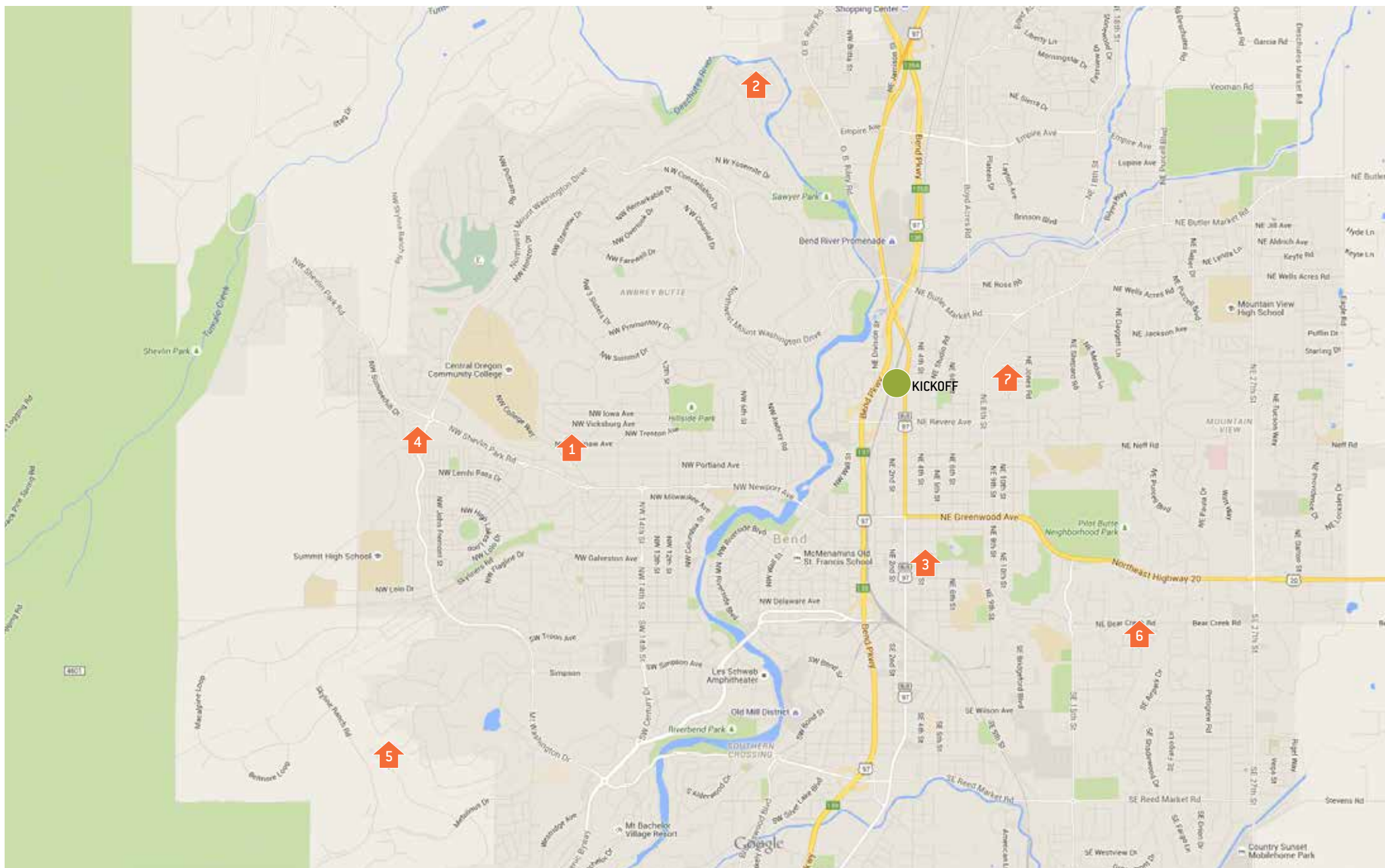
SILVER

BRONZE



STEMACH





SITE 1: 1639 NW Scott Henry Pl

SITE 2: 3995 Lower Village Rd

SITE 3: 424 SE Emerson Ave

SITE 4: 1657 NW Mt. Washington Dr

SITE 5: 61649 Hosmer Lake Dr

SITE 6: 107 SE Cessna Dr

SITE 7: 1090 NE Hobbs Ct

KICKOFF

Habitat for Humanity ReStore
224 NE Thurston Ave, Bend, OR

15th ANNUAL GREEN TOUR

PRESENTING 7 SITES PACKED WITH GREEN AND SOLAR FEATURES



Green at a Glance	1	2	3	4	5	6	7
Retrofit projects						✓	✓
3rd Party Certified	✓	✓	✓	✓	✓		

Building Envelope

Year Built	2015	2015	2015	2015	2015	1971	2013
Wall R-value	30	35	40	23	42.5	22	21
Ceiling R-value	52/60	50	60	50	50/60	45	50
Floor/ slab R-value	38	s//8	44	38	38	31.5	49
Window average U-value	.28	.25	.24	.23	.22	.35	
Blower Door Test ACH@50	1.98		1	1.5	TBD	6	4.7
Floor Space square feet	2105	2857	939	1210	3821	1404	1733

E Efficiency & Renewable–EPS

Photovoltaic (PV) System kW or Solar Ready (S/R)	5.13 kW	3.6 kW	SR	SR	12.3 kW		4.4 kW
HE heating system	98%	✓					95%
Ductless Heat Pump			✓	✓	✓	✓	
Hydronic Radiant or Convective Slab			✓				
Passive Solar Design	✓	✓	✓	✓	✓		
High Efficiency (HE), tankless (T), or heat pump water heater (HP)	HE	HE	HP	HE	HE		
LED Lighting (> 50%)	✓	✓	✓	✓	✓	✓	✓
Designed for Daylighting	✓	✓	✓				
Energy Monitoring System		✓					
ENERGY STAR® Appliances	✓		✓	✓	✓	✓	✓

Sat, Sept 26th, 2015

bendenergychallenge.org/tour

Indoor Air Quality & Health	1	2	3	4	5	6	7
Ventilation System		ERV	ERV	HRV	HRV	HRV	
Low/No -VOC products	✓	✓	✓	✓	✓		
Hard Surface Flooring	✓	✓	✓	✓	✓	✓	✓
Reduced Formaldehyde Cabinets, Insulation	✓	✓	✓				

Water Conservation

Low Flow fixtures	✓	✓	✓	✓		✓	✓
Efficiency Irrigation	✓		✓				
Xeriscaping/No Lawn	✓	✓	✓		✓	✓	✓
Rainwater Retention/Harvesting	✓	✓	✓				
Tree and Soil preservation	✓		✓		✓		

Resource Conservation

Salvaged / Sustainable Material	✓		✓			✓	✓
Locally sourced materials	✓	✓				✓	✓
Construction Waste Reduction	✓	✓	✓			✓	
Building Durability- continuous weather barrier,Vented rain screen	✓	✓	✓				

Community

Pedestrian friendly	✓	✓	✓	✓	✓	✓	✓
Infill Development	✓		✓				
Financial Incentives / Tax Credit	✓		✓	✓	✓	✓	✓

15th ANNUAL GREEN TOUR



Builder: Jim Guild Construction
Designer: Neal Huston & Associates Architects Inc
Preliminary Energy Performance Score (EPS): 56
 2+ Bedroom, 2.5 Baths, 2105 Sq Ft, For Sale

Set amid native Ponderosa pines, this home sits on an extremely steep lot with limited access for construction, showcasing the developers' commitment to filling in vacant urban property and is landscaped with deer and drought in mind. The vision for these properties is that homeowners will be able to age in place which is why this split-level home features an elevator.



KID'S CORNER

Kids will measure the energy use of three different bulbs. They will also have the opportunity to explore how much power some standard household items use.

11:00 - 5:30 - Outside of City Hall
710 NW Wall St



CHOOSE REUSE

☐ YES

☐ NO



RECYCLE RIGHT



☐ YES

☐ NO

LESS IS MORE



☐ YES

☐ NO



   #LessIsMore

WE COMPOST

☐ YES

☐ NO



RETHINKWASTEPROJECT.ORG

3995 Lower Village Rd

Cozy and cool with energy-storing EnergyBlocks

Builder: SunTerra Homes, Inc.

Designer: Jim Chauncey

Owner: David Wadsworth and Jessica Maye

Preliminary Energy Performance Score (EPS): 35

4 Bedroom, 4 Baths, 2857 Sq Ft



The sun and natural thermal dynamics are utilized in this home to reach a pinnacle in not only energy conservation but also comfort.

Local builder SunTerra Homes Inc. has developed the SunTerra EnergyBlock, a new exterior wall system that naturally stores and releases heat energy. Studies by Oregon State University have shown that this system reduces the heating and cooling load on a residence by 29% compared to standard wood framing. Owners of these homes have said that the relatively constant temperature inside their homes is very noticeable due to our local variability in temperatures throughout the year. With the benefit of high mass thermal storage of SunTerra EnergyBlocks, passive solar heating (meaning just the heat from the sun) can account for 70% of annual heating and maintain pleasant interior comfort.

SunTerra EnergyBlock is an 8" x 8" x 16" concrete masonry unit (CMU) and they are assembled by a mason/contractor. These thick walls of concrete, steel, and insulation provide for an extra quiet house.

This home features an open, modern multi-level floor plan with high ceilings. Beautiful decorative masonry can be found in each room.



KID'S CORNER

Efficiency Exploration.

Kids will learn where heat loss occurs using an infrared thermometer.



424 SE Emerson, Bend New Construction

A small home brightened by sun and soul.

Designer: Jason Offutt, The Shelter Studio

Home Performance Contractor: BASE Zero, LLC

Owner: Robin and Bruce Sullivan

Preliminary Energy Performance Score (EPS): 30

1 Bedroom, 1 Baths, 939 Sq Ft



This net-zero ready home design seeks to optimize the relationship of south-facing glazing, super insulation and high efficiency mechanical equipment. At 939 square feet, the home trades floor area for greater efficiency, while maintaining ample space for two people.

The home captures ample daylight. The narrow site would have allowed only 25 feet of south-facing wall. The resulting design approach might be called 20th Century Solar, with almost all the windows along the narrow south wall. Even in the "back room," shared light from clerestory windows in the loft fill the space.

A south-facing roof slope is slated for photovoltaic panels to be added in the future. The design capitalizes on a rock outcropping at the site. By building on top of the rock instead of removing it, the home gained partial mountain views and unobstructed solar access.



1657 NW Mt Washington Dr

New Construction

The classic Craftsman re-imagined—On the road to net zero energy

Builder: WoodCraft Building Inc.

Designer: The Shelter Studio

Home Performance Contractor: Earth Advantage

Preliminary Energy Performance Score (EPS): 29

2 Bedroom, 2 Baths, 1210 Sq Ft

A net-zero ready high quality Craftsman home proves that a small footprint can be spacious and highly energy efficient.

This Craftsman home is Earth Advantage Platinum certified and is net-zero / solar ready. This means that the home was designed to be efficient enough, and have the allowable roof space and good access to available sunlight, so that when the homeowner is ready to add solar, they will be able to off-set their entire utility bill with the electricity that they can produce from their roof.

Getting to zero energy takes careful design and construction. This home utilizes advanced framing including high heel trusses, above code insulation, mini-split heat pumps, HRV ventilation system, and Energy Star appliances to get on the path to efficiency. A hot water circulation system and water-saving faucets and toilets round out the package.

The open floor plan shows that a small footprint can provide spacious livability. A deck and covered porch extend the living areas for enjoyment of our beautiful Central Oregon weather. Situated in Northwest Crossing, it takes advantage of the easy walk/bike access to neighborhood services and parks.



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New Construction

A net-zero home that doesn't sacrifice views or livability

Builder: WoodCraft Building Inc.

Designer: The Shelter Studio

Home Performance Contractor: Earth Advantage

Preliminary Energy Performance Score (EPS): 18

3 Bedroom, 3 1/2 Baths, 3821 Sq Ft

This net-zero Mid-century modern home was built to capture views and maximize energy efficiency.

This mid-construction, Earth Advantage Platinum home in Tetherow is an excellent example of how a large home can still be highly energy efficient if intelligently designed. Advanced framing features double wall construction with 10-inch walls and high heel trusses to take full advantage of the above-code insulation. Other features include Energy Star appliances, ductless mini-split heat pumps, 100% LED lighting, hot water recirculation system, and HRV/ERV ventilation. A 12.38 kw PV array allows this home to harness the sun to meet all of their energy needs while taking full advantage of Central Oregon views.

The main level includes a large open floor plan for entertaining, gourmet kitchen, theatre room, master bedroom, exercise room, office/flex space and oversized laundry/mudroom. Multiple covered outdoor areas expand the living space and connect residents to the beautiful surrounding landscape. The upper level features 2 bedrooms, both with walk-in closets and private baths. An oversized 2-car garage offers tons of storage.



KID'S CORNER

Electricity Exploration.

Kids will learn about the flow of electrons that we harness to create electricity and create their own circuit to light a small light.



107 SE Cessna Rd, Bend Energy Retrofit

A Healthy Home for a healthy planet.

Home Performance Contractor: Earth Advantage

Owner: Louise Palmer

Original Energy Performance Score (EPS): 129, Post-Project EPS: 58
1404 Sq Ft



This home is in the process of being remodeled and gives you a chance to observe the process and what steps are to completely retrofitting your existing home into an the most energy savvy house on the block! When complete, this home will be a community demonstration project to showcase healthy homes and will be the first Earth Advantage certified Remodeled home in Central Oregon. The home is being remodeled from 1971 code to 2020 standards which are much more stringent than our current building codes.

When retrofitting this home, the owner's motto was "Build Tight, Ventilate Right." This means that she made sure the shell of the house had as few leaks as possible and then calculated ventilation based on how much fresh air flow was needed. The air leakage was decreased from 17 air changes per hour (ACH) to 6 which makes for a much less drafty house!



The Oregon Department of Energy
has resources for homeowners,
landlords, businesses,
and others interested in
tapping the power of the sun.

Learn more: www.oregon.gov/energy

1090 NE Hobbs Ct, Bend Energy and Solar Retrofit

Something along the lines of a tune up£.

Home Performance Contractor: GreenSavers

Solar Contractor: Sunlight Solar

Owner: Mary Fay

Original Energy Performance Score (EPS): __, Post-Project EPS: 86
1733 Sq Ft



This single level spec home was purchased prior to completion in 2013 and just goes to show that even new homes can use an energy efficiency tune-up! As part of the Bend Energy Challenge, Mary signed up for an energy and solar assessment and found great energy and money-saving opportunities for her home.

After doing an assessment of Mary's roof to make sure that she had appropriate access to sunlight, Sunlight Solar installed 12 280 Watt Oregon-made black solar panels on Mary's home which are expected to cover 125% of her annual electricity usage.

In addition to these improvements, Mary also had 4 Solatubes installed by Solar Light which now bring natural light into previously dark spaces allowing her to go most of the day without using any artificial lights in these areas.



KID'S CORNER

Solar power exploration.

Kids will be able explore solar panels and see how they work to power small electronics. Solar ovens will be on hand baking fresh cookies with the power of the sun!

Welcome to **EFFICIENCY TOWN**



In Efficiency Town, every newly built home comes with an EPS™ and built-in energy savings.

Brought to you by Energy Trust of Oregon, EPS is a scoring system that rates homes based on energy use. The lower the score, the better. EPS helps smart homebuyers like you find homes that offer lower energy costs and superior comfort.



USE EPS TO FIND A HOME THAT SAVES

Talk to your builder or real estate professional about EPS, and download our Smart Homebuyer Checklist at **www.energytrust.org/smarthomebuyer**.

Serving customers of Portland General Electric, Pacific Power, NW Natural and Cascade Natural Gas.

