



green tour

an environmental center event *e*

SAT, SEPT 29th 10:00-4:30

FREE TOUR OF GREEN HOMES
IN CENTRAL OREGON

Presented by

E 2  S O L A R


EnergyTrust
of Oregon

CYPRESS CREEK
RENEWABLES 

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Cover: Site #9, Photo Credit: Elemental Energy

Dear Central Oregonian:

The Environmental Center welcomes you to the 18th Annual Green Tour.

Thirty years ago, The Environmental Center was born to inspire locals to change the world and preserve our spectacular local landscape. Since 1988, we've brought people and businesses together to nurture lasting change that everyone can be proud of. We invest in relationships, work alongside others and empower citizens to become champions of sustainability. Our team works tirelessly to collaborate, innovates and improve systems in our community to keep this place we love, the place we love.

We believe Central Oregon can and should lead the way to a low-carbon, clean energy future. The Green Tour translates the big idea of a clean energy future into practical, local action.

Why focus our efforts on buildings? Because in Bend, buildings account for 57% of our carbon emissions. If we're going to reduce our community's contribution to climate pollution and global warming, buildings must be a part of the conversation.

So every fall, we showcase green building practices in action. On September 29th, you'll see real-world solutions that reduce energy use and increase solar production in residential and commercial buildings right here in Central Oregon. For the 18th year in a row, everyday heroes across our community will open their doors so that we can learn and benefit from their journeys and experiences. They all have a story to tell—and they want to share it with you!

Now, more than ever, it's important for all of us to make a change under our own roofs—no matter how big or small. We hope the 2018 Green Tour inspires you to find new ways to save energy and go solar, at home and at work.

See you on the tour,



Mike Riley
Executive Director
The Environmental Center



Lindsey Hardy
Program Director
The Energy Challenge



The Environmental Center also...

Revolutionizes Energy

We help local families, businesses and governments use less energy and make the shift to solar. The Green Tour is one part of our energy program.

Educates Kids

We empower future leaders to create a sustainable tomorrow with hands-on educational programs in local classrooms, outside in our garden, and on public lands.

Builds Community

By bringing our community together, we create new ideas and forge new possibilities. We host many public events, including Green Drinks, the Earth Day Fair & Parade, The Sustainability Awards, and more.

Rethinks Waste

Don't throw away the future. We'll help you rethink what you toss with local tools and resources that will get you reducing, reusing, recycling, and composting.

Advocates for Change

We believe in speaking up! We advocate for climate action, smart growth, walking, biking and transit—all important to improving our quality of life and protecting our landscape.

[Learn more at envirocenter.org](http://envirocenter.org)

The 18th Annual Green Tour is brought to you by

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E 2 SOLAR

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EnergyTrust
of Oregon

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Thank you to our Energy Challenge Program Sponsors

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Drink Up Dream On

zero
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GreenSavers
BETTER HOMES. SMARTER LIVING.

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Neil Kelly

Green Tour Keynote Kick-off

Destination Zero:
Buildings as a catalyst to a clean
energy reality

IN
COLLABORATION
WITH:



Thursday, September 27th

6:30 pm - 8:00 pm @ Worthy Brewing

Admission: Free

In Bend, 57% of our carbon emissions come from buildings. And energy use is the primary driver of those emissions. But our buildings don't have to be energy guzzlers. There are real-world ways to drastically reduce how much energy our buildings use and even bring it to zero. Join us as we kick off the 18th annual Green Tour. We'll explore how our homes, work places and government buildings can help us get to a low-carbon, clean energy future. Andrew Lee will make the case for zero energy buildings and show us how to get started through local and regional case studies.



Our presenter: Andrew Lee

Andrew Lee directs the Zero Energy and Zero Carbon certification programs for the International Living Future Institute. He provides key thought leadership on how buildings will catalyze a shift towards a clean and regenerative energy future and serve as the most effective mechanism for climate action. His most recent work involved carbon emissions reduction policy and collaborating with over a dozen U.S. city governments to develop energy policy roadmaps to achieve a zero net carbon building sector.

This is a pivotal time for Bend—our climate legacy is being written right now as we dig into our very own climate action plan. We want to help our community explore all of the opportunities, big and small, to get us on the path to a low-carbon, clean energy future.

Real change happens when individuals come together in local communities to take bold action. Join us for our keynote presentation and the Tour so you can be a well-informed player that helps shape Bend's climate legacy.

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, Cascade Natural Gas and Avista.



green tour

an environmental center event 

SATURDAY SEPT 29th 10:00 – 4:30

ALL EVENTS ARE FREE AND OPEN TO THE PUBLIC



Get Fueled Up

Site #1 – Bend Science Station, 1500 SW Chandler Ave
10:00 – 4:30

Pick up a free cup of coffee provided by Strictly Organic Coffee Co.

Pick up your Tour Guide. Let us know what you're hoping to learn about and we'll help you plan your route.

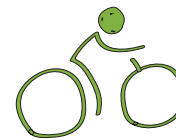


Go on Tour

See map on page 16 for home locations
or view in Google maps at: envirocenter.org/tour

Homes open from 10:00 – 4:30.

Pick up a passport and visit 5 or more sites to pick up a free LED light bulb.



Tour by Bike

Join the bike tour guided by Bend Bikes: Meet at the Bend Science Station at 11:00 to visit sites 1-4 & 7 (15 miles). Bend Bikes will show you the safest ways to get there. The tour will end back at the Bend Science Station.



Go Electric

Site #2 – 19035 NW Ridgeline Court
Take an electric bike from Bend Electric Bikes for a ride!

Site #6 – Bethlehem Inn, 3705 N. Highway 97
Take the all-electric 2018 Nissan LEAF for a spin!



Come Party!

Site #1 – Bend Science Station, 1500 SW Chandler Ave
5:00-7:00

Join us for the Green Tour After Party and chat with your community about what you were inspired by—maybe you'll even learn some more. Of course, a little beer and food always helps to get the conversation going. We'll be honoring the favorite house of the Tour with the People's Choice Award, so be sure to cast your vote!

FOOD AND BEVERAGE SPONSORS:



SITE 1 Bend Science Station



1500 SW Chandler Ave, Bend (on the OSU- Cascade campus)
Commercial New Construction



Builder: CS Construction
Designer: Hennebery-Eddy Architects
Square footage: 3,750

Solar Contractor: E2 Solar
Solar Installation Size: 20.16 kW

A living laboratory

The new Zero Energy Bend Science Station will be a living laboratory for students to better understand the connection of technology, design, innovation, and our environment.

Designed to reflect a passage from our community to the OSU-Cascades campus, the new Bend Science Station exposes students to the real-world application of sustainable building construction, including innovative design technologies which optimize energy efficiency and cover vital STEM curriculum. For example, the rooftop tower is not only a unique architectural feature, but it also provides natural ventilation enabling them to passively control temperature AND provides specialized space for physics experiments.

The Science Station's motivations were also based on fiscal responsibility. While the net zero benefits of the new building are instructionally compelling, the savings in long term operating costs and utility bills are equally important.

The greatest challenges they faced was orienting the building on the site so that they could preserve all large trees, be positioned for maximum solar advantages and blend in with the larger scale of the other buildings already on the OSU-Campus.

Make sure to ask about: How the building is optimized for natural daylighting and how continuous insulation makes a more efficient building shell.

E2 Solar is proud to partner with Bend Science Station to continue their mission of igniting the power of science education with a 20kW solar energy system.



The Evolution of Wireless Energy

There are many reasons to thank Nikola Tesla when it comes to modern technology, had capitalistic greed not stood in his way, Tesla's contributions to society could have gone significantly further. Despite his mental breakdowns later in life that were likely caused by detractors and capitalists who refuted his utopian visions for society, Tesla created a plethora of inventions, with the goal of transmitting energy to the world at little to no cost.

While Tesla is known for his advancements regarding AC power, radio transmission and induction motors, there is one vision of his that hasn't fully come to fruition--the wireless transfer of energy. While the Tesla coil is commonly recognized and found at most science museums, the basis of the technology behind it is still in its infancy of development for practical use.

Wireless charging has just over the past few years become a feasible technological product, but its scale has yet to reach the level at which Tesla originally envisioned it. While some companies have used the concept to create wireless charging devices for cell phones and small electronic devices, Tesla's original intent was to provide a wireless network of power for anyone in the world to tap into.

Fast forward eleven years after Nikola Tesla's death in 1943, the researchers at Bell laboratories in New Jersey introduced the world to the first "solar cell". The Bell labs solar cell had the ability to "wirelessly" harness photons in the sun, to create electricity in the solar cell. Their first demonstration was to power a toy Ferris Wheel and small radio transmitter. While not the same version of "wireless" that Tesla had, utilizing the photons in the sun's energy is another path in the use of the technology. In the years since the introduction of that first solar cell, the solar industry has emerged as a vital part of our need and desire to provide cost effective and clean energy worldwide. With cost reductions, technological innovations and market adoption, solar energy is now the clean and sustainable energy source for today and the future. For the first time ever, in 2016, solar energy contributed more new energy generation than any other source in the United States. As the solar industry continues to grow and find new applications like combining batteries for grid resiliency, inverters that can shift loads to available renewable energy, and hybrid systems that can determine the cheapest form of energy to use at any given time, the potential of the solar industry is energizing.

Like Nikola Tesla, E2 Solar has a vision and a purpose to propel "wireless" solar energy forward. We use the history of the past to help define the future. Since the very first Central Oregon "Green and Solar Homes" tour in 2000, E2 Solar has been part of transforming our communities to the solar version of "wireless" energy. www.e2.solar

For the first time ever,
in 2016, solar energy
contributed more new
energy generation
than any other source
in the United States.



19035 NW Ridgeline Court, Bend – New Construction

Located in the Tree Farm Development off Skyliners Dr., see directions on map

Builder: Bill Hull
Designer: Jason Todd
 2,474 sq ft, 3 Bed, 2.5 Bath

Solar Contractor: E2 Solar
Solar installation size: 5.88 kW
Earth Advantage certification: Platinum



Sensational secluded serenity

This house was designed for efficiency from the ground up and the outside in. Double 2x4 wall construction adds exceptional energy performance with less thermal bridging and increased insulation. Raised-heel trusses ensured that more insulation could be added to the attic without concerns of the insulation being compressed around the top wall plate.

Large south and east facing windows allow for natural light and passive solar gain. A simple, unobstructed south facing roof made for the perfect location for 21 solar panels which will significantly reduce the amount of energy the homeowners need to purchase from the power grid. Their total annual energy cost, including natural gas, is estimated to be about \$340 per year.

The small “Eagles Nest” which makes up the second story acts as a chimney to increase circulation in the summer. In the winter the Eagles nest is warmed by passive solar gain and is the perfect spot to warm up after a cold day of skiing!

Make sure to ask about: Why they love their electric bikes and how they monitor their solar production.



**Better Living
is our Mission**

Comfort, Health & Sustainability
earthadvantage.org



Zero Energy Homes

COST LESS TO OWN

HEALTHIER AND MORE COMFORTABLE

THE HOMES OF THE FUTURE - AVAILABLE TODAY

LEARN MORE AT THE ZERO ENERGY PROJECT

- A NON-PROFIT EDUCATIONAL ORGANIZATION



zeroenergyproject.org

Photo Credit: Solaire Homebuilders



Photo Credit: Sunlight Solar Energy

1363 NW Mt Washington Dr, Bend – New Construction

Builder: Salvesen Homes
1,288 sq ft 3 beds, 2 baths

Solar Contractor: Sunlight Solar Energy, Inc
Solar Installation Size: 8.64 kW
Earth Advantage Certification: Platinum



Solar-powered living and driving

After attending the Green Tour last year, these homeowners decided to put their own new home on the tour because they are excited to share their story and passion for saving energy. Inspired by a desire to reduce their carbon footprint and minimize their impact on climate change, they created a home that produces all of its own energy from the sun.

An all-electric home, even a few years ago, would conventionally mean that you could expect really high energy bills. Fortunately, there are numerous super-efficient heating and cooling systems and appliances that give you the opportunity to build or retrofit an all-electric home without the burden of high energy bills. This home utilizes a high efficiency heat pump and a heat pump water heater to dramatically reduce the amount of energy needed by the biggest energy users in the home.

What would a zero-energy house be without renewably powered electric vehicles? That's right—they have two electric vehicles and say that there is no turning back now!

Make sure to ask about: What it's like to live a fully electric life when it comes to transportation.



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OPEN THE DOOR TO ENERGY SAVINGS WITH EPS

Experience the beauty of energy efficiency at this year's Central Oregon Green Tour. You'll find homes built for quality, comfort and efficiency, with an 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 newly built 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 homes are built to be at least 10 percent more energy efficient than required by current building codes. When you buy a home with an EPS, you know you're getting a higher level of performance.

"EPS homes 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. "As a result of these higher efficiency and thermal requirements, EPS homes deliver a high level of comfort."

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

The Central Oregon Green Tour is a great opportunity to learn first hand about the benefits of EPS homes. Here's a closer look at some of the key attributes you'll find when you step inside an EPS home on this year's tour:

1. An energy score that includes estimated utility costs, so you know what to expect before you buy.
2. Energy-saving lighting solutions and efficient built-in appliances such as dishwashers and water heaters.
3. High-performance windows that help to deflect heat in the summer and retain it in the winter, with well-sealed window frames that make for a quieter home.
4. Special framing techniques that allow for extra insulation join forces with energy-efficient heating and cooling equipment to enhance comfort, improve indoor air quality and lower utility bills.
5. Tight construction helps prevent unwanted pollutants and drafts. Plus, mechanical ventilation systems 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.



SUSTAINABILITY IN A CAN



Brewed with 117 solar panels

Local ingredient sourcing
Salmon Safe Hop Farming
Water remediation

100% recyclable packaging
Spent grain used for local livestock feed

Worthy Brewing
425 NE Bellevue Drive
Bend, Oregon
www.worthybrewing.com
541.639.4776

Worthy Taps & Tacos
806 NW Brooks Street
Bend, Oregon
www.worthytapstacos.com
541.678.6268

SITE 4 3 Pines Custom

EPS SCORE 22



Photo Credit: Sunlight Solar Energy

62635 Mt. Thielsen Dr, Bend – New Construction

Builder: Alcove Construction
Designer: Alcove Homes Inc.
2,880 sq. ft, 4 Bed, 3.5 Bath

Solar Contractor: Sunlight Solar
Solar Installation Size: 5.31 kW
Earth Advantage Certification: Platinum



Modern efficiency with a view

This modern, efficient home is sure to catch your eye! Three roof lines delineate clean sections of this home, each accented with its own colors and angles. The addition of an attached ADU provides a peaceful environment for multiple residents with lots of space for gear.

The home was designed for passive heating and cooling by orienting skylights south for heating as well as long roof overhangs to keep the house shaded in the summer months. This home is the perfect example of what can be accomplished when considering solar from the start of the design process. The southern roof exposure is optimally oriented for solar production and will produce as much as 10-15% more energy than a system that was placed on an east or west facing roof.

Special care was taken to maintain the trees on site, not only with the design of the home, but also throughout the construction process. Construction vehicles were limited to a single entry and exit and a no drive zone was maintained around the tree canopies.

Make sure to ask about: The voice activated lighting and dimming in the dining room.

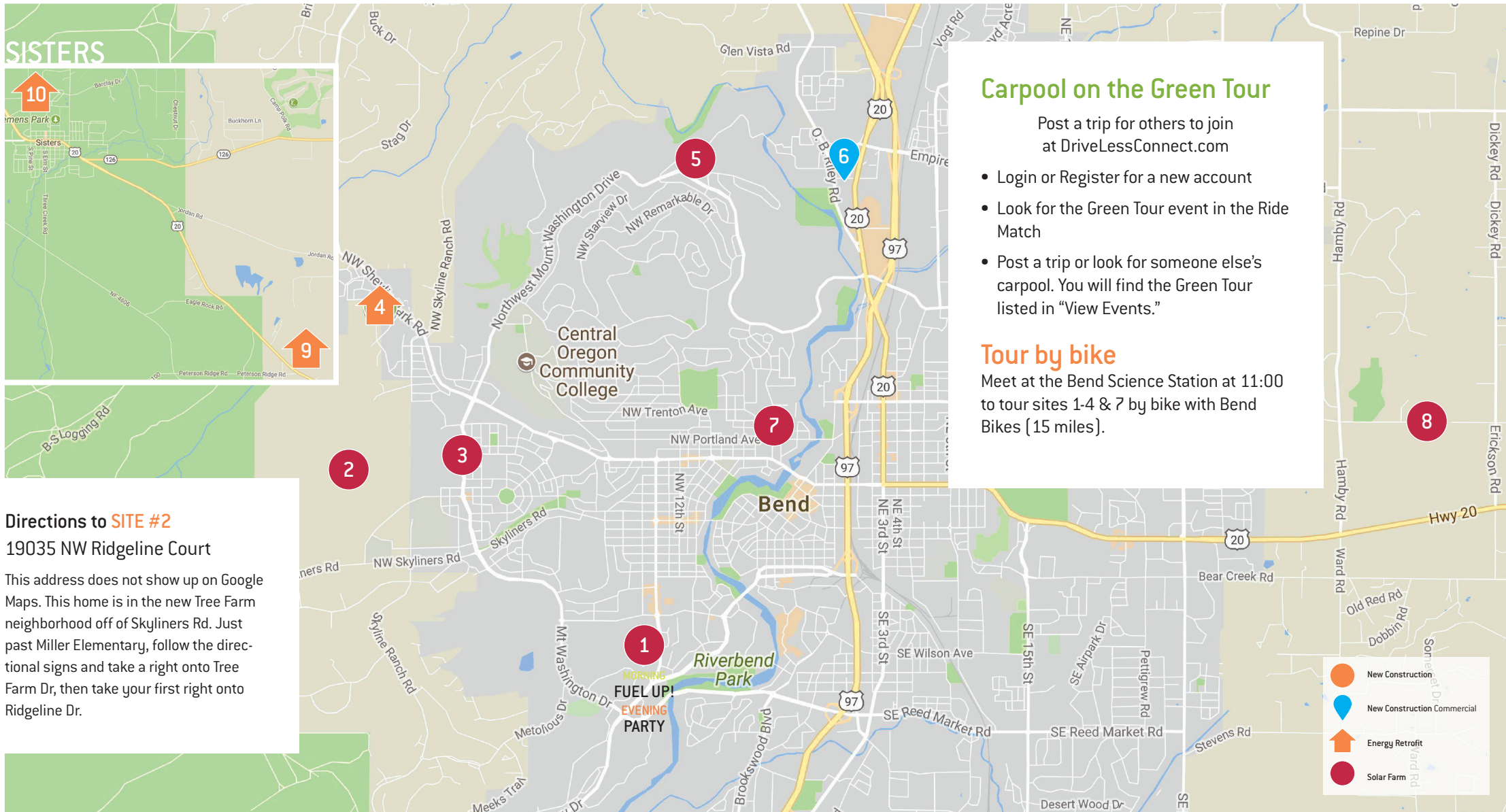


Don't miss these builder trainings
in Bend - **October 3, 2018**

Cost Effective Pathway to Zero Energy Homes
Zero Energy Homes & Your Local Market
Energy Efficient Home Site Visits

Visit us at:
earthadvantage.org/training/





Carpool on the Green Tour

Post a trip for others to join
at DriveLessConnect.com

- Login or Register for a new account
- Look for the Green Tour event in the Ride Match
- Post a trip or look for someone else's carpool. You will find the Green Tour listed in "View Events."

Tour by bike

Meet at the Bend Science Station at 11:00
to tour sites 1-4 & 7 by bike with Bend
Bikes (15 miles).

Directions to SITE #2

19035 NW Ridgeline Court

This address does not show up on Google Maps. This home is in the new Tree Farm neighborhood off of Skyliners Rd. Just past Miller Elementary, follow the directional signs and take a right onto Tree Farm Dr, then take your first right onto Ridgeline Dr.

Fuel up for your journey Bend Science Station (SITE 1)

- Free coffee
- Tour guide pick up
- 11:00 – Meet for Bike Tour

SITE 1: Bend Science Station
1500 SW Chandler Ave, Bend
(On OSU Campus)

SITE 2: Eagles Nest
19035 NW Ridgeline Court, Bend
Test ride an electric bike

SITE 3: Zero Energy, Zero Emissions
1363 NW Mt. Washington Dr, Bend

SITE 4: 3 Pines Custom Home
62635 Mt. Thielsen Dr, Bend

SITE 5: The Poplin's energy retrofit
1127 NW Stoneridge, Bend

SITE 6: Bethlehem Inn
3705 N. Highway 97, Bend
Test drive an electric car

SITE 7: Crack in the Ground
338 NW Roanoke Ave, Bend

SITE 8: Cypress Creek Solar Farm
21836 Neff Rd, Bend

SITE 9: Off-grid Living
67775 Cloverdale Rd, Sisters

SITE 10: Cottages at ClearPine
232 W Clear Pine Dr, Sisters

Green Tour After Party and People's Choice Award

Bend Science Station (SITE 1)
Live music, food, kombucha, beer
5:00-7:00pm

GREEN AT A GLANCE

AN OVERVIEW OF THE TOUR HOMES

SITE #	1	2	3	4	5	6	7	9	10
New Construction or Retrofit	NC	NC	NC	NC	R	NC	NC	NC	NC
Commerical	✓					✓			
ADU				✓			✓	✓	
Year built	2018	2018	2016	2018	1996	2018	2018	2007	2018
Energy Performance Score		20	0	22			0*		
Earth Advantage: Platinum (P), Gold (G), Silver(S), Remodel (R), Targeting (*)		P	P	P			P*	P	G
Zero Energy (ZE) or Path to Net Zero (PNZ)	ZE	ZE				PNZ	ZE		

Building Envelope

Square footage	3,750	2,474	1,288	2,880	2,450	18,181	2,700	2,957	1,004
Wall R-value	30	30	23	29	13	10	TBD	30	23
Ceiling R-value	30	60	49	59	30	60	TBD	49	48
Floor/ slab R-value	30	38	38	38			TBD	38	38
Window average U-value	0.24	0.25	0.26	0.3	0.4	0.27	0.3		0.29
Blower Door Test ACH@50		1.8	1.9	1.4			TBD		TBD

Systems

Photovoltaic System Size kW or Solar Ready (SR)	20.16	5.88	8.64	5.31		91.6	11	13.47	
Heating System: High Efficiency (HE), Heat Pump (HP), Ductless Heat Pump (DHP),	DHP	HP	HP	DHP	DHP	HE	DHP	R	HE
Passive Solar Design	✓	✓	✓	✓	✓	✓	✓	✓	
Water Heater Efficiency - High Efficiency (HE), Solar (S) tankless (T), or heat pump water heater (HPWH)	S	T	HPWH	T	T	HE	HPWH	S	HE
LED Lighting	100%	100%	100%	100%	75%		80%	80%	90%
Designed for Daylighting	✓		✓	✓					✓

SITE #	1	2	3	4	5	6	7	9	10
Indoor Air Quality & Health									
Ventilation System (ERV - Energy Recovery Ventilator or HRV - Heat Recovery Ventilator)	HRV	HRV	ERV	ERV		ERV	HRV		
Water Conservation									
Low Flow fixtures	✓	✓	✓			✓	✓	✓	✓
Xeriscaping	✓	✓	✓			✓	✓	✓	✓
Rainwater Retention/Harvesting	✓	✓					✓	✓	✓
Permeable landscaping and pavement	✓						✓	✓	✓

Improving Indoor Air Quality

Build Tight

Wildfire smoke has many of us thinking more about both outdoor and indoor air pollution. A tightly sealed home is important when preventing contaminated outside air from leaking into the house as well as keeping the heated or cooled air inside. This is a must when building an efficient home and ensures all the cracks and crevices that allow outside air or pests to get into your home are sealed up.

Ventilate Right

When a home is tightly sealed, it is important that occupants still have access to fresh air. This is where energy recovery ventilators (ERV) or heat recovery ventilators (HRV) come in. They bring filtered fresh air into the home and reduce the need to heat or cool the incoming air.

HRVs and ERVs move incoming and outgoing air through a heat exchanger and recover the heat from the air leaving the home. When it is cold outside, they exchange the heat from the warm air leaving the house, to the cold incoming air. When it's hot outside, the fresh incoming hot air exchanges heat to the cold air leaving the home. An ERV also exchanges humidity.

Check out sites 1,2,3,4,6, and 7 to see an ERV or HRV in action.

Existing homes can also get an air quality upgrade. Air sealing the envelope of a house is a top energy retrofit priority that will also help to improve indoor air quality. Most homes will be able to air seal without needing to add mechanical ventilation. During an energy assessment, contractors will also perform radon and carbon monoxide tests, and check combustion appliances.

SITE 5 The Poplin's Energy Retrofit



1127 NW Stoneridge — Retrofit

Home Performance Contractor: GreenSavers Bend 2,450 sq ft, 4 Bed, 2 Bath

Rustic mountain escape gets upgraded for ultimate comfort

This split-level single family home just underwent a high efficiency HVAC and water heating upgrade. The zoning of high efficiency heating and cooling systems ensures energy is used only when and where it is needed which not only saves energy, but it makes occupants more comfortable. You can envision how much energy this saves if you think about other zoned systems you have in your house such as lighting. When you walk into a room and turn on the lights, you are only illuminating that single room, and not every room in the house.

Zoned heating also allows you to control heating and cooling for different needs. If your living room faces easts and gets blasted with sun in the morning, but your bedroom faces north, you are going to have very different heating needs to achieve optimal comfort in both rooms. The new zoned system consists of a Mitsubishi ductless heat pump and a Navien combination boiler.

Envisioning and designing a whole-home mechanical upgrade with an emphasis on efficiency proved to put GreenSavers, the home performance contractor, to the test. The split level design of the home needed special attention to detail to determine the best places to run electrical and linesets for the ductless heat pump and combi boiler. This project demonstrates that functionality can meet aesthetics to achieve a home performance project that meets everyone's needs.

Make sure to ask about: How the combi boiler instantaneously creates hot water for domestic use and for heating the home.



Frank V.
Aurora, Oregon

In the Northwest, a leaky window or antiquated furnace can increase your family's energy use.

That's why Craft3 finances energy upgrades with our Home Energy Loan. From better insulation to more efficient heating sources, we work with you, your utility and your contractor to make your home more comfortable. Over 4,000 families have trusted the Home Energy Loan to reduce their energy use.

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Pollinators and Solar Farms

Pollinator populations are in decline in the United State due to environmental stressors including pesticides, parasites, diseases, and malnutrition. Without appropriate vegetation and land management, the number of pollinators will continue to decrease, putting farms and crop yields dependent upon flowering plants at risk. At the same time, solar energy projects are being developed in agricultural areas.

Cypress Creek Renewables is pioneering a new Solar + Pollinators Initiative. Co-locating pollinator-friendly habitats and vegetation on solar farms can support and expand local pollinator populations such as birds, bees, and butterflies and bring benefits to surrounding agriculture and the environment.



Pollinators provide an ecological service that is a requirement for more than 85% of the world's flowering plants which is inclusive of most global crop species. Annually, around \$3 billion is generated in the United States due to native pollinators' services for over 100 crops.

- During the solar farm's operation, soils rest and rebuild while the deep-rooted plants add organic matter and fertile top soil

- With pollinator habitat, storm water runoff can decrease 8-23%. A diverse mix of plans have a stronger hydrologic performance standard than turf-grasses and other monocropping practices.

For more info: ccrenew.com



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Home Energy Audits • Insulation • Windows • Heating and Cooling • Water Heaters

Certified
(B)
Corporation

ENERGY STAR
AWARD 2018
CONTRACTOR OF THE YEAR

SITE 6 Bethlehem Inn



3705 N. Highway 97, Bend – Commercial New Construction

Designer: Ascent Architects and Interior
Builder: Sunwest Builders LLC
Square footage: 18,181

Solar Contractor: Sunlight Solar
Solar Installation Size: 91.6 kW
 Participating in Energy Trust of Oregon's Path to Net Zero Program



Transforming lives together

Bethlehem Inn is a community-based emergency shelter that provides a warm, safe place to sleep, nourishing meals, and case management services for adults and children experiencing homelessness in Central Oregon. By creating a sustainable facility, Bethlehem Inn's new Family Residence and Service Hub encapsulates their goal of Transforming Lives Together.

Bethlehem Inn has taken on the challenge of reducing their long-term operating costs for decades to come by designing this building to be highly energy efficient and capable of producing much of its own energy from a solar electric system. This innovative investment in energy efficiency and renewable energy demonstrates the commitment of the Bethlehem Inn Board to reducing their carbon emissions.

This project was developed in partnership with Energy Trust of Oregon's Path to Net Zero Program which engages projects early-on in their conception and helps to raise the bar of energy-efficient design and performance. Through the Path to Net Zero program, the earlier you engage Energy Trust of Oregon, the more access projects have to a full suite of incentives and resources. The solar electric system also received a Blue Sky grant from Pacific Power.

This building features high performance windows, R-60 insulation in the roof, and rigid insulation around the envelope of the building. Energy use is further reduced with the use of ample daylighting throughout the living areas and offices, 100% LED lighting, and Energy STAR appliances. A whole building ERV and low-VOC paints and finishes improve indoor air quality.

Make sure to ask about: How you can help support renewable energy and projects like this by choosing the Blue Sky option on your Pacific Power bill.



SITE 7 Crack in the Ground

PRELIMINARY EPS SCORE 0



338 NW Roanoke Ave, Bend

Designers: Owners
Builders: The Doherty Group
 2,700 sq ft
 4 Beds, 3.5 Baths

Solar Contractor: Sunlight Solar
Size: 11 kW
Earth Advantage Certification (pending): Platinum



A modern home rooted in its landscape

This home is built into its surrounding landscape, rising from a crack in the ground. The entire back side of the house is buried into the earth, which proved difficult during excavation with a rocky build site and required extra structural engineering to design a retaining wall. While this makes the most of the challenging topography, it also takes advantage of the ground's natural coolness in the summer and heat in the winter.

The advanced framing on this home, which consists of 2x4 staggered studs and 2x8 top and bottom plates, allows for increased insulation in the wall cavity. Since the studs are offset and don't directly connect the interior and exterior walls, there is less thermal bridging. With a tightly sealed home, indoor air quality is always a concern. This home uses a spot ERV, low-VOC natural paints and finishes, and formaldehyde-free materials to ensure they have healthy and safe indoor air.

This home is on track to produce as much energy as it uses with a 11kW solar installation. To make this possible the home uses super-efficient electric appliances including a ductless heat pump for heating, a heat pump water heat for hot water needs, and 100% LED lighting.

Be sure to ask about: How their ground-floor ADU creates a multigenerational home.

BEND BIKES
 Getting Bend on bikes for everyday riding.

Join us for our next community ride:
 Holiday Lights Ride: December 8th

www.BendBikes.org

SITE 8 Neff Road Solar Farm



21836 Neff Rd, Bend

Owner: NorWest Energy 7, LLC (Neff Solar Farm)

Developer: Cypress Creek Renewables

Locally generated renewable energy

Homegrown renewable energy is expanding in Central Oregon and rightfully so. We have some of the best solar potential in the US. This is an opportunity to visit one of these sites and get behind the scenes. Local Cypress Creek Renewables staff will be on site to discuss the development process, the energy generation, give you a tour, and answer any questions you may have about utility-scale solar projects.

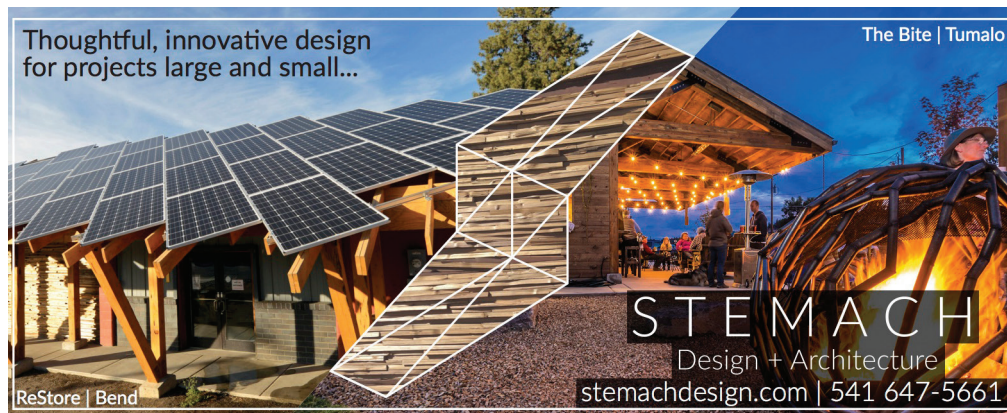
This 10 MW solar project covers 62 acres on Neff Road just east of Big Sky Park. It produces enough energy to power 3,000 homes. The power that is generated is sold to Pacific Power. With 67% of Pacific Power's current energy mix coming from coal, this is really important for creating a clean energy future here in Central Oregon.

Cypress Creek Renewables worked on this project for 3 years and developed it from the ground up. During construction in 2017, about 200 local Oregonians worked on the projects as electricians and civil contractors.

The project incorporates native landscaping and revegetation around the exterior and interior fence lines. Local plant specialists conducted a site analysis to determine the appropriate native seed mixture and planting techniques for the project. Wax currant and Sagebrush, grown by a commercial grower in Redmond, was planted.

Make sure to ask about: Their pollinator program.

RSVP: Since this site is so large, tours will leave at the top of the hour and will take 30 – 45 minutes. Space on each tour is limited so RSVP to reserve your space. Please wear closed-toe shoes. envirocenter.org/solartour.



SITE 9 Sisters Off-Grid



67775 Cloverdale Rd, Sisters

Designer: Davis Frame Company

Builder: Dodd Construction

2,957 sq ft, 3 beds, 3.5 baths

ADU: 576 sq ft, 1 bed, 1 bath

Solar Contractor: Elemental Energy

Size: 15 kW

Earth Advantage Certification: Platinum



Beauty meets self-sufficiency and efficiency

This fully off-grid home, located on a secluded 27 acres in Sisters, was awarded Timber Frame Home of the Year in 2009. The exposed timber beams throughout the house create a cozy feel, and the structurally insulated panels (SIPs) that make up the exterior envelope of the home in the walls and ceiling make sure the home lives up to its cozy curb appeal.

The living spaces are all located on the south side of the home to take maximum advantage of passive solar heating and natural light. Travertine tile floors provide a heat sink to capture heat from the sun during winter months when the sun is low in the sky and shines into the main living area. A solar hot water system and a 93% efficient on-demand boiler provide the heat for an in-floor radiant heating system.

This home is fully off-grid which means that they have to store the excess electricity that they produce in order to have access to electricity when the sun goes down or during inclement weather. There is no utility grid for back-up! Propane is utilized for clothes drying, cooking, heat in the ADU, and to supplement the solar hot water system for the radiant floor heating system.

Reclaimed materials can be found throughout the home including the barn wood ceiling in the entryway, and kitchen cabinets, and recycled steel railings.

Make sure to ask about: How they save energy with their well pump system and a 1,500-gallon cistern.

Join the LED Revolution

Join more 5,000 Central Oregon homes and schedule your appointment for FREE installation of up to 16 long-lasting LED light bulbs – a move that could save you up to \$100 per year. Now serving Bend, Tumalo, Sisters, Redmond, Prineville, and Madras.

TheEnergyChallenge.org/freebulbs | 541.385.6908 x 26

See map on website for service area. Our team must install the bulbs and can only replace incandescent bulbs. This offer made possible through a collaboration with Energy Trust of Oregon and Central Electric Cooperative.



SITE 10 Cottages at ClearPine



1098 N. Wildflower Lane, Sisters—New Construction

Developer: Peter Hall, 3 Sisters Partners LLC

Builder: Simplicity Homes

Designer: Katherine Austin

4 floor plans, 1004 to 1162 sq ft, 9 total cottages

Tour Model: 1004 sq ft 2 story (pending)

Earth Advantage Certification
(pending): Gold



An innovative cottage development

60 years ago, the doors were shuttered on a 50-year old lumber mill on this site. After a fire, brownfield site designation, a long abandonment, and eventual remediation, it is now home to the ClearPine community. Nestled in this community is a cluster of 9 simple farmhouse style cottages built around a common area and community garden. They are within easy walking distance to all necessary services in downtown Sisters and will soon be home to a 1 acre community park.

The small cottages, ranging in size from 1004 sq. ft. to 1214 sq. ft, were a conscious decision to create right-sized homes to meet a need for greater affordability and use less land and building materials. All homes have a master downstairs to address the needs of those looking to age in place. The two story homes have 2 masters allowing for flexibility and potential for multiple generations to live together. Small spaces are as flexible as possible for multiple uses.

Each home will be Earth Advantage certified which means that they will be 20% more efficient than code. Energy Star appliances are used and heat pumps provide efficient heating and cooling. Since hot water can account for up to 20% of a home's energy use, water runs are central and short, decreasing hot water waste. Water Sense faucets and toilets are used, further decreasing energy and water demands. Low VOC interior paints and sealants and hard surfaced floors in high trafficked areas help to improve the indoor air quality of the home and a heat recovery ventilator provides fresh air.

Make sure to ask about: Their tree preservation plan and habitat restoration partnership with Upper Deschutes Watershed Council and how the development team worked with City of Sisters to re-write their cottage code.



GREEN BUILDING DIRECTORY

ENERGY EFFICIENCY AND HOME PERFORMANCE

Bend Heating

Phone: 541.382.1231

Contact: Randall Marchington

Email: info@bendheating.com

Web: bendheating.com



Founded in 1953, Bend Heating & Sheet Metal is the oldest air conditioning and heating company in Central OR. We get the job done right no matter what. Your HVAC system is one of the biggest home investments you'll make so we help you choose wisely with our top-quality products.

Central Electric Cooperative

Phone: 541.312.7742

Contact: Ryan Davies

Email: rdavies@cec.coop

Web: cec.coop



Central Electric Cooperative serves over 34,000 accounts in Central Oregon. CEC has 9 programs specific to residential energy efficiency, including low income and no-cost offerings. We promote, educate and assist our members in meeting their energy efficiency goals and saving kilowatt-hours.

Earth Advantage

Phone: 503.968.7160 ext. 46

Contact: Matt Douglas

Email: mdouglas@earthadvantage.org

Web: earthadvantage.org



Earth Advantage is a nonprofit who accelerates the creation of better buildings. We provide knowledge to building professionals and information to consumers through certification, research, education, and product development to move the building industry towards more sustainable practices.

Energy Trust of Oregon

Phone: 1.866.368.7878

Email: info@energytrust.org

Web: energytrust.org



Energy Trust of Oregon is an independent nonprofit organization dedicated to helping utility customers benefit from saving energy and generating renewable power. Our services, cash incentives and energy solutions have helped participating customers of Portland General Electric, Pacific Power, NW Natural, Cascade Natural Gas and Avista save on energy bills.

GreenSavers

Phone: 541.330.8767

Contact: Taylor Mays

Email: taylor.mays@greensaversusa.com

Web: greensaversusa.com



GreenSavers takes a whole-home approach to find and fix issues concerning comfort, energy efficiency, and safety while offering excellent customer service and a fair price. GreenSavers completes HVAC, insulation, and window projects in-house, and helps clients file incentive paperwork.

Mitsubishi Electric

Phone: 360.450.1407

Contact: David James

Email: info@mtviewheating.com

Web: mitsubishicomfort.com



Mitsubishi Electric is a leading marketer of air-conditioning and heating technology. In 1982, Mitsubishi Electric introduced its state-of-the-art, ductless air conditioners and heat pumps in America and later expanded its product line with VRF zoning heat pumps using INVERTER technology.

Pacific Power

Phone: 1 (888) 221-7070

Web: pacificpower.net



At your service for 100 years. At Pacific Power we believe in our promise of public service: an obligation to deliver safe, reliable electricity at a reasonable price in the cleanest, most environmentally sustainable way we can.

Zero Energy Project

Contact: Joe Emerson

Email: Joe@zeroenergyproject.org

Web: zeroenergyproject.org



Zero net energy homes are the homes of the future - available today. Zero energy homes improve your family's health and comfort while they cost less to own than standard homes. Get your life on the path to zero today.

LENDING

Craft 3

Phone: 888-231-2170

Contact: Tawny Reader

Email: HomeEnergy@Craft3.org

Web: Craft3.org/HomeEnergy



Craft3 is a regional nonprofit lender that strengthens the resilience of businesses, families and nonprofits, including those without access to traditional financing. We lend to growing and start-up businesses, and homeowners upgrading energy features or failing septic systems.

GREEN BUILDING DIRECTORY

TRANSPORTATION

Bend Electric Bikes

Phone: 541.410.7408
Contact: Courtney Van Fossan
Email: courtney@bendelectricbikes.com
Web: bendelectricbikes.com



Since 2008, BEB has been selling, repairing and converting electric and cargo bikes that help locals get around town. Whether you ride for fun, as your primary mode of transportation, or for the planet, Bend Electric Bikes can help you learn more about what's possible with an e-bike.

Smolich Nissan

Phone: 541-389-1178
Contact: Jason Bradley
Email: jbradley@smolichmotors.com
Web: smolichnissan.com



Smolich Nissan is a family owned business and has been serving the Bend community since 1968. We feature best in class fuel efficiency vehicles and the 100% Electric Nissan LEAF Plug in.

Forth

Phone: 503.724.8670
Contact: Zach Henkin
Email: zachh@forthmobility.org
Web: forthmobility.org



Forth is a nonprofit that works to advance electric, smart, and shared transportation in the Pacific Northwest and beyond through innovation and industry development; demonstration and pilot projects; policy advocacy; and consumer engagement.

SOLAR

Cypress Creek Renewables

Phone: 503.447.3142
Contact: Amy Bert Pickett
Email: bergpickett@ccrenew.com
Web: ccrenew.com



Cypress Creek Renewables is a national provider of solar with over 5 gigawatts of local solar farms deployed or in development. We partner with communities and utilities to provide access to clean energy at or below market costs.

Elemental Energy

Phone: 541.316.5786
Contact: Laurel Hamilton
Email: hello@elementalenergy.net
Web: elementalenergy.net



Elemental Energy specializes in creative, high quality beautiful solutions to your energy needs. Locally owned and operated, we design, install, and service solar electric systems for businesses, homes, and mobile units throughout the state of OR and abroad.

E2 Solar

Phone: (541) 388-1151
Email: sales@e2solar.com
Web: www.e2.solar



E2 Solar is a women-owned, small business dedicated to providing central Oregon the very best in clean, sustainable energy. Our custom-designed solar systems offer a reliable and affordable energy solution for any home or business.

Sunlight Solar

Phone: 541 322-1910 ext. 306
Contact: Sun Nguyen
Email: sun@sunlightsolar.com
Web: sunlightsolar.com



With over 20 years of solar installation experience in Central Oregon, we bring you high-quality, turn-key installations for residential and commercial projects. We are passionate solar advocates that take pride in supporting our community's transition toward a renewable energy future.

INTERIOR & MATERIALS

Miller Lumber

Phone: 541.382.4301
Web: mlumber.com



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

Solar Light Inc.

Phone: 541.306.4141
Contact: Brenan, Melody, and Ann
Email: Ann@solarlight.me
Web: solarlight.me



Locally owned & operated with over 12 years of bringing light to Central Oregon homes & businesses with Solatube Tubular Skylights. Also offering Solar Star Attic Fans & Solatube whole house fans.

GREEN BUILDING DIRECTORY

DESIGNERS AND BUILDINGS

Jim Guild Construction

Phone: 541-388-3569
Contact: Jim Guild
Email: guildbuild@gmail.com
Web: saginawsunset.com



Jim Guild has a love for natural resources, a passion for sustainable homebuilding materials, and the unwavering drive to make each home he builds infinitely comfortable and livable. When you're ready to own a bright, super efficient home that is long-lasting, artistically breathtaking and power producing, call Jim.

Neil Kelly

Phone: 541-382-7580
Contact: Melinda Roberts
Email: Melinda.Roberts@neilkelly.com
Web: www.neilkelly.com



Serving Central Oregon for over 10 years, Neil Kelly Company specializes in award-winning design-build remodeling and home repairs big and small. As a Certified B Corp, we strive to make meaningful contributions to the people and communities we serve, and the environment we all share.

Stemach Design + Architecture

Phone: 541.647.5661
Contact: Stacey or Rachel Stemach
Email: stacey@stemachdesign.com;
 rachel@stemachdesign.com;
Web: stemachdesign.com



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.

GREEN REALTORS

Mike Tucker

Phone: 503.939.6155
Contact: Mike Tucker
Email: mike@highdesertdwelling.com
Web: highdesertdwelling.com
Agency: Windermere Real Estate



I specialize in GREEN real estate, home technology, great design and unique spaces. I delight in helping my clients find value and those hard to find special homes.

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GLOSSARY

Accessory Dwelling Unit (ADU) A secondary house or apartment with its own kitchen, living area and separate entrance that shares the lot of the primary, larger house.

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) The total volume of air in a space that is exchanged over in hour.

Blackwater Household wastewater containing human waste and waste from a dishwasher.

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

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

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

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.

Ductless Heat Pump An efficient heating and cooling system that doesn't require any ductwork. Also called "mini-splits" these systems have an outside heat pump with 1 or more inside units, or heads, that can be located throughout the house.

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. **See Page 19.**

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. Products and new homes are ten to thirty percent more efficient than their conventional counterparts.

EnergyGuide label A yellow sticker required by U.S. law on common new household appliances. The label provides information on the amount of energy the appliance will use in one year.



Energy Performance Score (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.

FSC Certified Wood Forest Stewardship Council certification tells whether a wood product is from a forest that is sustainably managed, including protecting fragile ecosystems, preventing illegal logging, and restricting clear-cutting.

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 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 pump water heater A tanked water heater that uses 60% less energy than an electric hot water heater by using a heat pump to move heat from the surrounding air into the tank.

Indoor air quality The level of air pollutants inside a building. Indoor air pollution sources include certain building materials and furnishings; certain cleaning 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.

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.

Inverter A device used to convert DC electricity (such as that produced by solar panels) 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 bulb LEDs (Light emitting diode) are extremely long-lasting (up to 25 years) and are 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.

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 Zero Energy Building Abuilding that creates at least as much energy as it uses. Homes are designed to take advantage of passive solar design, and 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.

Off-grid solar A solar electric system that combines photovoltaic panels, an inverter, and batteries to function independently of the power grid. The system must be able to produce and store all of the energy a home needs even on cloudy days and at night.

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.

Photovoltaic (PV) system Converts sunlight directly into electricity. Consists of solar panels made up of PV cells and in inverter. Systems range from small rooftop systems on residences to solar farms that produce enough energy for thousands of homes.

Polyvinyl chloride (PVC) Also known as vinyl. A family of plastics 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 and 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 and recycled as raw material for a new product.

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 garden or other purposes.

Rapidly Renewable Materials Natural and non-petroleum-based building materials that are made from agricultural products that are typically harvested within a 10-year or shorter cycle. i.e. bamboo, cork, straw bales.

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.

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.

SIPs (Structurally Insulated Panels) Construction material usually made out of an insulating foam core sandwiched between two structural boards (the material of the boards varies). They combine many building components such as studs, insulation, and vapor and air barriers.

Smart thermostat A device that can be used with home automation and is responsible for controlling a home's heating and/or air conditioning. These often can be controlled remotely and adjust based on occupancy and weather forecasts to save energy.

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 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.

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

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 on-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.

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

Every new home should be
Smart, clean, and local



Having an energy efficient home is just the smart thing to do.
Producing clean renewable energy saves money on monthly electric bills.

And using a local solar installer ensures you have a company to rely on.

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E 2 S  L A R

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