

# Energizing Oregon

## RENEWABLE DISTRIBUTED ENERGY RESOURCES

**Energy is all around us—in the sky, streams, wind and even captured in waste.**

Energy Trust of Oregon harnesses the power of the environment to create a more sustainable and resilient future. As a nonprofit organization, we help Oregonians from Astoria to Klamath Falls produce clean energy that powers small businesses, schools, homes, farms and more. These innovative projects reduce energy costs, support local economies and help develop the electricity grid of tomorrow.

Although we have more than 14,000 successful renewable distributed energy resources (DER) on line, Oregon's clean energy future is just getting started.

# Leading Oregon's Renewable Future

Renewable distributed energy resources (DER) like solar, biogas and small hydropower let Oregonians produce their own power from the state's abundant natural resources. From the solar-powered rooftop of the Coos Bay Visitor Center, to hydropowered irrigation systems in the Hood River valley, these projects tap into local sources of renewable energy across the state, producing electricity right where it's needed.

By enabling families, businesses and communities to generate energy from local renewable sources, we are transforming how Oregon is energized.



## WHAT ARE DISTRIBUTED ENERGY RESOURCES?

Energy investments at homes and businesses can add up to powerful assets for the grid by providing generation, flexibility and reduced demand. Solar, biogas and hydropower are renewable distributed energy resources (DER). Other distributed resources include battery storage, energy efficiency, electric vehicles, smart thermostats, smart water heaters and other flexible loads.

## GIVING PEOPLE CHOICES

According to local and national surveys, Oregonians increasingly want to choose how their energy needs are met—and many strongly support clean, renewable energy sources. Our work helps meet these demands by giving more Oregonians a say in how their homes, businesses and communities are powered.

## PROMOTING ECONOMIC GROWTH

Oregon's green economy is healthier thanks to the diverse range of projects Energy Trust supports. When Energy Trust makes renewable installations easier and more affordable, Oregon benefits with new jobs, stronger companies, more investment in our communities and homegrown innovation.

## PROTECTING THE ENVIRONMENT

Small-scale renewable projects reduce Oregon's use of fossil fuels, resulting in cleaner air and water, and a greener mix of energy to power our lives and our economy. Many hydropower projects we support improve fish and wildlife habitat, conserve water and enhance water quality. Biogas projects turn food, agricultural and municipal waste into energy.

## CONSERVING NATURAL LANDSCAPES

Distributed renewable energy projects are usually situated on existing buildings or developed land, minimizing development of productive farmlands and reducing risks to environmentally sensitive areas.

## MITIGATING DISASTERS

Oregonians are vulnerable to a range of natural hazards, from windstorms, droughts and wildfires to earthquakes and tsunamis. By generating and storing energy from natural resources in Oregon communities, our work helps reduce dependence on infrastructure that could be compromised in a disaster. And when combined with energy storage and smart controls, these systems can strengthen grid resilience and help communities during extended power outages.

## EXPANDING ACCESS

Low-income families spend a larger share of their income on energy bills. This can lead to difficult choices between heating their homes and affording necessities like health care, food and childcare. We work with community organizations and housing developers across the state on renewable energy projects that benefit lower-income Oregonians.

## CATALYZING RESILIENCY

When we generate and store energy closer to where it's used, the result is a smarter, more efficient and more reliable grid. The energy travels a shorter distance, customers and the grid benefit, and communities have more options for power during outages. In collaboration with utilities and cities, we are piloting solar projects that incorporate new battery storage technologies that can store energy throughout the grid.



**THREE SISTERS IRRIGATION DISTRICT**

# A PARTNERSHIP FOR RURAL RESILIENCY

On Central Oregon farmland, innovative irrigation system upgrades are strengthening agriculture, supporting healthier fish runs and producing enough hydroelectricity to power 275 homes.

## THE PROJECT

The Three Sisters Irrigation District serves farms and ranches spanning more than 7,500 acres near Sisters in Central Oregon. To reduce water loss and generate energy, the district recently replaced open irrigation canals with more than 50 miles of pressurized pipes and a new hydroelectric plant. The new system provides pressurized water to 75 farms, generates 3.1 million kilowatt hours of energy annually and, by eliminating pumping costs, saves farmers and ranchers thousands on energy bills. The system also uses less water—leaving more water in local streams to support fish and habitat.

## ENERGY TRUST'S ROLE

On behalf of utility customers, we provided technical support and \$40,000 in project development incentives to help the district work through challenges in permitting and interconnecting the hydroelectric plant with the local utility. We also awarded a \$1 million incentive to help install the system and support renewable power generation.

“ For the first time since the late 1800s, there was summertime flow in Whychus Creek for salmon and steelhead.

Marc Thalacker,  
district manager,  
Three Sisters Irrigation District

”



## FROM WASTE TO RENEWABLE POWER

In Gresham, electricity generated from wastewater, waste grease and the sun have transformed the city's biggest energy user into its biggest energy producer. Thanks to innovative investments and support from Energy Trust, Gresham's wastewater treatment plant is the first in the Pacific Northwest to generate as much energy as it uses.

### THE PROJECT

Ten years of energy efficiency and renewable power investments have transformed the wastewater treatment plant into an electricity factory. Organic matter from wastewater now powers 92 percent of Gresham's plant by using a process that turns this waste into biogas. In addition to wastewater from the municipal system, the plant also takes in truckloads of fats, oils and grease from local restaurants, groceries and other businesses. Two powerful engines convert the biogas into heat and electricity, while an on-site solar array fulfills the remaining energy needs.

“ At a time when all of our resources are stretched, we must work together to take on grand challenges and succeed. ”

Gresham Mayor Shane Bemis

### ENERGY TRUST'S ROLE

Energy Trust provided Gresham with more than \$1.3 million in cash incentives, as well as technical assistance and project development support. In 2014, Energy Trust and the Gresham wastewater treatment plant together won the Leadership in Clean Energy Award from Clean Energy States Alliance for national leadership in promoting clean energy adoption.

# Small Scale, Big Impact

In 2016, Oregon committed to the ambitious goal of getting 50 percent of its electricity from renewable sources by 2040. While this policy mainly involves large-scale renewable energy projects, Energy Trust supports the expansion and growth of smaller-scale renewable energy options. With funding from customers of Portland General Electric and Pacific Power—and oversight from a nonprofit board of directors and the Oregon Public Utility Commission—Energy Trust helps Oregonians, businesses and communities to do even more.

## A ROOFTOP REVOLUTION

Energy Trust has supported the majority of the rooftop solar installations in Oregon. With help from our incentives and our network of experienced solar trade ally contractors, an average of five Oregon rooftops go solar every day.

## RETURN ON INVESTMENT

When totaled, every dollar of incentives we've invested has yielded an additional \$4.60 of investment in local renewable energy projects that support businesses and communities.

## RIVERS OF SAVINGS

By modernizing irrigation systems on farms throughout the state, our projects conserve more than 9.2 billion gallons of water per year. That's enough to cover I-5 between Portland and Salem with 42 feet of water.

## A CLEANER, GREENER OREGON

The sum of these parts is environmental protection on a statewide scale. Thanks to small-scale renewable projects, Oregon avoids over a half million tons of carbon dioxide every year. That's like taking 126,000 cars off the road.





**ECOSOLAR AND ELECTRIC**

## SOLAR ALLIES DELIVER QUALITY AND SERVICE

In Klamath Falls, local contractor EcoSolar and Electric has a 10-year record of installing reliable, efficient solar systems in and around Klamath Falls. As a valued member of Energy Trust's Trade Ally Network, this solar trade ally is known for its high-quality work and strong commitment to customer service—and for connecting customers with the incentives they need to make going solar affordable.

### PROJECT HIGHLIGHTS

EcoSolar and Electric helped Cascade Organic Beef—a family-owned and operated ranch—reduce its energy bills by 80 percent with a new solar system. As an Energy Trust solar trade ally, EcoSolar and Electric also installed new solar systems at St. Mary's School in Medford and Southern Oregon University in Ashland. EcoSolar and Electric's strong reputation contributes to a thriving business, with solar installations often booked many months in advance.

“ All of us at EcoSolar and Electric are committed to our customers, each other and the business of solar. ”

Alison Andrews, co-owner,  
EcoSolar and Electric

### ENERGY TRUST'S ROLE

Businesses like EcoSolar and Electric make up Energy Trust's network of trade allies—professionals and companies around the state known for their commitment to high-quality energy efficiency and renewable energy installations. Since 2008, EcoSolar and Electric has received \$15,000 in Energy Trust business development funds to serve more rural customers and grow its business sustainably.

# The Energy Trust Difference

Energy is all around us—but transforming its power into electricity is a complicated, technical and often costly process. A successful renewable energy project involves designing a new system, navigating the permitting process, hiring and managing construction contractors, securing financing and more.

Energy Trust provides expert support at every step of the way to help Oregon’s homeowners, business owners, public entities and nonprofits finance and build renewable energy systems that achieve their goals—from reducing energy and operating costs to conserving precious natural resources.



## FINANCIAL AND TECHNICAL SUPPORT

We provide financial and technical support for planning and development to get projects off the ground and constructed. We also help identify and attract funding from sources like tax credits, public and private grants, and state and federal agencies.



## QUALITY CONTROL AND CONSUMER PROTECTION

We look out for customers by referring them to qualified contractors, enforcing quality standards and expecting superior results from contractors. In fact, a recent evaluation of Energy Trust-supported solar installations found they produced more electricity than expected.



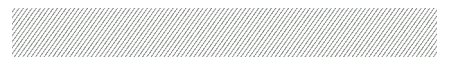
## PARTNERSHIP DEVELOPMENT

We’re team builders. We bring together funders, stakeholders and owners with common goals to determine a path forward and follow it to the end.



## INDUSTRY ADVANCEMENT

We empower a stronger and more successful renewable energy industry in Oregon by supporting the growth of local renewable energy businesses—using innovative approaches to develop markets that work, educating the public and sharing what we learn along the way.



## WORKFORCE DIVERSITY

In 2017, The Solar Foundation completed the first U.S. Solar Industry Diversity Study and found that the solar industry is more diverse than the construction, oil and gas extraction, and the utilities industries.





# Projects that Deliver

Since launching our renewable energy programs in 2003, we've served thousands of customers across Oregon with a diverse range of innovative energy solutions. Each project is designed to meet customers' unique needs and goals while generating renewable, reliable energy to power local communities.

## **SOLAR**

Solar projects transform rooftops, parking lots and other sunny spaces into energy factories. We work closely with homeowners, businesses and nonprofits to save them money and ensure their solar systems are designed and installed to a high standard. We do this by connecting customers with incentives and tax credits, referring them to qualified contractors, providing technical reviews of designs and verifying systems after they're installed.

To reduce costs and maintain a strong solar industry in Oregon, we also work directly with solar installers to help them run their businesses more efficiently and effectively.

## **BIOGAS**

Organic waste from places like dairies, food processors, restaurants, breweries and sewers can produce energy to help power Oregon. Mechanical "stomachs," called biodigesters, break down organic waste into energy-rich gas and materials that can be used as fertilizer. These biogas projects are generating energy for businesses and municipalities across the state. The result is less waste and more resilient communities.





## HYDROPOWER

The water that irrigates Oregon's fields and flows from the tap is good for more than growing crops and staying hydrated. Small-scale hydropower projects capture energy from water that's already diverted from rivers and streams, helping Oregonians preserve and protect the natural waterways that define the landscape.

**Irrigation modernization:** On farms, we support projects that replace open irrigation canals with pipes, creating pressure that can generate renewable electricity. After construction, old pumps are removed and new turbines capture the energy and reduce electricity costs for farmers. The pipes conserve water, help fish and farmers, and reduce the amount of energy needed to irrigate fields.

**Drinking water:** We work with cities and other water providers to help them install hydropower turbines within drinking water systems, allowing local utilities to generate revenue and keep their services more affordable.

## GEOHERMAL

In some parts of Oregon, geothermal heat warms up groundwater, creating energy that can be harnessed to produce renewable electricity. We provide funding to help install geothermal power plants that tap into underground hot water reservoirs, using the heat to drive electrical generators.



**530,000**

solar panels installed statewide



**50%**

of Oregon's agricultural water supply is being assessed for modernization opportunities, including hydropower



**9**

of Oregon's wastewater treatment plants now generate electricity with biogas





**IRONHORSE LODGE**

# COMMUNITY PROSPERITY IN PRINEVILLE

Residents of IronHorse Lodge don't worry about changing energy costs. That's because the lodge, which includes 26 units of affordable housing for low-income seniors, uses 77 percent less energy than a typical multifamily building built to Oregon energy code. IronHorse expects to save and generate enough energy to decrease annual expenses by more than \$18,000, keeping rent and utility bills lower for residents far into the future.

### THE PROJECT

Pacific Crest Affordable Housing enrolled the lodge in our Path to Net Zero initiative, which helped the building get as close as possible to consuming only as much energy as it produces in a year. Solar on the building's roof produces electricity and heat for water. A tightly sealed building envelope, extra insulation and a variable-refrigerant-flow heating and cooling system keep residents comfortable year-round. Solar tubes bring natural light into hallways, while efficient LEDs light common areas and individual units.

“ People who have stable housing have a much better life. A building like this goes a long way to fulfilling that goal.

Rob Roy, co-founder  
Pacific Crest Affordable Housing

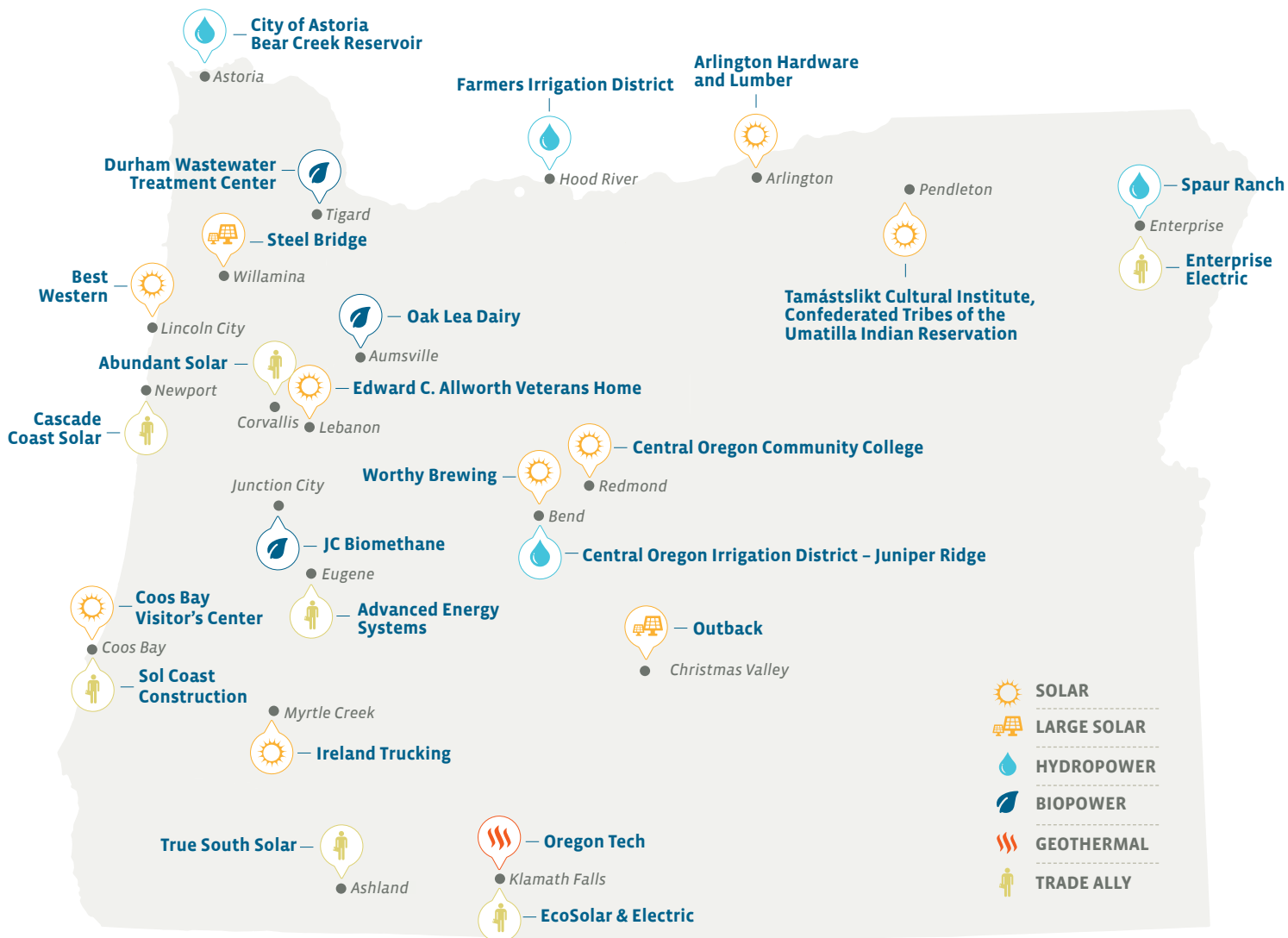
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### ENERGY TRUST'S ROLE

For the IronHorse Lodge, we provided a cash incentive of \$118,000 to help offset the cost of the many energy-efficiency features and solar installation. From early design through construction, Pacific Crest received technical assistance to make sure energy-saving features were included.

# From Energy to Opportunity

With our incentives and technical assistance, more than 13,000 clean energy systems are generating power across Oregon. This map features a few of our projects and trade allies.



As of 2018



**13,000**  
homeowners served



**961**  
businesses served



**294**  
public and nonprofit organizations served



**115**  
solar trade allies



## SOLAR FOR EVERYONE

The use of solar energy is increasing in Oregon, but many of our communities still face significant barriers to accessing cleaner energy sources. In 2017, Energy Trust convened a collaborative stakeholder working group of organizations representing interests in renewable energy, environmental justice and low-income community advocacy. Together, we are developing fresh, new ideas for directing the benefits of solar to the Oregonians who need it the most.



## BUILDING COMMUNITY RESILIENCE

Oregonians are vulnerable to a range of natural hazards, from storms, droughts and wildfires to earthquakes and tsunamis. Generating and storing energy from sources like solar reduces our dependence on infrastructure that could be compromised in a disaster. Energy Trust is working with communities like the City of Portland to build resiliency into their critical facilities. With our help, Portland is installing its first advanced solar plus battery storage facility at its main fire station and incident command post. The Fire Station 1 installation will help other communities learn how to design and use solar plus energy storage to achieve their resilience goals.

“Storage multiplies the benefits of solar. Solar plus battery systems make communities safer and more resilient when the power goes out, and help keep our grid healthy every day.”

Andria Jacob,  
senior manager of energy programs and policy,  
City of Portland Bureau of Planning and Sustainability



### Work with Us

Learn more about Energy Trust by visiting our website or talking with a staff member.

Visit [www.energytrust.org/renewable-energy](http://www.energytrust.org/renewable-energy) or call **1.866.368.7878**.

Energy Trust of Oregon

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