

Prineville Renewable Energy Project

Where the Future Meets the Frontier





Bioenergy releases biogenic CO2 which is part of the natural carbon cycle and will be reabsorbed by plants versus geologic carbon which increases atmospheric CO2.¹³

Bioenergy from projects like the PREP help ensure our forests continue to remove carbon from the atmosphere.



Improving Local Water Quality and Quantity

The Prineville Rewewable Energy Project would provide significant benefit to watersheds by improving the quantity of water available and enhancing ecosystems with improved soil and water quality¹.

An extensive, long-term study in the Prineville area confirmed that removal of juniper and subsequent reestablishment of historical native shrub/grass plant community improved soil and water infiltration, reduced overland flow and soil loss making more water available for plant growth, groundwater recharge, and sustained spring flow².

These improvements would be made by employing sustainable forestry practices, such as forest restoration and removal of western juniper. This would also help to protect key watersheds from catastrophic damage, which ensures that sustainable quantities of high quality water for both domestic and agricultural uses continues to flow. Since the 1880s, juniper range has increased tenfold in the Central Oregon area due to reduction in fire. Pre-European settlement, juniper was limited primarily to areas that did not support fire on relatively unproductive soils. The species elbows out native sagebrush and grasses and sucks up more than its fair share of water.

Research has shown that juniper abatement results in estimated water savings of 100,000 gallons per acre annually.⁷

Positive Impacts on Air Quality

Biomass plants generate clean energy due to advanced technologies that "scrub" the air of particulate matter and other contaminants. Particulate matter is the principal health concern associated with the public's exposure to wildfire smoke and is reduced by over 99% with these technologies when compared to open burning⁴.



Oregon's 2020 fire season demonstrated just how at risk our forests are to catastrophic wildfire and how the smoke from these fires presents a serious public health hazard. The fine particles in the smoke, known as PM 2.5, pose the greatest risk. The EPA's air quality index, which measures PM 2.5, categorizes the air quality on a scale from good to hazardous. In September of 2020, the air quality in Central Oregon was so hazardous it was

beyond the top threshold of the index. Those most at risk to effects from poor air quality include children, pregnant women, older adults, and individuals with heart or lung disease, or diabetes⁵.

Use of biomass in lieu of fossil fuels reduces greenhouse gases and provides a disposal alternative to open burning and landfills for forest treatment wood wastes. Woody biomass offers a sustainable, dependable supply that typically emits 90% less CO2 compared to fossil fuels⁶. Regenerating forests can also result in net carbon sequestration (which is the process by which atmospheric carbon dioxide is taken up by trees, grasses, and other plants) in wood products and new forest growth¹.

We need to innovate and increase our risk tolerance. There are no perfect solutions and the time has come to start assuming risk to address climate change, wildfire, and other critical issues. **The PREP offers a proactive solution to address these crises.** Combustion of biomass in a controlled environment removes more than 99% of particulate matter compared to open burning and on a life-cycle basis, is a carbon neutral solution.



Exposure to open burning is associated with reduced lung function, bronchitis, exacerbation of asthma and heart failure, and premature death.

Fine particles are also the main cause of reduced visibility in parts of the US, including many of our treasured national parks and wilderness areas⁹.

Other contaminants such as carbon monoxide and nitrogen oxides are reduced by approximately 99% and 70%, respectively, when compared to open burning¹⁰.





The City of Prineville has gained recognition as a national leader in its innovative approach to environmental protection and conservation with a reputation for its forward-thinking solutions. This is evidenced by

multiple environmentally beneficial, cost effective, and award-winning projects such as The Crooked River Wetlands and Aquifer Storage and Recovery (ASR) project.

Crooked River Wetlands: Provided a solution to the need for additional wastewater treatment and saved over \$50 million by utilizing an integrated approach to wastewater treatment through beneficial reuse combined with the creation and restoration of wetlands, floodplains, riparian areas, and public recreation.

Aquifer Storage and Recovery (ASR) Project:

Water is collected in existing aquifers (natural geologic formations underground) during periods of cooler temperatures, higher streamflow, and lower demands and recovered later during periods of higher demand.

Overview

The City of Prineville and Crook County are pursuing development of a 42-megawatt biomass power plant facility.

A sustainable and stable fuel supply is a common barrier to the development of woody biomass power projects. To overcome this barrier, the PREP has secured a private wood fuel supply comprised of urban wood waste, forest derived fuel, and agricultural waste to fire the plant for 20 years, but with flexibility to utilize other fuel streams as they are available. While this private supply is necessary to ensure fuel supply and price stability, the focus of the PREP is on forest health improvement with a goal of utilizing residuals and wood waste from forested lands to the highest extent possible.

Elevating the Community:

Resurrecting Prineville's forest products industry Local baseload generating asset, 24/7 operation Regional economic impact Sustainable management of the Ochoco Forest Innovative forest products hub of Central Oregon



Before (left) and after (right) treatments by thinning and burning in ponderosa pine. By almost all measures, the treated plot is ecologically healthier and more resilient to fire. The photos are not of the identical scene but representative examples from the same site.

"This win-win project will provide us greater opportunities to manage areas to improve forest health and restore wildlife habitat by creating local market opportunities for small diameter trees and low-value species such as western juniper."

SHANE JEFFRIES

Ochoco National Forest Supervisor

ABUNDANT:

Biomass is available in large quantities all over the world.

CLIMATE CHANGE MITIGATION:

Use of biomass energy in lieu of fossil fuels reduces greenhouse gases. Biomass utilization also provides a disposal alternative to open burning and landfills for forest treatment wood wastes. PREP's local fuel supply will also reduce greenhouse gas emissions and usage of fossil fuels compared to traditional fuel supply resource areas. Diesel consumption per bone dry ton isexpected to be cut in half.

3 CONTRIBUTIONS TO RURAL ECONOMIES:

Biomass utilization can create jobs in rural economies that were once dependent on traditional resource-based industries. These include natural resources and forestry jobs.

▲ FOREST HEALTH & WILDFIRE PROTECTION:

Forest restoration, thinning and fuel hazard reduction activities, which generate biomass for energy use, create more resilient forest stand conditions. These actions can reduce the amount and severity of wildfires, damages to life, property and natural resources, air quality and public health impacts from wildfire smoke, and fire suppression costs. They also encourage more rapid growth on the remaining trees, resulting in bigger and more robust trees.

Advantages of Biomass Energy

The PREP: Pioneering Sustainable Solutions

Renewable, Reliable, Abundant, and Carbon-Neutral.

The PREP tackles critical environmental challenges with a focused initiative on waste management, forest restoration, and carbon reduction.

Utilizing waste and residual woody biomass materials leads to substantial carbon savings. Research indicates that the use of these materials has minimal to no net impact on atmospheric biogenic CO2 emissions. In some instances, it even proves to have a lower overall environmental impact compared to other disposal practices.

An independent environmental analysis provides confirmation, projecting that PREP is set to save 63,000 metric tons of CO2e annually. This substantial contribution aligns with the goal of creating a greener future, equivalent to the consumption of 7,089,006 gallons of gas, 2,894,162 propane cylinders, or the charging of 7.7 billion smartphones. Biomass holds promise in combating climate change, but its reputation has suffered due to unsustainable practices, notably pellet production in the Southeastern United States for European power generation. This has led to clearcutting, biodiversity loss, soil and water degradation, and excessive carbon emissions from processing and shipping.

Unlike conventional biomass projects, the PREP focuses on repurposing existing waste and residual materials. Sourced sustainably from forestry and agriculture, biomass is generated regardless of power production.

5 HABITAT PROTECTION:

When conducted appropriately, biomass harvesting has a negligible impact on wildlife and watersheds, improves the growth of larger trees, and can protect habitats by enhancing the resilience of forest stands and individual trees.

6 RENEWABLE GREEN ENERGY:

Biomass power is renewable energy and reduces reliance on fossil fuels. Forests store substantial amounts of carbon. Forests generally go through cycles of growth and death, sequestering and releasing carbon. The value of forests and trees in sequestering carbon and reducing carbon dioxide emission to the atmosphere is being recognized increasingly the world over. Well-directed carbon sequestration projects, along with the provision of sustainably produced timber, fiber, and energy, will yield numerous benefits, including additional income for rural development and prospects for conservation.



Prineville Renewable Energy Project (PREP)

Where the Future Meets the Frontier

Build 35-megawatt biomass power plant facility

Provide 15 permanent, full time, living wage jobs and indirectly create 100 jobs

- **Create** 200+ jobs over the course of construction **Resurrect** Prineville's forest products industry
- Local baseload generating asset, 24/7 operation
- Regional economic impact

PREP

- Sustainable management of the Ochoco Forest
- Innovative forest products hub of Central Oregon
- Partnership between public and private entities



CLEANER AIR: Helps reduce air pollution. Instead of burning logging waste in open piles, which can be harmful to the environment, the PREP Facility burns it in a controlled manner, leading to cleaner air. This is especially important for the health of children, the elderly, and those with respiratory issues. The reduced air pollution is estimated to save between \$19.9-\$61.7 million annually.



LESS WILDFIRES: By thinning forests, the PREP Facility lowers the risk and intensity of wildfires. This means less smoke in the air, better visibility, and reduced costs for firefighting and repairs. The estimated health benefits of this reduction are between \$2.8-\$18.5 million yearly.



WATER SAVINGS: The PREP Facility will save 683 million gallons of water each year by treating certain forest areas. This water can be used for various purposes, benefitting the community and the environment.



REDUCED WASTE: Instead of sending wood waste to landfills, the PREP Facility burns it as fuel. This keeps our landfills cleaner and saves around \$0.6 million annually.



SUPPORT FOR ECONOMIC DEVELOPMENT: By reducing wildfires and improving air quality, the PREP Facility helps the region attract new industry and supports tourism. These benefits contribute to a stronger and more vibrant local economy.

RELIABLE POWER SUPPLY: The PREP Facility adds to the regional power supply, which helps ensure there is enough electricity when needed, even during extreme weather events.

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Operation of the PREP will result in estimated carbon savings of

63,000 METRIC TONS OF CO2E PER YEAR

161,503,575 MILES DRIVEN BY AN AVERAGE GASOLINE-POWERED PASSENGER VEHICLE PER YEAR



The power plant will directly create **15** permanent, full time, living wage jobs and indirectly create another **100** jobs¹¹.

In addition, over **200** jobs will be created over the course of construction.

The re-invented forest products industry will provide additional jobs for Prineville.



South Canyon Fire

PRINEVILLE REMEMBERS

2024 marks the 30th anniversary of the deaths of the 14 firefighters.



A 1994 wildfire seven miles west of the resort town of Glenwood Springs in central Colorado changed Prineville, Oregon forever. The South Canyon fire on Storm King Mountain became one of the worst wildland firefighting disasters in 45 years. Fourteen people died, including nine members of the Prineville Hotshot crew.

South Canyon fire sparked scrutiny of fire officials' decision-making and strategies in battling deadly fires and forest management practices. Significant changes in land management over the past several decades has resulted in catastrophic wildfires. Declines in timber production on federal lands, particularly in the Northwest, not only meant the death of a once vibrant industry, but also an end to thinning, controlled burns and other activities meant to keep forest growth in check.

Prineville has experienced firsthand how allowing forests to grow unchecked by proper management results in catastrophic wildfires.

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