



# RESTORATION FUELS

## 2019 ANNUAL REPORT



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# ABOUT RESTORATION FUELS

## HISTORY AND OWNERSHIP

Restoration Fuels, LLC (RF) is an Oregon benefit corporation formed in January 2018 as a wholly owned subsidiary of the US Endowment for Forestry and Communities Inc., a 501(c)3 public charity that was formed to help keep forests as forests and benefit forest-rich rural communities.

## MISSION

The mission of Restoration Fuels, LLC is to advance forest health and rural forest-rich community vitality by creating a viable market for low-value biomass from forest health restoration treatments and in doing so create jobs and economic value in the surrounding communities that depend on these forest resources.

To achieve our mission we are implementing a business plan that begins with the development and construction of a commercial-scale torrefaction facility in Grant County, Oregon. The plant will manufacture a renewable solid fuel using small-diameter biomass and diseased tree logs sourced from forest restoration treatments in the local area.

## PARTNERSHIP ORIENTED

Restoration Fuels is proudly co-located with Malheur Lumber Company (MLC) in John Day, Oregon. MLC has been an ongoing supporter of the torrefaction project through the sharing of their facilities and their considerable wood products knowledge. We seek to minimize the impact of RF's construction on Malheur Lumber's existing production operations and ensure there is a long-term, mutually beneficial and profitable relationship. Part of achieving our vision and that of the Endowment's is to strengthen the existing forestry infrastructure that is so critical to managing the health of our forests.

The USDA US Forest Service (USFS) is our primary partner. USFS provides continuing market development and commercialization resources as well as direct financial support to the Endowment for this project. We will implement this project and our sourcing activities in a way that is integrated with and supports the outcomes that the USFS seeks to achieve.



# ACCOMPLISHMENTS IN 2019

## CONSTRUCTION OF OUR FIRST FACILITY

Delivery trucks rolled into our John Day site throughout 2019, bringing equipment both large and small to the hard-working construction crew. Major items arriving at the site included: a wood-fired boiler with an electrostatic precipitator, a belt dryer, the torrefaction kiln, and two briquetters to densify the torrefied wood chips. We completed significant installation of this equipment in 2019.

Late in the year we celebrated the successful installation of a new wood-fired boiler and state-of-the-art pollution control system, which replaces the two existing boilers at the site. With more steam produced per pound of hog fuel, the replacement boiler is measurably more efficient than the older two-boiler system. It will be operated by existing boiler operation staff and provide additional steam capacity for the both the existing lumber mill operations and the torrefaction system.

# 42,000

**LBS OF STEAM  
PRODUCED PER HOUR  
BY THE NEW BOILER**

# 24% ↑

**INCREASE IN STEAM  
PRODUCTION OVER THE  
PREVIOUS SYSTEM**

# 60%

**REDUCTION IN PARTICULATE  
MATTER DUE TO THE  
ELECTROSTATIC PRECIPITATOR**

The boiler was installed with a brand new control system, steam piping, and water treatment, as well as pollution control equipment in the form of an electrostatic precipitator (ESP). The ESP electrostatically attracts and collects particulate emissions from the boiler, reducing the already low particulate matter effluent by at least another 60 percent.

Above-ground steam pipes flow in an intricate pattern across the site, connecting the pieces of equipment to deliver steam power. These pipes will be thoroughly insulated by a local contractor to limit the loss of heat, which will reduce our use of fuel, increase the system's efficiency and thus help reduce overall emissions as well as contain operational costs.

Installation of the remaining material handling and conveyor systems will finish in the first quarter of 2020, with testing and commissioning during the second quarter. In the meantime, through partnerships with academic and USFS laboratories we have produced our product in sufficient quantity to support competent, fuel, physical and chemical testing. The results have led to the production of a comprehensive Safety Data Sheet (SDS) for our "Strawberry Mountain Torrefied Wood" product. This SDS is the most complete work up for any torrefied material currently on the market and is a suitable guide for both domestic and international markets in the handling, storage, transport and use of the product.



## BIOMASS SOURCING AND CERTIFICATION

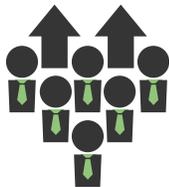
We employ local companies to provide our biomass, which is logged from the Malheur National Forest using the USFS' forest treatment protocols.

Restoration Fuels has set a high standard for the sourcing of our biomass. We will demonstrate this commitment in 2020 by obtaining multiple certifications. Following the path of our partners at MLC, we will pursue Forest Stewardship Council (FSC) Chain of Custody and Controlled Wood certification in the first part of the year, and then we will seek to add Sustainable Forestry Initiative (SFI) Chain of Custody and Fiber Sourcing certifications later in the year. By the year's end, we also intend to achieve Sustainable Biomass Program (SBP), a voluntary certification system designed for woody biomass used in energy production.

**3** CERTIFICATIONS  
WE WILL SEEK  
IN 2020:  
FSC, SFI, SBP

At the core of our mission and what drives us is a healthy forest ecosystem. This facility and the market we intend to develop is a tool to help public and private landowners sustainably manage the forests they are responsible for. In 2020 we will seek to further understand and learn from these land managers to ensure our sourcing of biomass can be integrated with their management plans and designed to make the economically efficient management decisions.

**20** TOTAL NEW JOBS  
CREATED BY  
RESTORATION FUELS  
WHEN FULLY STAFFED



## WORKING AT RESTORATION FUELS: NOW AND NEXT

Restoration Fuels strives to be a great place to work. All employees are paid living wages, and offered subsidized insurance coverage, paid time off, and a competitive 401(k) retirement plan. New employees receive extensive on-the-job training particularly in matters of plant safety, and operational and emergency response procedures. Ongoing training and development opportunities are given to current workers because we want our employees to stay sharp and be able to advance their careers.

At the end of 2019 Restoration Fuels employed eight people, five of whom live and work full time in the John Day Valley. Two of eight employees had started the year as consultants and eventually moved into full-time staff positions; the other six people were working elsewhere prior to joining the Restoration Fuels team. For several of these workers, returning to John Day was returning home, back to extended families and their roots. The first quarter of 2020 will see a doubling of plant employment, with additional hiring continuing in John Day throughout the year.

In areas like Grant County where the total workforce is about 3,000 people even a small operation like Restoration Fuels can make a significant impact. The employment multiplier effect<sup>1</sup> indicates that our company currently supports as many as 14 jobs among our suppliers and 10 other jobs in the community. This impact will grow to 38 positions (23 and 15, respectively) after the burst of hiring in early 2020. We're proud to contribute to economic growth in this rural region of Oregon.

<sup>1</sup> Economic Policy Institute, 2019. [www.epi.org/publication/updated-employment-multipliers-for-the-u-s-economy](http://www.epi.org/publication/updated-employment-multipliers-for-the-u-s-economy)

## COMMUNITY INVOLVEMENT ACTIVITIES

Early in 2019, Restoration Fuels held a well-attended open house in John Day to introduce the project and answer questions. Activities included short presentations by staff as well as an introduction of the Endowment, its mission, and the reasons it is providing the capital for the project.

During the rest of the year, Restoration Fuels staff responded to media inquiries, hosted site visits for local, state and national policymakers, and kept all up to date with a monthly blog on its website, [RestorationFuels.com](http://RestorationFuels.com).

As we begin to conclude major construction activity, we have been transitioning to more local or regional service providers for engineering, electrical and mechanical maintenance support.



# STAFF LIST AND FINANCIAL INFORMATION

## MANAGEMENT STAFF AT RESTORATION FUELS

Matt Krumenauer, CEO

Wayne Lei, CTO

Brooke Jackson, Controller

Joe Koerner, Operations Manager

Brady Long, Production Superintendent

## LOCAL INVESTMENTS AS OF 12/31/2019

\$ 200K

Biomass purchases from local sources

\$ 15.4M

Equipment, engineering and construction for the torrefaction plant

