

Could **biomass** fuel the Boardman Power Plant?

Why is PGE looking at biomass for Boardman?

Portland General Electric is committed to meeting Oregon's growing energy needs in a reliable, cost-effective and increasingly sustainable way. As part of that focus, environmental specialists, researchers and engineers from PGE are studying a number of alternative renewable energy solutions aimed at reducing our environmental footprint. One promising option involves the potential to use biomass as an alternative fuel for the Boardman Power Plant.

If this re-use of Boardman's boiler and generating equipment proves to be practical, the Boardman Plant could become the largest biomass-fueled generating facility in the United States and the nation's largest single "baseload" renewable power plant. Baseload power generators can be counted on to produce power all day, every day. The output from most large-scale renewable energy facilities is highly variable, depending on wind conditions or sunlight.

Is the company ready to move forward?

It's important to remember this research is still preliminary, and any plan to use biomass to power Boardman will require entirely new environmental permits from the Department of Environmental Quality, retrofits to assure the facility would continue to comply with all applicable environmental standards, and the support of the Oregon Public Utility Commission.

Under OPUC resource planning guidelines, PGE is required to consider all available resources as it develops long-term strategies to meet customers' electricity needs, and the OPUC will play a key role in determining whether a biomass option is a good choice compared to other alternatives. PGE has also committed to work with a broad range of customer and stakeholder groups to develop and consider low-carbon resource options as part of our integrated resource planning process. Biomass at Boardman will be reviewed as one possibility in that process.

What issues need to be resolved?

In addition to regulatory requirements, there are a number of significant operational challenges that must be overcome before a Boardman biomass option can be seriously considered.

PGE will need as much as 8,000 tons of biomass for fuel every day the generator is operating. To assure it will be cost-effective and environmentally sustainable, we also need to evaluate the feasibility and impact of transporting fuel stock to the generating facility.

There are a variety of potential sources of biomass, so PGE is studying possible options with the help of the agricultural extension service from Oregon State University as well as researchers from Washington State University, Portland State University and the University of Washington. PGE is also collaborating with local growers and other organizations to see if suitable and sustainable supplies of fuel could be produced or procured on a long-term basis if PGE decides to move forward.



Who to contact

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What sources of biomass are being considered?

PGE is evaluating many possibilities. The importance of a reliable power supply for our customers means that we can't afford to put all of our eggs in one basket – we will need a mix of biomass sources, which could include dedicated energy crops as well as other materials that can be combined and processed to create a suitable fuel for Boardman. With the help of researchers at Washington State University, PGE has already lab-tested more than 28 potential fuel stocks and may conduct further testing.

As part of this effort, PGE has also worked with the OSU agricultural extension service and local growers to develop test plots of potential energy crops in the Boardman area. The company is working closely with the Oregon Department of Agriculture, the Oregon State Weed Board and Morrow and Umatilla County officials to ensure test acreage is closely monitored and a control plan is in place to limit the crop to cultivated fields in cases where invasiveness could be a concern.

In addition, PGE is researching ways to reduce the amount of biomass needed and make it a more efficient fuel than the raw pellets commonly used in domestic wood stoves and in co-firing power plants with other fuels. One technique is where biomass is “torrefied” – roasted in a process similar to that used to make charcoal. The end result is a dried, brittle material that could be pulverized and burned at Boardman with minimal changes to the existing facility.

What's the next step?

PGE plans to conduct a test burn at Boardman in 2015, using 100 percent torrefied biomass, to see how the material performs in the facility's boiler.

The company has worked with an outside vendor to install a prototype apparatus near the plant to torrefy biomass and is stockpiling material to be processed and used for fuel during the test burn.

PGE is supporting research into new technologies that may help expand the choices available to meet Oregonians' future energy needs. Biomass grown in a renewable, sustainable cycle is part of this effort. We also are pursuing smart grid technologies that can help improve energy efficiency and integrate variable renewable power sources into PGE's and the region's power systems.

We're doing this because we know there is no silver bullet when it comes to Oregon's energy future. A sustainable solution will require a diverse mix of resources with different strengths – a solution that could well include a renewably-powered Boardman Power Plant.



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