

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 of the most promising options involves the potential to use dedicated energy crops or other renewable biomass materials as an alternative fuel for the Boardman Power Plant.

If this conversion 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 the research on this is still preliminary, and any plan to convert Boardman to biomass will require 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 our 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. A biomass conversion for 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 conversion can be seriously considered.

PGE will need as much as 8,000 tons of biomass for fuel every day the generator is operating. To make it cost-effective and environmentally sustainable, we also need to limit how far we have to transport the material.

Existing sources of biomass in the Boardman area would not be enough, so PGE is working with agricultural extension services from Oregon State University, Washington State University and the University of Washington to see if local, suitable, fast-growing energy crops could be cultivated and be economically attractive to growers.



Who to contact

Project Information

Wendy Buck
503-464-7368

Media Inquiries

Steve Corson
503-464-8444

What sources of biomass are being considered?

One possibility is *Arundo donax*. A giant, fast-growing perennial grass that looks much like bamboo, *Arundo* is also used to make reeds for musical instruments. Research shows it could be valuable as a source of biomass for power generation and for use by the pulp and paper industry.

PGE is also 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 called torrefaction, where biomass is 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.

Together with the OSU agricultural extension service and local growers, PGE is developing test plots of *Arundo* in the Boardman area. Because *Arundo* can spread rapidly if allowed uncontrolled access to water, the company is working closely with the Oregon Department of Agriculture, the Oregon State Weed Board and Morrow and Umatilla County officials to ensure the test plots are closely monitored and a control plan is in place to limit the crop to cultivated fields.

Other forms of biomass, such as agricultural residue, are also being considered and could be mixed with *Arundo* to create torrefied biomass fuel for Boardman.

What's the next step?

PGE plans to conduct a test burn at Boardman in 2014, using 100 percent torrefied biomass, to see how the material performs in the plant's boiler.

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, use of algae to capture power plant carbon emissions, and the use of ocean waves to generate electricity.

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.



Find more information online:

PortlandGeneral.com