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Energy Independence Study for Oregon Wastewater Agencies

Eugene, Oregon, September 26, 2008 – The Oregon Association of Clean Water Agencies (ACWA) has issued a new report that shows how Oregon wastewater treatment plants (WWTPs) can become energy independent. The report, which points out steps plants can take to optimize energy efficiency and use renewable resources, was mostly funded by Energy Trust of Oregon.

“Energy costs are a large expense for municipal wastewater treatment plants,” says Janet Gillaspie, Executive Director of ACWA. “With energy costs expected to increase, this report is valuable because it demonstrates opportunities for Oregon wastewater utilities to install energy efficiency and renewable power options at their treatment plants, both lowering their costs and using green renewable power.

“The report shows that wastewater treatment plants are big green machines,” states Gillaspie. “Every wastewater treatment plant in Oregon can take this report to both improve their efficiency and to easily evaluate renewable power options. We’re very hopeful that this will reduce costs and provide greener power options for Oregon communities.”

Energy Trust provided \$50,000 of the \$65,000 study cost. Energy Trust is a nonprofit organization providing cash incentives toward investments in energy efficiency and clean, renewable resources for Oregon customers of Portland General Electric, Pacific Power, NW Natural and Cascade Natural Gas. To date, Energy Trust has provided incentives to 29 wastewater agencies for energy efficiency and renewable resource projects. These projects are saving their communities a combined \$1,700,000 per year in energy costs.

Important Role for Oregon WWTPs

“This study shows the important role that wastewater agencies can play in Oregon’s clean energy future,” says Margie Harris, Executive Director of Energy Trust. “We have supported

several successful projects with wastewater agencies across Oregon. This report shows us that the potential for these facilities is just now being recognized.”

“One of the most interesting aspects of the report is that it shows that many treatment plants can generate a substantial portion of their power needs by using methane gas to generate clean power,” Gillaspie notes. The report was prepared by Kennedy/Jenks Consultants and was written for wastewater treatment plant operators and managers, along with City and District policy makers, councils and commissions.

Information found in the report includes capital costs, the operational and environmental impacts of developing selected renewable resources, and the long-term benefits of implementing recommended energy efficiency measures.

Gresham and Corvallis Plants Analyzed

The report is based on an analysis of the Gresham WWTP and Corvallis Wastewater Reclamation Plant in Oregon, which served as demonstration facilities for the report.

“As a community, Corvallis is very committed to the principles of sustainability,” says Tom Penpraze, Utilities Manager for the City of Corvallis. “This report gives our Council and Public Works staff the information we need; it lets us know we have made the right investments in energy conservation at the wastewater treatment plant. And, with the information in the report, I’m also confident that the City is taking the right steps to move towards energy independence for our wastewater treatment plant by initiating projects to recover digester methane gas to generate power, and contracting with a vendor to install solar PV at the treatment plant.”

“Due to the foresight of our City Council, Gresham has seen success and cost savings by utilizing renewable resources at our wastewater treatment plant,” says Dave Rouse, Director of the Gresham Department of Environmental Services. “Overall, the plant’s energy use is 70% renewable, and Gresham’s goal is to provide service at the plant using 100% renewable energy sources.

“Gresham’s use of methane gas to generate clean power reduces the City’s annual electricity costs by \$240,000, which is an average of \$20,000 savings a month,” states Rouse. “The treatment plant also purchases 17% of its electricity from wind farms in Oregon through PGE’s Clean Wind Program. Future renewable resources under consideration for Gresham’s wastewater treatment plant include purchasing electricity from photo voltaic panels installed at the plant. We are also considering installation of a micro-hydro facility on the treatment plant outfall to produce electricity as treated clean effluent flows into the Columbia River.”

Report Reveals Renewable Resource Options

Energy audits were conducted at the two sites to review past energy audits at each plant and the energy efficiency measures (EEMs) that each had installed. The main focus of the report was to evaluate seven renewable resource options that WWTPs can use to attain energy independence:

- fuel cells using digester gas
- internal combustion engines using digester gas

- micro-turbines using digester gas
- micro-hydro using a treatment plant outfall to a river
- solar photovoltaic systems
- on-site small wind turbines
- use of fat-oil-and-grease (FOG) and green waste to increase digester gas production

Each option was evaluated for cost, environmental impacts, maturity and reliability of the technology, political and community impacts, adequate size, greenhouse gas impacts, and operational impacts. The Kennedy/Jenks team evaluated how each option could be applied to the two demonstration facilities and recommended specific steps each plant could take to achieve energy independence.

Gillaspie adds that the report also provides excellent opportunities for plants outside Oregon to use the information in evaluating their conservation and green power options. The ACWA Energy Independence Project Report is available for download at Oregon ACWA's website: www.oracwa.org.

Kennedy/Jenks Consultants has provided engineering and scientific solutions for public agencies and industries since 1919. The employee-owned firm has 24 offices serving clients nationwide in the water, transportation, federal, and industrial sectors, including offices in Eugene, Portland, Seattle, and Federal Way.

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