



The Chehalis River inundates the Lewis County community of Boistfort in December 2007.

Photos: Centralia Chronicle

Chehalis RIVER

PUD pursues small dams to reduce flooding, generate power

By Dean Boyer

Lewis County PUD is exploring whether two earthen dams in the upper reaches of the Chehalis River watershed could reduce the threat of flooding that has caused hundreds of millions of dollars in damage in recent years, while also providing a source of clean, renewable hydroelectric power.

A preliminary study by EES Consulting, released in February, found that a dam on the Chehalis River above Pe Ell and another on the South Fork of the Chehalis River above Boistfort would have prevented much of the \$500 million in property damage caused by record flooding in December 2007.

The dams, according to the study, also

would provide significant environmental benefits – reducing downstream scouring of fish habitat during heavy winter flows and allowing for additional in-stream flows, lowering temperatures and improving water quality, during the dry summer months. And by installing small hydropower generators at each of the dams, the PUD would be able to generate nearly 24,000 megawatt-hours



continued on page 4

of electricity annually, or enough to power 1,600 households.

“We’re looking at this very seriously,” said Lewis PUD General Manager Dave Muller. “Groups have been trying to decide what to do about flooding in the Chehalis River basin since 1931. Our preliminary study shows dams for flood reduction are economically viable.”

In February, the PUD presented its preliminary study to the Chehalis River Basin Flood Control Authority, which was formed in April 2008, after the devastating December 2007 flood. The Legislature last year provided the flood control authority – comprised of 11 municipal, county and state governmental entities – with \$2.5 million to study the problem.

The flood control authority recently approved spending \$250,000 for a more detailed geologic study by EES Consulting to determine the best locations for the proposed dams, and to consider what effect the dams would have on fish runs and water flows.

The preliminary study estimates the two dams, hydropower facilities and measures to limit the upstream impact on fish would cost \$336 million. But, it also concludes that there would be nearly \$2.24 in benefits for every \$1 of cost. “Under all scenarios, the potential flood retention facilities offer more benefit than they cost to build and operate,” according to the study.

The Chehalis River originates in western Lewis County, flows east as far as Centralia, then loops back to the north and west until it empties into Grays Harbor. The Chehalis River basin is the second largest basin in Washington state, second only to the Columbia River, draining an area of nearly



Flood waters turn Chehalis Wal-Mart and Home Depot parking lots into islands. I-5 is in the upper left.

2,700 square miles.

Flooding is a frequent occurrence in the lowlands around Chehalis and Centralia, and downstream in Thurston and Grays Harbor counties. The study documents accounts of flooding dating back to the 1930s, with major floods approximately every 10 years. More recently, significant flooding occurred in 1990, 1996, 2007, and again earlier this year, causing extensive

damage to private property, public buildings, roads and bridges.

Although there have been numerous ideas floated to reduce the impact of flooding along the Chehalis, most of those have focused on protecting Interstate 5, which has been inundated at times by as much as 10 feet of water. A 20-mile stretch of the interstate was closed by flooding for three days this January, forcing vehicles trying to get between Seattle and Portland, Ore., on a 440-mile detour.

The dams proposed by the PUD would not entirely eliminate the threat to I-5, but the PUD’s Dave Muller said they would complement a system of levees the Army Corps of Engineers proposed in 2003 to protect the highway. The state Department of Transportation has also looked at raising stretches of I-5.

The initial EES

study found the two dams would have lowered flood waters at the Mellen Street Bridge in Centralia by nearly four feet – reducing the December 2007 flood stage from major to moderate.

The study looked at building a 220-foot dam on the Upper Chehalis, creating a 1,600-acre reservoir able to hold about 226,000 acre-feet of water. The reservoir would be maintained at a maximum of 140,000 acre-feet from November through March, leaving room to capture 80,000 acre-feet of water in a flood. Two small turbine generators would be added – one rated at 6.8 megawatts, the other at 1.2. Both generators would operate during high-water months; only the smaller generator would operate during the summer.

A smaller dam would be built on the South Fork of the Chehalis River, creating a 600-acre reservoir with a capacity of 40,000 acre-feet. Half of that would be held in

A preliminary study by EES Consulting, released in February, found that a dam on the Chehalis River above Pe Ell and another on the South Fork of the Chehalis River above Boistfort would have prevented much of the \$500 million in property damage caused by record flooding in December 2007.



reserve for flood control during the winter months. Again, the study projects installing two small turbine generators, one rated at 1 MW and one at 200 kilowatts. Only the smaller generator would operate during the summer.

The combined annual output at the two facilities would be about 24,000 megawatt-hours of electricity. Lewis PUD believes the power should count toward Lewis PUD's obligation to use renewable energy resources under the voter-approved Initiative 937. Lewis PUD also owns and operates the 70-megawatt Cowlitz Falls Hydroelectric Project that annually produces about 260,000 megawatt-hours of electricity.

Muller said Lewis PUD spent about \$80,000 to develop the preliminary study and has taken the project as far as it could by itself.

"We obviously have a whole lot of questions that still need to be answered," Muller said. "We're not asking anyone to commit to building flood retention facilities, only to give the idea further consideration. Our preliminary study shows the idea has merit, now we need to see how realistic it is."

The PUD proposal is also being supported by One Voice, a grassroots group formed after the 2007 flooding.



Flood waters isolate the town of Galvin, four miles northwest of Centralia.

Dr. John Henricksen, a local dentist who is chairing the One Voice group, says the Corps of Engineers' proposed levee project alone will not provide adequate relief from catastrophic flood damage. One Voice is promoting a combination of the water retention dams and levees as the most ideal

approach with the highest level of flood protection for the entire basin.

"If you control the flow of the river, you control the level of the flood," Henricksen said at a public meeting on the PUD's proposal. ☐


Don't Miss This Unparalleled Annual Event!

REGISTER ONLINE TODAY



Presented by:



5th Annual  **powerUP!**
Electrifying Transportation

**MAY 27-28
2009
SUMMIT**

Wenatchee Convention Center • Wenatchee, WA

Early Bird: \$175

After April 22: \$225

The Premier Northwest Summit on Converging Technologies to Electrify Vehicles

Featuring an aggressive conference schedule packed with cutting-edge information presented by top industry leaders.

*Charging stations • Grid interaction • Pilot projects & practical application
Industry jobs & training opportunities • Local, state & federal policy
Connecting business with technology • Vehicle displays & exhibits*

www.PluginCenter.com