



Oregon Water Resources Congress

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OREGON WATER RESOURCES CONGRESS
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I am Anita Winkler, Executive Director, Oregon Water Resources Congress (OWRC). This testimony is submitted to the United States House of Representatives Committee on Natural Resources, Subcommittee on Water and Power, for the oversight hearing “Investment in Small Hydropower: Prospects of Expanding Low-Impact and Affordable Hydropower Generation in the West.”

The Oregon Water Resources Congress (OWRC) represents irrigation districts, water control districts, and other local government water suppliers throughout the State of Oregon. OWRC members operate and maintain water supply systems that include reservoirs, canals, pipelines, and hydropower generation facilities and deliver water to 536,784 acres of land, 1/3 of all irrigated land in Oregon. This irrigated land yields a bounty of agricultural goods that are shipped around the world, including cherries, apples, pears, watermelon, onions, potatoes, hazelnuts, wheat, grass seed and other seed crops, nursery crops and other crops.

Irrigation districts in Oregon have a long history of utilizing the power of falling water to generate hydroelectricity. Irrigation districts have not only managed and operated Bureau of Reclamation constructed hydroelectricity projects, but have themselves constructed and operated facilities since the mid-1980s. This testimony reflects OWRC member districts’ experience and familiarity constructing and operating low-impact hydropower generation facilities.

Potential

The potential for expanding low-impact hydropower in Oregon is not only high but is also very real and practical. In 2009, there were 4 Oregon irrigation districts owning and operating 8 hydroelectric facilities all constructed in the mid to late 1980s. The cumulative nameplate capacity was 25.0 megawatts with average annual generation of 125 million kilowatt hours – enough energy for 12,500 homes. While this may not strike committee members as an overly impressive number upfront, each facility has displaced thousands of tons of carbon benefitting the environment and has provided economic return to farmers thereby reducing irrigation costs to several thousand farmers every year. The cumulative benefit from even a small amount of hydroelectric generation becomes even more impressive over the life span of these projects. Even one project makes a big difference. It should be mentioned that 5 of the 8 projects have already received or have applied for certification from the Low Impact Hydropower Institute (LIHI). This is a nationally recognized independent organization that evaluates and certifies hydropower projects as having minimal impact to the environment.

Familiarity with hydropower along with the recognized and realized economic and environmental benefits accumulated over the past few decades provides our irrigation districts with the expertise and perspective to adequately identify and evaluate hydro potential. While the existing projects were constructed in the “conventional” manner on dams or as run-of-the-river projects it is increasingly apparent that the majority of new potential projects are to be found within the man-made canal ways carrying the irrigation water. In 2010, two new hydro projects began construction in existing irrigation canals and will be on line before the end of 2010. These two facilities have a combined nameplate capacity of 5.75 megawatts and will provide an additional 2,300 homes with renewable carbon free energy. These were the first new hydroelectric plants built in the State of Oregon since 1993.

A recent study of additional hydroelectric potential within irrigation district canals was sponsored by The Energy Trust of Oregon and identified over 29 new projects and 20 megawatts of generating capacity. This potential does not include adding capacity or upgrading existing hydroelectric projects. It must be mentioned that this study was conducted under the conditions of using traditional hydro turbine technology, and did not consider the additional potential of utilizing the newer low head hydro technology. Based on the field work of this study and with irrigation district evaluation it is believed that low head hydro’s potential is equal if not exceeding the 20 megawatts mentioned above.

Advantages

Utilizing man-made irrigation canals for hydroelectric production from either conventional turbine or low head technology carries several advantages specific to defining low impact and affordability.

Environmental

The State of Oregon provides strict environmental assurances with all hydroelectric projects prior to approval. Hydro projects in canals require the water diversion to have certified fish screens thereby protecting aquatic species from entering the canals and subsequently turbines. In addition, Oregon statutes dictate that an already existing irrigation water right can not be expanded for hydroelectric production and any water diverted that generates the hydroelectricity must be for irrigation purposes.

The most recent low-impact hydropower projects in Oregon are built in irrigation canals or pipelines utilizing water already begin diverting for irrigation. There is no new water diversion and thus no negative impact on streamflow, water quality or aquatic species and habitat from these projects. In essence, these projects simply use the water already being diverted twice: first to generate renewable energy and then to irrigate land.

An additional benefit that accompanies these hydroelectric projects is that piping canals reduces water loss through seepage and reduces waste of the resource. Under Oregon laws, this reduced water loss can be captured as conserved water and transferred permanently to instream use for river flow restoration and water quality

enhancement. The two projects constructed in 2010 both received Clean Water State Revolving Fund ARRA Grant and Loan funding through the Environmental Protection Agency and the Oregon Department of Environmental Quality because of the instream restoration water flows that accompanied the projects' construction.

Regulatory

FERC regulations allow for two exemptions to the full licensing regime – the conduit and the small hydropower exemptions. Use of the FERC exemption track saves the project owner and FERC considerable amounts of resources, money and time. While a full licensing process may take several years before a FERC order is issued for a hydroelectric project, it is common for an exemption track project to receive its FERC order in 12 months or less with the conduit exemption usually taking less than 9 months on average.

The exemption process does not short circuit any environmental protections while at the same time speeding the project to generation much sooner than would otherwise happen under the full licensing requirements. The beneficial impact to project predictability, financing, and stability cannot be underestimated.

Financial Incentives

Oregon's renewable energy initiative provides a state funded incentive program called the Business Energy Tax Credit (BETC). Any qualifying renewable energy project, including hydroelectric, is eligible for state income tax credits based on the combination of power production and project costs. These tax credits are only issued after the project is completed and generating the proven amounts of energy as stated in the application for the BETC.

A unique aspect of the BETC program is provision of a "pass-through" provision for public entities such as irrigation districts under which the tax credits are purchased by entities that pay state taxes and a pro-rated amount of the purchase funds are "passed" through to the public entity to assist in paying for the project. Many renewable energy projects would not be viable without the BETC program, including low-impact hydro, and is considered a cornerstone incentive for entities considering building a low-impact hydro generation facility. It must be mentioned that there are no similar "pass-through" provisions for any of the federal incentives for renewable energy projects, which is a significant barrier for districts and other public entities.

Project and Process Barriers

Utility Interconnection

The most unpredictable factor in establishing hydroelectric or other renewable energy projects is with the interconnection to a utility. Each state has its own regulations, all interpreted differently from federal guidelines. The "friendliness" of utilities to purchase or connect to someone else's project varies greatly across states and within states. An opportunity to address this problem could possibly come from the national standards being developed for the electrical grid upgrades on reliability. It is a key issue for success of non-utility owned renewable projects.

It is very difficult to get a firm cost estimate of the interconnection as utilities require payments for studies to be conducted on a potential project that are not always definitive enough to prepare a solid cost estimate for a project owner. While reasonable assumptions can be made on the costs the utilities only give estimates and you only know the final numbers after construction is complete.

Pricing

The price at which renewable electricity can be sold to a utility is probably the single most influential factor around which all other components of success for renewable energy projects revolve. The price must be reasonable and predictable otherwise there is too much risk to the project owner whether the owner is a private or public entity. In addition, if the price offered is solely based on equivalent carbon based generation then renewable energy projects will not be built as there is a cost disadvantage compared to carbon based generation.

Standardized process and required filings by utilities are required in Oregon and this greatly assists the predictability issue. The Oregon Public Utility Commission (OPUC) provides a regulatory structure that provides for an “off the shelf” pricing for renewable energy projects in the 15 to 20 year time horizon most projects need. In this manner, a prospective project developer can use the available pricing straight from the OPUC website. This process does not however address the cost disadvantage to carbon based generation. That is a function of the available incentives, both state and federal if eligible, or with the developing market for Renewable Energy Credits addressed below.

Renewable Portfolio Standards for Carbon Free Electricity Generation

A developing but still maturing component of incentives available to utilities and to non-utility owners of renewable energy projects is with the growing number of states implementing Renewable Portfolio Standards (RPS) for electricity generation. With federal legislation still being considered and not implemented that addresses carbon free electricity generation standards there will be segmented and partial markets for Renewable Energy Credits (RECs) causing pricing to be sporadic and unpredictable and cannot be relied upon for providing any financial incentive to a project's financing. There are some states that have predictable and strong market participation but it is not useful for a project in a state that does not have that market developed. Development of a national RPS of 25% would help standardize the market and provide better incentives for renewable energy development.

Reliability and Predictability of Hydropower

In comparison to wind power and solar power, hydropower is a more reliable and predictable source of power. While both wind and solar are viable energy sources, they suffer from predictability problems because sun and wind are not always available to generate power. Hydropower, on the other hand, relies on a source that is not dependent on such variables and yields similar environmental and economic benefits. The districts' low-impact hydro projects use water that is flowing during the irrigation season which is clearly defined in the irrigation water rights that underlie the hydropower rights. Utilities can depend on the power generated from these systems.

Low-impact hydropower is a beneficial and highly predictable renewable energy source and as such should be considered baseline supply as opposed to wind and solar power.

Conclusion

Development of a hydroelectric project is still a very risky proposition due primarily to what state your potential project is in, the pricing structure provided and what if any incentives are available on the state or federal level. It is extremely complex and requires an undue amount of consultants and engineers to perform a deep enough evaluation of a project which requires significant upfront costs to determine even if a potential project is feasible. Further development of renewable energy incentives is needed in order to realize the vast potential of low-impact hydropower projects and the numerous public benefits they provide.

Thank you for your consideration.

Sincerely,

A handwritten signature in cursive script that reads "Anita Winkler".

Anita Winkler
Executive Director