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Hydropower and Washington's Renewable Energy Goals

What's the bottom line here?

Constituent-based initiative (I-937) originally sought to diversify our state's energy portfolio by developing new renewable energy resources that would produce new and sustainable energy, jobs, industries, research, science, investment, and economy here in Washington State. (*See* RCW19.285.020 – Declaration of Policy.)

While power from efficiency upgrades at existing dams was included in this initiative, power from harmful new dams was not. Now however, the industry is trying to get lawmakers to give them what the citizens of Washington would not. Currently there are no less than eight State House and Senate bills adding new dams with a capacity rating of under 5 MW, under 30 MW, or under 50 MW, as well as bills that would allow all existing and new dams (of any size and capacity) to receive renewable energy credits in the future.¹

RCW 19.285.010 Intent.

“This chapter concerns requirements for new energy resources. This chapter requires large utilities to obtain fifteen percent of their electricity from new renewable resources such as solar and wind by 2020 and undertake cost-effective energy conservation.”

RCW 19.285.020 - Declaration of policy.

“Increasing energy conservation and the use of appropriately sited renewable energy facilities builds on the strong foundation of low-cost renewable hydroelectric generation in Washington State and will promote energy independence in the state and the Pacific Northwest region. Making the most of our plentiful local resources will stabilize electricity prices for Washington residents, provide economic benefits for Washington counties and farmers, create high-quality jobs in Washington, provide opportunities for training apprentice workers in the renewable energy field, protect clean air and water, and position Washington state as a national leader in clean energy technologies.”

What is at risk?

Most sites for large dams have already been developed in Washington. However, a 2007 State Resource Assessment Report by Idaho National Laboratories² has identified more than 500 potential sites for low-power hydropower dams in the Cascades and other areas of the state. More than 20 sites on rivers and streams in the Nooksack, Skagit, Skykomish and other watersheds have been proposed as potential high priority projects. As a mature 20th century technology, the impact of dams on rivers has been devastating and well documented (visit www.dameffects.org). Dams, no matter how large or small, disrupt flows, degrade water quality, block the movement of a river's vital nutrients and sediment, destroy fish and wildlife habitat, impede migration of fish and other aquatic species, and eliminate recreational opportunities. Many of these projects were never previously developed due to marginal economics, low power potential, and the high impact on the health of Washington's outstanding rivers and important natural resources.

Most of the proposed new legislation would provide renewable energy credits for many of these marginal projects. A number of low power projects like Condit Dam on the White Salmon and the Elwha River dams are scheduled for removal because of their high environmental costs relative to their benefits. Legislation being proposed would provide incentives to keep these outdated and inefficient projects in place and build more like them.

Why should I-937 continue to exclude existing and new hydropower dams?

Hydropower is recognized as renewable in I-937 and certain efficiency upgrades qualify towards meeting the renewable standard. New dams and hydropower should be excluded because they 1. Do not help us diversify our energy sources, 2. Diminish the goals of the original legislation, and 3. Create huge harm for river systems. Washington already receives more than 66% of its electricity from hydropower,³ and including this existing power as a new energy source would allow the State to easily meet its standards without the need for any new innovation or technologies. The prospect for new dams to effectively produce power is limited by geography, and in Washington, the most viable sites have already been developed. This means that new hydropower will be limited to small waterways that can produce little power, often for just weeks or months each year. For instance, more than 323 of the 500 potential new dam sites identified are less than 5 MW. If we build all 323 new dams, we could produce a total of approximately 680 MW or 260 aMW (average MW). This is comparable to the generation from just one or two wind projects only with a much larger and more destructive footprint.

Are there options for new hydropower?

Yes, hydropower will remain a part of our nation's low-emission energy supply. The original legislation allows Washington to capitalize on its existing infrastructure and past investment by improving efficiency (more power from the same water) at 93 existing hydropower projects,⁴ and on irrigation pipes and canals. There are opportunities to explore increased hydroelectric development at existing dams that serve other important functions, but do not currently generate electricity, such as federal flood control projects,⁵ or through exploration of new technologies that harness energy from waves or directly from the flow of water in ocean currents and tides.⁶ We believe that before looking to build costly and damaging new dams we should maximize our existing hydropower capacity by increasing efficiency at existing projects, and if environmentally responsible, by adding hydropower to existing dams that currently do not generate electricity. Of course, adding such projects to I-937 must be balanced by a commensurate increase in the renewable standard to ensure the Initiative's goal of resource diversity is being met. We support the inclusion of such projects in an RPS.⁷

Isn't hydropower needed to balance wind and solar energy transmissions?

While existing hydropower infrastructure is useful in this regard, building new low power projects will not help us to firm up other renewables. Most candidates for new projects involve small streams with intermittent flows and little to no storage capacity. Power production at these sites would be greatest in the spring when flows are highest and when regional power rates are at their lowest due to the overabundance of hydropower on the grid. In fact this past spring power prices were negative and producers had to pay to place power on the grid. Small so-called "run of river" projects would only exacerbate this problem.

How will new dams operate and impact resources in a changing climate?

One of the first places the lives of ordinary Americans are being directly and unambiguously affected by the reality of climate change is in our supply and use of water.⁸ The predicted impacts of climate change are remarkably similar to the impacts that dams have already had on the Northwest's rivers. Building new dams would only aggravate these impacts associated with climate change:

- Reduced species resiliency resulting from disturbed habitats and altered quantity, quality and timing of stream flow
- Changes to water temperature
- Impacts to fish migration, particularly important to allow upstream migration to cooler, higher elevation habitats

Who opposes expanding the role of hydropower in the state Renewable Portfolio Standard?

Allowing power produced from new dams, diversions or impoundments on our state's waterways to qualify as renewable energy under the Washington State RPS is opposed by more than 150 environmental and recreational members of the Hydropower Reform Coalition nationally (more than 35 organizations in Washington), as well as a number of renewable energy, wilderness, fishery, and other conservation organizations. It is time to diversify to new renewable technology and challenge our elected officials to look beyond the old technology of the past. We should not put our state's investments in watershed protection in jeopardy through careless incentives for hydropower from new dams, diversions or impoundments.

For additional information, please visit www.Hydroreform.org

¹ House Bill, 1133, 1163, 1294, and 1811 and Senate Bills 5505, 5137, 5345, and 5840 all include some form of hydropower, and additional bills are expected to be introduced next week.

² <http://hydropower.inel.gov/resourceassessment/pdfs/states/wa.pdf>

³ <http://www.cted.wa.gov/site/539/default.aspx>

⁴ <http://www.ecy.wa.gov/pubs/0611023.pdf>

⁵ For example, the 2007 State Resource Assessment Report by Idaho National Laboratories lists 249 existing dams in Washington that do not produce power (such as storage and flood control dams) or where the total hydropower potential has not yet been fully developed.

⁶ The Federal Energy Regulatory Commission (in its April 14, 2008 FAQ on licensing hydrokinetic projects) and the Electric Power Research Institute (Assessment of Waterpower Potential and Development Needs) state that new hydrokinetic technologies, if fully developed, may potentially double the amount of hydropower production in the United States.

⁷ Draft language for a Federal RPS includes the following: a. The dam was built before the passage of the Renewable Portfolio Standard/Production Tax Credit law and is used for flood control, water supply, or navigation (HR 5351 passed the House on February 27, 2008). b. There are no changes in flow associated with the hydropower project (defined in the language as "water surface elevation") relative to existing flows. In other words, no peaking or bypass operations.

⁸ CCSP, 2008: The effects of climate change on agriculture, land resources, water resources, and biodiversity. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research. U.S. Environmental Protection Agency, Washington, DC., USA, 362 pp