A water supply and funding investigation that can be blended synergistically with the work of the Integrated Water Resource Management Workgroup

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Several years ago, the late, great, John Keyes told me that The Yakima River Basin had "done it all" except for storage. He was referring to the incremental improvements for fish and wildlife, conservation, water management, water quality, and environmental restoration as the decades have gone by under Title 12, with millions of dollars invested.

More recently, I heard the Secretary of the Interior, echoed by the Secretaries of Energy and Commerce, saying words like " No more federal mega-projects, but we are eager to be part of new partnerships, including public-private investments with new environmentally-sound ideas and shared costs."

How do these voices from far away impact the concept I want to share with the Workgroup today? They seem to fit the opportunity that is "blowing" our way, and we would be turning our backs on reality if we did not want to build on it. This is not to undermine the workgroup plan that we are advancing, but to potentially augment it, and bring us closer to actually getting something done when we need partners with money and ideas that save energy. In addition to my passion for finding water for the future of the Yakima Basin, I serve as Chair of the Executive Board of Energy Northwest, producing enough carbon-free energy from nuclear, solar, hydro and wind to keep the lights on and the factories running in all of Seattle. What I say here is the result of a lot of years and miles, and meetings.

What we are presenting today is a concept based on communication with a lot of people and actions that have recently been taken by BPA in dealing with efforts to balance the power generated by northwest sources with market opportunities. This balance has changed dramatically from when the BOR and BPA made a measurement of pumped storage about 4 years ago, and failing to act has a potential cost to regional utilities in the tens of millions of dollars.

What follows is a more scholarly description of the "Columbia Renewable Energy Storage Project" as envisioned in early March of 2011, with exploration and organization by Jim Waldo, an experienced water attorney known to many of us in the Yakima and Columbia Basins.

Sid Morrison

The Columbia Renewable Energy Storage Project ("CRESP") is an energy storage project, currently in the conceptual phase, designed to help reliably integrate the region's rapidly growing wind generation fleet into the region's power grid. Because recent changes in the energy markets have placed a premium on energy storage, we believe CRESP can be leveraged to help address water storage and fisheries issues in the Yakima Basin.

* As an initial concept, the project would draw water during periods of high flows and low power market prices from the pool of the Priest Rapids Project into a pumped storage reservoir (or reservoirs) at higher elevations, with the stored water returned to the Priest Rapids Pool through generators when prices are high.
* The primary function is to store electricity during periods when generation from intermittent renewable resources or from the Columbia River dams is surplus to system needs (including environmental) or market demands.
* Secondary functions, if the primary function proves operationally and economically feasible, are to store water from the Columbia River to help meet agricultural, fisheries, and municipal objectives in the Yakima River Basin.
* CRESP is different from the Black Rock project both conceptually and in terms of proposed project configuration. However, CRESP builds on certain analytical work already done for the Black Rock project which will help reduce the costs of the planning level analysis of CRESP that is now needed.

Initial high-level reconnaissance suggests the CRESP concept may be economically viable in view of recent rapid growth of the wind energy fleet in the Columbia Basin and the challenges facing system operators in integrating that growth while accommodating fisheries needs at the Columbia River dams.

* For example, during the June 2010 "high wind/high flow" event, Bonneville was forced to give away power for free. As the BPA has recently observed, there is a reasonable chance of the events of June 2010 recurring over a six to eight week period this spring, and if it occurs, "the cost will be in the tens of millions of dollars," with costs continuing to grow in the future as the Pacific Northwest's wind generation capacity continues to expand.
* In the future, it is likely that power will be available at very low prices during the spring high-flow periods, creating an opportunity for CRESP to economically remove water from the Columbia during the spring freshet and return it later in the year when power prices are high and river flows are low.
* CRESP offers a number of additional potential benefits, including removing water from the Columbia during high spring flows and returning it later in the year when it is needed to meet fish conservation obligations under the Vernita Bar Agreement.
* Offering a means to manage transmission congestion in the mid-Columbia region, thereby enhancing the the value of existing transmission assets and possibly avoiding the need for difficult and expensive additions to transmission.
* Offering a means to maximize the value of the region's wind generation fleet. During last June's high wind/high flow event, BPA required wind generators to curtail production, resulting in the loss of tax credits and renewable energy credits that are tied to the volume of wind production. BPA estimates that future events alone could cost wind producers alone more than $50 million. CRESP offers a means of storing energy when it cannot otherwise be used and releasing it when it is needed, rather than forcing generators to stop producing at times when wind and water are abundant and demand is not, and thereby preserves the value of wind generation.
* Potential "customers" of energy storage services include wind generation operators, public utility districts, investor owned utilities, BPA, and others in the utility industry.

These favorable initial results point to the need for a more authoritative engineering/economic analysis at the planning and scoping level, with multiple objectives:

*Engineering/economic analysis of the costs and benefits of the energy storage concept, taking into account recent trends in the regional energy market and environmental needs, and examining alternative sites in the region.

*For storage sites and designs that "pan out" technically and economically from an energy storage standpoint, evaluate the costs and benefits of adapting them to support regional fisheries and agricultural objectives while taking advantage of revenues from energy storage operations to help defray the costs of adapting and operating the system to serve these additional functions.

The CRESP investigation would complement the efforts of the Workgroup by potentially making additional water available in the lower Yakima Basin, and increasing the flexibility of flows in the entire Yakima River system. It is an independent effort, operating on its own timeline. It holds the potential to be self-funding, reducing the taxpayer burden by accessing private capital while working synergistically with the water and fisheries solutions currently being developed by the Workgroup.

We expect more details from Jim Waldo as the investigation continues.