

5/04/2012



Some Dam – Hydro News™ And Other Stuff



Quote of Note: *"If you can't explain it simply, you don't understand it well enough."* – Albert Einstein

"Good wine is a necessity of life." - -Thomas Jefferson

Ron's wine pick of the week: Penfolds Bin 28 Shiraz 2008

"No nation was ever drunk when wine was cheap." - - Thomas Jefferson

Other Stuff:

(OK, now what do you suppose the climate change folks will say about these two articles?)

Wind farms make climate change WORSE: Turbines actually heat up local areas

Air temperatures around four of the world's largest wind farms have increased

By Rosie Taylor, PUBLISHED 30 April 2012

Read more: <http://www.dailymail.co.uk/sciencetech/article-2137170/Wind-farms-link-rising-temperatures-detrimental-impact-wildlife-weather-say-scientists.html#ixzz1tWoOkHNj>

(Although, this could be a good thing)

Wind turbine creates water from thin air

By Eoghan Macguire, for CNN, April 30, 2012

http://edition.cnn.com/2012/04/29/world/eole-water-turbine/index.html?hpt=hp_c3

(Excerpts-

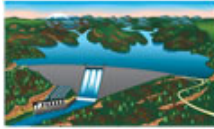
(Hey, how about the fact that the hydro is way cheaper?)

BPA orders NW wind farms to curtail production

By Steven Dubois, April 30, 2012, businessweek.com

Portland, Ore. - The Bonneville Power Administration twice ordered Pacific Northwest wind farms to cut production in recent days because it has a surplus of power from hydroelectric dams.

<http://www.businessweek.com/ap/2012-04/D9UFJ8O02.htm>



Dams:

(If people were not so irresponsible and if they would dispose of their junk the right way, this would not be a problem!)

Inspections hindered by underwater junkyard at Gavins Point Dam

By Jerry Oster, WNAX, Yankton, nebraskaradionetwork.com, April 23, 2012

Scuba divers are taking a closer look at the spillway area at Gavins Point Dam, near Yankton, South Dakota. The dam was a focal point of last year's historic flooding along the Missouri River that inundated western Iowa and eastern Nebraska. That dam released more than 160,000 cubic feet of water per second for several weeks last summer as the U.S. Army Corps of Engineers dealt with record rain and runoff. Dave Becker, operations manager at the dam, says some clean-up is needed before they can finish inspections. "They got 80 to 90% of the spillway inspected but they determined there's a lot of debris in the spillway that needs to be removed," Becker says, "sunken water-logged logs, metal frames to things, old boat docks, things like that." Becker says the design of the dam makes it more difficult to look at all the wear and tear.



"One of the challenges at our spillway here is, it's always underwater," he says. "We can't do inspections in the dry all the time. There's in the order of 350 drains on the spillway and we're determining what level they'll be inspected at." Becker says the dam operated as it was designed to during last year's flooding and he says there are no concerns about the structure being unsound. "We've had some drains that have gotten washed away during the flood," he says. "We've had new drains built to replace those. We've seen no issues with the concrete. We are concerned somewhat about the gravel, or the frost blanket, down below the concrete so that's why they want to do the ground-penetrating radar to determine the condition of that." Becker says they hope to get much of the work started in the next two weeks. He says a barge and crane will be needed to clean out much of the heavy debris below the dam.

(Sometimes, fixing a dam is not easy)

Dam fixes questioned

Matt Martz and Cathy Perfect/Kern Valley Sun, kvsun.com, April 25, 2012

For two consecutive nights last week, crowds of more than 100 valley residents crammed into the Odd Fellows Hall in Kernville and the Senior Center in Lake Isabella to voice their concerns and thoughts relating to the plans the U.S. Army Corps of Engineers has laid out to fix numerous problems plaguing Isabella Lake's two deteriorating dams. A smaller crowd of 30 to 40 Bakersfield residents occupied the Kern County Board of Supervisors chambers the following night



for the last of three public hearings that were organized by the Corps and the U.S. Forest Service in an attempt to solicit public comments from area residents and interested agencies on the Isabella Lake Dam Safety Modification (DSM) Project, and the Draft Environmental Impact Statement (EIS) that identifies, evaluates and documents the environmental effects connected to proposed fixes to the lake's main and auxiliary dams. Many Kern Valley residents were left reeling by the magnitude of the impact the implementation of this large and complex remediation project would have in the valley and its struggling economy. "The one overriding impression I came away with (from the meetings), is that there is an alarming disconnect between the Corps and the local community," posted Eva Hollmann on the Sun blog. "Not only are they lacking basic facts about the valley and its economic necessities, it seems like our concerns are not terribly high on their list of priorities. I believe we, the Kern River Valley residents, need to immediately establish an advisory body to make our concerns heard!"

But Mitch Stewart, the lead environmental planner for the Dam Safety Modification Project, told attendees that doing nothing could have serious implications. There is an array of remediation alternatives the corps has deemed necessary to address the seepage, seismic and overtopping issues that have increased the risk of dam failure and extensive downstream flooding that would significantly impact Lake Isabella and Bakersfield should there be substantial earthquake or sizeable storm. Those alternatives include raising the height of the dams' crest by four feet and adding a new 290-foot emergency spillway, to more extensive strategies that would raise the ridge of the dams by 16 feet, add a 100-foot buttress, and require a 900-foot spillway. "We intend to keep Lake Isabella a beautiful place to enjoy a visit," he said, "but keeping Bakersfield safe from flood is a primary concern." "The biggest concern I have tonight is the statement that there weren't going to be any problems in lowering the lake any further," said David Jones, Pollution Control Officer from the Eastern Kern Air Pollution Control. "If the lake is lowered further, you're exposing stuff that is going to be very silty, and it is a concern that needs to be addressed." James Smith, the owner of Smith Engineering in Oildale, was among the four attendees who commented. "You've got a lot of good ideas and you've got some bad ones too," he said. "Where you have located the new auxiliary spillway is right over a fault line and you're talking about going in there to blast this. That could set the fault off," he said. The draft Environmental Impact Statement is available for review on the Corps of Engineers website at www.spk.usace.army.mil until May 22.

Sneak peek: Progress at the Folsom Dam spillway

Sacramento Business Journal, bizjournals.com, April 27, 2012

Construction is well under way for the \$962 million Folsom Dam Auxiliary Spillway, a project designed to help the Sacramento region achieve a 200-year level of flood protection. Folsom Dam, which regulates flows of the American River, is a key feature of the Central Valley Project, a system of dams, reservoirs, canals and power plants that provides hydroelectricity, drinking water and water for irrigation and other uses. The dam is made up of a main concrete gravity dam that stands 340 feet high and 1,400 feet long, and 11 earthen impoundments that were built in a series of low spots around Folsom Lake. They include two earthen wing dams that flank the main dam, eight dikes and Mormon Island Auxiliary Dam.



Safety upgrades began at the dam in 2007. The modern upgrades — part of the U.S. Bureau of Reclamation's Infrastructure Reliability and Safety of Dams improvements — are meant to ensure that the dam and reservoir can provide increased flood protection for Sacramento County residents living downstream of the dam. Originally authorized in 1944 as a 355,000 acre-feet

flood control facility, Folsom Dam was reauthorized in 1949 for about 1 million acre-feet in storage capacity. One acre-foot is enough water to cover an acre of land in a foot of water. Since then, it has been determined that the biggest storm that could occur — the “probable maximum flood event” — could bring about three times the amount of water that Folsom Lake can hold today. The spillway under construction will allow more water to be released faster in case of a major storm. As a result, more water can be stored in the reservoir. A later phase of construction will raise the height of the dam itself. The project represents a partnership among the Bureau of Reclamation, U.S. Army Corps of Engineers, California Department of Water Resources and the Sacramento Area Flood Control Agency. It is expected to be completed in 2015.



Hydro:

(At these prices we won't see many tidal projects built, but it is a start!)

Tidal Project to Hit Maine's Shores by Mid-Summer

Bill Opalka | Apr 22, 2012, energybiz.com

The first grid-connected tidal energy project in the U.S. is under construction and should be generating power by mid-summer. A single, maximum design-capacity device rated at 180-kW developed by Ocean Renewable Power Co. is being assembled and readied for installation at the company's Cobscook Bay project site in far eastern Maine. “We’re now at a point where our TidGen Power System is ready for its first commercial installation,” Chris Sauer, ORPC’s President and CEO. The project received a license to operate for eight years and connect to the grid from the Federal Energy Regulatory Commission in late February and assembly began immediately. The project has received a \$10 million grant from the Department of Energy. “We will have the TidGen power system installed at our Cobscook Bay site by mid-summer,” Sauer said.



ORPC will conduct environmental monitoring of the system at the 60-acre site for several weeks and study the electronic systems before the TidGen turbine generator unit (TGU) is interconnected with the grid. The TGU, that resembles a paddlewheel, will be anchored to the sea bottom, 100 feet below the surface. The local utility, Bangor Hydro-Electric Co. is scheduled to connect the project to the grid in July and have synchronization completed in August. The only visible part of the project will be the end of a 3,700-foot-long cable that is connected to an onshore substation. Plans are to add four more TidGen devices at the project site in 2013 for a total generation capacity of 300 kW. “The marine environment is very interesting,” Sauer said. “It’s tough being under high pressure and in salt water.” But there aren’t sudden swings in current speed, and while storms can create horrific conditions on the surface, there is minimal impact in the depths. ORPC has been around the technology for a time, as the company was founded in 2004. A prototype of ORPC's TGU was tested in 2008 and a second commercial-size 60-kW device was successfully deployed and tested in 2010. It was the largest tidal energy device ever deployed in the U.S., Sauer said, and it exceeded expectations enough to provide the go-ahead for the current project. With that said, he expects installed costs for the system to approach \$8,000 per kW in 2016 or 2017, and longer-term, prices could drop to about \$4,000 per kW by 2020. The company's Cobscook Bay project is only the beginning, Sauer says. The area around Eastport and Lubec Maine, has a 10-MW potential for tidal energy. The company has formed a company in Nova Scotia and is working with a local project developer there to develop a tidal energy project off southwestern Nova Scotia.

(More on that hydro potential at existing dams. It's as if we discovered something new. The layers of regulatory morass have become more difficult to deal with, not less!)

Some Existing US Dams just need hydroelectric equipment to start generating 12 Gigawatts of power

nextbigfuture.com, April 24, 2012

Oak Ridge National Laboratory researchers found that 54,000 dams not currently used to generate power have the capacity to generate more than 12 Gigawatts, enough to power more than 4 million homes. The 100 dams with the highest energy potential could generate 8 Gigawatts of power. The top 10 power-generating dams are along the Ohio, Mississippi, Alabama, Tombigbee, Arkansas and Red rivers. Equipping existing dams with power-generating plants avoids additional environmental impacts because the dams are already operating. Additionally, installing hydropower won't change the timing of flows released from the dams.



ORNL found that hydropower energy is available in areas that are not rich in solar power, such as the Ohio River Valley and the Southeast.

[DOE EERE - An Assessment of Energy Potential at Non-Powered Dams in the United States \(44 pages\)](#)

Hydroelectricity is one of the lowest cost energy sources and these should be even lower cost because the dam has already been built. It is just the generating equipment and the grid connection that is needed. "Most non-powered dams and potential capacity can be developed outside of critical habitat, parks and wilderness areas," said Brennan Smith, ORNL water power program manager. "Most of today's large dams that aren't generating power are used for navigation and flood control, but they have the potential to act as a renewable energy source. Now that researchers have quantified the potential energy of non-power generating dams,



the next step will be to figure out how much it will cost to build these hydropower plants. The high-value opportunities for development are likely to be at large dams operated by the federal

agencies," Smith said. "The private sector can work with these agencies to develop projects that provide additional energy for the nation's electric power systems."

(Even NYC recognizes a good thing when they see it)

City Council approves hydroelectric power study

riverdalepress.com, April 25, 2012

The City Council unanimously passed legislation co-sponsored by Councilman Oliver Koppell that will require the city to study its potential for hydroelectric power. The Department of Environmental Protection will examine the city's water supply, wastewater treatment facilities and waterways for possible sources of energy. The New York City watershed consists of 19 reservoirs, three lakes and 7,000 miles of water mains, tunnels and aqueducts, according to a press release. The city's water utility infrastructure also includes 7,400 miles of sewer lines and 14 sewage treatment plants. "Renewable energy solutions such as hydropower are part of New York City's future, but only if we envision a cleaner more sustainable future and act on that vision," Mr. Koppell said in a statement.

(Here's some dam history. 50 Years and counting!)

50 years later, Hartwell Dam stands out for engineering feats

Iva's Amos Terry, son of a tenant farmer, played key role in installing power generators

By Anna Mitchell, April 28, 2012, independentmail.com



Hartwell —Electrical engineer Amos Terry was standing in Hartwell Dam's control room in February 1961 when a co-worker for the U.S. Army Corps of Engineers urged him to press a button. "He was scared to do it, so I did," Terry said, laughing. The button triggered a hydraulic motor that lowered sluice gates at the base of Hartwell Dam. As they came down that day for the first time, the Savannah River began backing up and Hartwell Lake started to form. Eighty-seven-year-old Terry is an Iva native who maintained communication lines during World War II's Battle of the Bulge. He

came home to attend Clemson and has done business around the world as an electrical engineer. For four years, he was also among the thousands of people, government workers and private contractors, who played roles in creating Hartwell Lake. Fifty years ago Friday, the dam's power plant became operational with the first transmission of electricity.

Handwritten operating logs show that the first Hartwell generator went live on April 27, 1962, with three more generators joining the effort in stages over the next 18 months. A fifth and final generator went live in 1983.



Hartwell Dam was never dedicated, said James Payne, a plant manager

there who serves as the project's historian, though a couple of ceremonies in the 1960s commemorated the construction of bridges. Still, the age of the plant, tucked right behind the dam, is evident as visitors enter a lobby whose 1960s decor is still intact, said Hartwell power plant manager Steve Wynn. The guy on the men's room sign is holding a pipe and wearing a smoking jacket. The woman is wearing a poodle skirt. "Fortunately in the '60s, things were stylish," Wynn said. Terry was working for the U.S. government in London in 1950 when one of his five sisters wrote him a letter about the Hartwell Lake and Dam Project. The Flood Control Act of 1950, passed on May 17, had included Hartwell. With political resistance from key players on both sides of the Savannah River — including Clemson College, which stood to lose thousands of acres to the lake — the Hartwell project would not get started in earnest for another nine years.

Terry recalled playing along the Savannah's banks when he was a child. His father kept catfish baskets and gave his 10 children rides on a pole-driven bateau over the water. "The Savannah was untamed," Terry said. "It was a rushing, muddy water." In addition to providing peak-hour power to major utilities and under-electrified rural communities, part of the point of the Hartwell project, along with Thurmond downstream, was to control flooding. Payne said the dam's missions, which also include recreation and drinking water, work in tandem. "Our people in hydrology, they say we have this much water," Wynn agreed. "And we produce based on that." Because Hartwell is part of a river system, water will always be flowing through, Payne said. "While people always talk about hydropower and electricity, to a larger degree then and even more now, power generation was a benefit of moving water downstream in a logical fashion," Payne said.

Plans originally called for 11 power plants and reservoirs along the Savannah River. Only Thurmond, Hartwell and Russell were finished. Together as a system, they are the fifth-largest hydropower operation in the corps' system. "Because of public opinion and resistance, just these three larger projects got built," Wynn said. The valley that Hartwell Lake would flood was in terrible condition, according to several historians and people who lived here at the time. A century and a half of indiscriminate cotton and crop farming had reduced much of the landscape to red hills and gullies, and many families had abandoned the land, said Jerry Reel, historian for Clemson University. Longtime Anderson surveyor Joe Farmer recalled crews painting trees where the high water would reach. About 59,000 acres would eventually be covered with water. Houses, roads and farms were all inundated. U.S. 29 had to be rerouted. The project required building two bridges along S.C. 24 that soared 100 feet in the air before the lake filled up. U.S. 29 got a new bridge over the Savannah, and a double bridge was built for Interstate 85. Farmer said the only phone line that connected Atlanta to New York City came through the Savannah River valley and also had to be relocated. Natural land features, a narrowing of the river and solid bedrock together helped determine where the dam would go, Payne said. Meanwhile, in preparation for the upper Savannah's new reservoir, the federal government hired private contractors to cut as much timber as possible. Men used manual saws in teams of two to fell trees for 25 cents a piece and haul them away with mules.

The dam itself started life as a three-and-a-half-mile-long earthen bulwark, packed with red Georgia clay, Payne said. The carpet of grass on this structure, which runs parallel to U.S. 29, has for 50 years been carefully manicured with frequent mowing, he said, because trees grow, die and leave holes in the ground. Terry watched as crews drove steel pilings into the rock bed, built a coffer dam and diverted the flow of the Savannah around the construction zone. "Sluice gates allowed water to come on through while they poured concrete above it," Terry said, after the valley started flooding, Terry said, men in powerboats would go out on the water and top off trees with a chain saw. "You used to see snakes everywhere," Farmer said. "It was dangerous." For four years, Terry helped install and test the power plant's electrical systems. He inspected X-rays of welds holding the dam's intake pipes in place and also devised a system to check the dam for leaks. Small amounts of water seep through gaps between the concrete and bedrock at Hartwell. The water is channeled and squirted out on the other side into the Savannah. Operators monitor how much water is leaking weekly. "That's a normal part of running a dam," Wynn said. "We call it controlled seepage." When the engineering team tested the dam's first generator in early 1962, everything went smoothly, Terry said. When they launched No. 2, they heard a sound like thunder. "The turbines had created a vacuum and it was holding the water up," Terry said. "That was amazing. The manufacturer had to trim the blades." He recalled one of the big Italian transformers in the dam's switch yard blowing up when it was first energized. "There were sparks all over the place," he said. "One man dove under a circuit breaker to get out of the way. There was oil all over his back." Water enters the dam through 24-foot "penstock" pipes 100 feet underwater. The force of this water, up to 3 million gallons a minute, turns turbines that are connected to generators. Inside the generators are magnetic rotors that spin past copper coils to create an electromagnetic field, Wynn said. Twenty-one people run the plant. "Hydropower can come on and off quickly compared to gas and coal plants," Payne said.

Power sales from Hartwell, brokered by the U.S. Department of Energy, have raised more than \$330 million for the U.S. Treasury Department since 1962. The corps-owned switch yard at Hartwell Dam, where all power from the Hartwell power plant is routed, is the place where Duke Energy power lines meet Georgia Power lines, Payne said. "We are fortunate in that we are a tie between the power companies," Wynn said. "So they are able to exchange power through our switch yard. It makes us important." Hartwell Dam was part of the overall plan during the 1996 Olympics in Atlanta to guarantee consistent power. "They didn't want any blackouts on the international press," Payne said. A major overhaul of the four older generators at the dam, with better insulation, more copper wire and more powerful magnets, had boosted their power production by 30 percent by 2006, in effect creating efficiencies equal to an adding another generator. The system's protective relays now respond in an instant, with microprocessors talking to each other, whenever lightning strikes, limbs fall on limbs or other mishaps create a surge or breakdown in the region's power grid. Terry, one of 10 children, described himself as a country-boy tenant farmer who's come a long way from "picking cotton and slopping pigs." He fought with his mother over wanting to finish high school. She struggled to make ends meet working in a textile mill while his father plowed depleted fields with a mule. "I had a time with my mama, just because she felt when we were old enough to work, she felt we should work," Terry said. One of Terry's brothers took her on a tour of Hartwell Dam years after he left the project. She died in 1981. "Mama said, 'This is Amos' project,'" Terry said.



Water:

Scientists Warn of Climate Change Threats to Electricity System

Science experts told the California Energy Commission Monday that climate change will pose challenges to the state's electricity system. The commission convened experts to discuss the threat posed by a warming climate and weather extremes.

By [Kathleen Masterson](#), capradio.org, (Sacramento, CA), April 30, 2012

One of California's longest standing sources of electricity could be compromised by climate change. Many hydropower plants rely on snowmelt from the Sierra, says Joshua Viers (Veers) of UC Davis. But snowpack may be reduced by as much as 50 percent by the end of the century.



VIERS: "Most models have indicated a slight decrease in the total amount of generation, and that varies from a just few percentages in near future to perhaps up to 10 percent of our hydropower being reduced over the long-term." At the same time, experts say warming will substantially drive up electricity consumption, as we use more air conditioning across the state. On the hottest summer days -- of which there likely will be more-- power consumption could go up by as much as 20 percent. The challenge is further compounded because warm temperatures make power plants and transmission lines less efficient. Scientists also raised concerns about dry weather and the increased risk of wildfires. Several key transmission lines in the state run across areas that face a 25 to 40 percent higher risk of fire.



Environment:

(Reservoirs are much more scenic, but this is what we have)

On the Elwha, a lunar landscape emerges

Posted by Lynda V. Mapes, April 24, 2012, Photos by Douglas B. MacDonald, seattletimes.nwsources.com

Well here comes the landscape we'll be living with on the Elwha. About 60 percent of the sediment trapped behind the dams will stay behind, in stepped down terraces of material that was trapped behind the dams. As of about a week ago, Lake Aldwell, behind Elwha Dam, was completely gone, following the completion of demolition of the dam in March. Lake Mills is also disappearing, as Glines Canyon Dam comes down, with about one third of the dam already gone. It is expected to be history, too, by about this time next year. So what will remain? I took a walk around the landscape just upstream of former Elwha Dam over the weekend. It was a spectacular, otherworldly experience. Anyone with the slightest interest in photography ought to get out to have a look.



Stumps of trees cut when the reservoir was filled behind Elwha Dam wear sediment hats. The river, back in its channel, is carrying high sediment loads now that the reservoir behind Elwha Dam is gone. Fine particles that used to settle out in the reservoir are now mobilized in the water, and carried on down the river. The uniform ashy gray color created by the coating of silt on every surface, gives the landscape an eerie, lunar feel.

The sound of the river is back, where there used to be only a lake. Here the Elwha River rushes through what used to be Lake Aldwell. About 60 percent of the sediment trapped behind the dams -- some 24 million cubic yards -- is going to stay behind in the landscape, just as you see here. The rest will sluice out to sea. Nature, and an active revegetation effort directed by the National Park Service is hoped to green up the landscape in time.



The river below former Elwha Dam is carrying about 50 times more sediment than usual, according to Tim Randle at the U.S. Bureau of Reclamation, who is directing the management of the sediment in the Elwha River restoration project. The spike in sediment is due to the disappearance of Lake Aldwell, which used to settle out some of the material that's cut loose as the dams have been demolished. Most of the sediment in the river right now is coming from behind the former Elwha Dam. Much of what is coming out now is fine silt and clay. Winter storms, and time are bound to keep sculpting the soft terraces of sediment left behind as the reservoirs drop. But much of what you see out in the former lake bed of Lake Aldwell is what we are going to get, as far as the appearance of the landscape. Try to



imagine this view, greened up with trees and shrubs. It's not that different from the views of say the terraced uplands at Goblins Gate, above the dams:

The goal of the Elwha restoration was to drop the reservoirs behind the dams gradually, so that the sediment trapped behind them would be eroded by the river. About 40 percent of the material -- fines, sand, cobble, rocks, and gravel, will move downriver. The rest will stay behind. The hope was to leave a natural looking landscape behind, especially as plants regrow.



If stumps could talk ... think of the stories these could tell. Cut, burned, drowned, they have survived to witness the rebirth of the river they have stood beside for so long.



The former site of Elwha Dam. As of about a week ago, Lake Aldwell is completely gone, and the river is back in its natural channel.

Up river, Andy Ritchie, Elwha restoration project hydrologist said Lake Mills is about half the size it used to be, and the deepest part of the lake is about 80 feet, from 150 feet when demolition began last September. Demolition work was stopped on Glines last week because of a broken hammer chisel, but is expected to resume before in-water work shuts down again in May and June, to protect fish migrating in the river. There's no question the river is alive with fish and other animals, despite all the sediment in the water. Contractors working where Elwha Dam used to be saw an otter swimming through the old dam site, eating a fish. "It seems the fish and otters are already exploring the dam site," Ritchie said. "You can't see anything in that water, the visibility is a centimeter, but apparently otters are still able to catch fish in that. It's amazing to me." The other big news making the rounds at the Lower Elwha Klallam Tribe over the weekend was that the first smolts from adult fish placed above Elwha Dam last fall to spawn have been spied in some of the tributaries of the river. "The first fish are here," said Rob Elofson, restoration director for the tribe said Saturday. The fry are coho, the first to hatch out of redds in the river above the dams in a century. Elwha River recovery is well underway.

(Mmmm! Do you think that the judge was biased all those years he sat on the bench ruling on the Snake River Dams?)

Snake River dams should go, says judge now off the case

The Snake River dams, the subject of litigation between salmon advocates and hydropower supporters, ought to be removed, says the federal judge who until recently presided over the case.

By Craig Welch, Times environment reporter, April 25, 2012, seattletimes.nwsourc.com

The federal judge who presided over a court battle that pitted Columbia River salmon advocates against hydropower supporters told a television interviewer that four controversial lower Snake River dams should be removed. In his first interview since stepping down from the case last fall, U.S. District Court Judge James Redden told Aaron Kunz, of Idaho Public Television in Boise, "I think we need to take those dams down." During the interview for a documentary to air later this summer, the Portland-based judge, who presided over the Columbia River case for more than a decade, said the government and the Bonneville Power Administration had made vast improvements for salmon by increasing the flow of water through the Columbia's hydropower system. They have "done things with the dams, spent a lot of money on all the dams, the Columbia and the Snake River — the spills, which they do not like — that has been very helpful," Redden said. But "I think we need to take those dams down."

Redden seemed to imply that removing the Snake River dams could make a significant difference in the health of threatened and endangered salmon runs on the Columbia system. "Those four Snake River dams don't really get a lot of — it's not that needed," Redden said. The judge's comments, released this week by the station as part of a collaboration with Northwest public-radio stations, seemed to suggest he agreed with environmentalists and salmon supporters who have argued for years that salmon declines won't be reversed unless the dams are removed. The statements prompted immediate praise and criticism. "It's certainly a welcome announcement to see that's what he believes after basically studying this issue for 10 years," said Nicole Cordan, policy director for Save Our Wild Salmon. "It's reaffirming to have this very smart man who came to this issue unbiased and over the years has looked at the law and the scientific and policy choices and come to this conclusion. It feels good." But Terry Flores, with Northwest RiverPartners, a group representing farmers, electric utilities, ports and others opposed to dam removal, said she was taken aback by his words. "All of us who have been putting years, literally, into working together and looking critically at the science and frankly seeing these huge investments being made to change dam operations — we've been scratching our heads over why the judge seemed to struggle with endorsing the plan," Flores said. "But his remarks explain that he apparently had a certain mindset. He clearly harbored strong feelings about dam removal."

[\(A different view\)](#)

Dams and ditches

Written by Baker City Herald Editorial Board April 30, 2012, bakercityherald.com/Editorials

Baker City Herald Editorial Board

We hope a recent comment from retired U.S. District Judge James Redden isn't indicative of the level of consideration he gave to the question of salmon conservation while he was on the bench in Portland. Redden earned a reputation for rejecting as inadequate the federal government's proposals to protect salmon and steelhead runs in the Columbia River basin. He was in that role nothing if not consistent (and bi-partisan). Redden tossed out proposals from each of the past three presidents: Bill Clinton, George W. Bush and Barack Obama. Redden has turned over the salmon case to Judge Michael Simon.

Among the major issues in that case is the future of four hydroelectric dams on the lower Snake River in Southeastern Washington that are impediments to salmon and steelhead: Lower Granite, Little Goose, Ice Harbor and Lower Monumental. In a recent interview for the Outdoor Idaho program on Idaho Public Television, Redden said, in reference to the four dams: "I think we need to take those dams down. Trying to take out a dam is not, not very difficult. You don't just take the

whole thing down, you just let the water go around it. You just dig out the ditch and let it go around.” Notwithstanding Redden’s oversimplification of the engineering involved — there’s a tad more to the matter than digging four ditches — we’re troubled by what seems the judge’s dismissive attitude about the effects of tearing out four dams that produce enough electricity to power Seattle. Wheat farmers and the myriad other businesspeople who rely on the Port of Lewiston in Idaho could talk at great length about the detrimental effects of severing the link to the Pacific that the lower Snake dams created. Breaching the dams would also harm businesses that depend on boaters and other recreationists. Redden certainly understands that dams and sustainable populations of anadromous fish needn’t be mutually exclusive. In fact it was the judge’s order in 2006, requiring more water to be spilled from the dams rather than diverted to their power turbines, that biologists have credited with contributing to healthier salmon and steelhead runs on the Snake. Redden has more recently said he’s not convinced that tinkering with dams will ultimately save the fish. That’s a legitimate opinion, and one he shares with many people and organizations. But we expected more from a judge than the implication that getting rid of four vital dams is little more than shovel work.

(Oh oh, another holdup for an already overly time-consuming and overly expensive licensing process. This is a new one. Where was this fish all this time?)

Agency records reveal Oroville Dam plan likely harmful to protected fish

blogs.alternet.org, Posted by danbacher, April 26, 2012

Petaluma, CA – The Golden Gate Salmon Association (GGSA) and California Sportfishing Protection Alliance (CSPA) have petitioned the state Water Quality Control Board to re-write terms of a clean water certification for a massive state-run dam complex on the Feather River near Oroville, California.

The groups were moved to action following a GGSA Freedom of Information Act (FOIA) request that demonstrated green sturgeon spawn much further upstream on the Feather River than previously acknowledged. Through the request, fishing advocates learned that during high flow in the Feather River in late 2010 and early 2011, the state Department of Water Resources (DWR) documented the presence of green sturgeon at the river’s uppermost barrier to anadromous fish. The first-ever scientific evidence of green sturgeon spawning in the Feather River was also collected at this time. DWR efforts to reduce flows likely drove sturgeon out of the uppermost accessible river reaches and may have interfered with spawning there, in possible violation of the federal Endangered Species Act. The appeal to the state board comes as the National Marine Fisheries Service is writing a biological opinion on how dam operations will affect the Feather River’s federally protected salmon and sturgeon runs. The dam complex is currently undergoing a relicensing process to set new state and federal rules governing operation of the facilities for the next 30 to 50 years.



The state Water Resources Control Board is charged with protecting the public trust resources all Californians share, including its wildlife. The state board approved the certification under the faulty assumption the waters below the dam were not used by green sturgeon. Accordingly, the Board’s certification does not provide sufficient springtime flows for green sturgeon to access much of the newly discovered river habitat, except in the wettest of years. Improved green sturgeon flows under a revised certification would also greatly improve survival of baby Feather River salmon during their annual springtime migration to the sea. “Our records request turned up evidence that green sturgeon were not adequately considered in the certification.” said Victor Gonella, GGSA’s President. “We’re asking the Board to amend the certification to provide more water to attract and successfully spawn green sturgeon. We’re confident this action will have positive impacts on salmon runs as well, and help maintain the jobs, food production, world-class recreation, and economic activity healthy salmon runs can provide.” “Greater springtime flows released from Lake Oroville will help green sturgeon and salmon. Salmon will have more of a

burst of water to carry them safely downstream and out to sea if the state board issues a protective order,” said Bill Jennings, CSPA Executive Director.

The dam complex, operated by DWR and commonly known as the Oroville Facilities, make up part of the State Water Project. The dams take a heavy toll on fish, cutting off access to 66.9 miles of habitat for salmon upstream. They also negatively impact downstream salmon habitat, water temperature, water quality, and natural flows needed by fish. The river below the facility is vitally important for commercially-valuable fall-run Chinook salmon and also designated as critical habitat for Central Valley spring-run Chinook and steelhead under the Endangered Species Act. The National Marine Fisheries Service lists the Feather River as critical for green sturgeon survival. “This relicensing process represents a once-in-a-lifetime opportunity to improve conditions for salmon and other fish in the Feather River,” said Gonella of GGSA. “Our salmon-dependent communities and business have suffered heavily in recent years, largely as a result of poor water management in the Central Valley. We’re working to ensure that any new rules protect salmon, so we won’t ever again have the kind of disastrous, jobs-destroying collapse of the salmon runs that we saw in 2008, 2009, and 2010.” The certification in question, granted in December 2010 by the state Board as part of the relicensing process, contains conditions relating to water quality and fish. Although the certification has already been issued, the Board can modify it based on new information. GGSA and CSPA believe the new information they have presented will spur the Board to revise and improve its requirements relating to fish.



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5/11/2012



Some Dam – Hydro News™

And Other Stuff

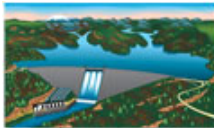


Quote of Note: *“Politics is not the art of the possible. It consists in choosing between the disastrous and the unpalatable.”* - John Kenneth Galbraith

“Good wine is a necessity of life.” - Thomas Jefferson

Ron’s wine pick of the week: Cameron Hughes Lot 254 Meritage, Santa Ynez Valley 2008

“No nation was ever drunk when wine was cheap.” - Thomas Jefferson



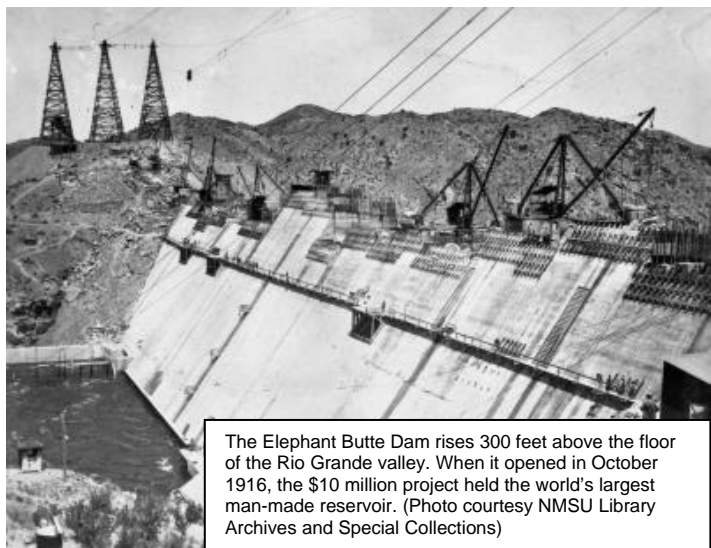
Dams:

(Elwha and Glines Canyon Dams may be gone, but this project shows the benefits that dams can provide.)

Elephant Butte Dam: Irrigation shaped Mesilla Valley's history

By Christopher Schurtz / For the Sun-News, 04/29/2012, lcsun-news.com

Las Cruces, NM — For almost a century, the Rio Grande has come to a stop at what was once the largest man-made reservoir in the world. From there, through the spillway of the Elephant Butte Dam, the river waters become part of a complex irrigation network feeding farms and orchards from Rincon to the El Paso Valley. With the beginning of another dry irrigation season this week, farmers already know they'll be getting precious little — in most cases, the equivalent of one good irrigation — of that river water this year. Yet without Elephant Butte, it's possible some wouldn't be getting any at all. Before the dam, the Rio Grande was a naturally flowing ribbon of water.



The Elephant Butte Dam rises 300 feet above the floor of the Rio Grande valley. When it opened in October 1916, the \$10 million project held the world's largest man-made reservoir. (Photo courtesy NMSU Library Archives and Special Collections)

But it was erratic, either flowing strong or at a trickle. In 1902, the newly created U.S. Reclamation Service assumed control over a proposed dam some wanted built 90 miles north of Las Cruces. That dam would impact the growth, development and history of the Mesilla Valley like nothing else.

Dam the river

Irrigation ditches were some of the first things built in the early days of Doña Ana, Mesilla and Las Cruces. In the early years, primitive dams made of intertwined sticks and rocks guided river water into a main ditch that fed smaller ditches extending for miles. The centuries-old acequia system only worked well when river water was plentiful. During drought, some farmers used steam pumps, and even windmills, to draw groundwater, but few could afford the high cost. In addition, by the 1880s, newcomers to New Mexico were farming all along the Rio Grande. Farmers in El Paso were complaining of no water, and Mexican farmers were headed to U.S. courts to file grievances. Sometimes lack of river water wasn't the problem. The river changed paths, most notably in 1865 when it left Mesilla on its east side once and for all. It flooded the valley a dozen times since 1849, destroying homes, railroad lines, farms, roads and ditches. Soon, people were seeking to tame the Rio Grande. In the early 1890s, El Paso pioneer Anson Mills, who sat on the International Boundary Commission, favored a dam just north of El Paso. New Mexicans balked at this pro-Texas plan. Meanwhile, Nathan Boyd, a physician who bought the Dripping Springs resort, formed the Rio Grande Dam and Irrigation Company. With the backing of British investors, Boyd developed a plan for a huge dam in a canyon near the tiny town of Engle 90 miles to the north. Though Boyd secured a construction permit from the Secretary of Interior, support for Boyd's idea faltered over farmers' concerns about forfeiting land to the company in order to fund construction. In 1902, Congress approved the creation of the Reclamation Service, which would take control of the development of dams throughout the West, including what was then called Engle Dam.

Big lake

Under the agreement with the Reclamation Service, farmers and landowners, through the Elephant Butte Irrigation District that formed in 1917, would repay the cost for construction (the debt was paid off in 1971). It took years of court fights, as well as planning and engineering, before work began in 1911 on what people were calling the "Elephant Butte Dam," after the distinctive volcanic outcropping that looked to some like the head of an elephant. A workers' town was installed. More than just a tent city, the settlement of 4,000 had electricity, sewer, schools, a hospital, hotels, a theater and even a YMCA. A 13-mile long railway connected to the Atchison, Topeka and Santa Fe Railroad, transporting thousands of tons of cement and machinery to the site. Workers dug 65 feet below the riverbed to the bedrock on which to place the foundation. They installed channels that diverted the river around the dam as work continued. Over the next five years, the dam made of concrete, iron bars, and rock, rose from the riverbed.

By 1915, what would become Elephant Butte Lake was already filling up. The dam stood 318 feet high, with 610,000 cubic yards of cement holding back what was then the largest man-made reservoir on earth. When it was completed in July 1916, the Elephant Butte Dam made international news. President Woodrow Wilson had planned to dedicate the dam. But with a looming war in Europe and with violence on the border — Pancho Villa's attack on Columbus occurred earlier that March — his assistant secretary of the interior, Adieus Jones of Las Vegas, N.M., did the honors. Thousands showed up for the big dedication ceremony Oct. 19, including those who'd worked on it for the last several years. Speaking from a platform built over the spillway, Jones said reclamation and the dam will "make living in the West not only enduring but also inviting." Newspapers reported Jones turned the "golden key" releasing the water through the spillways and officially opening the dam.

Historic saturation

Within a year, farmers had flooded their fields with so much water they became saturated. The reclamation service installed miles of drainage ditches allowing excess water to seep away from fields. Even before the dam was done, diversion dams, including one at Leasburg, were installed to raise and steer water into the main irrigation laterals. Within a year of opening, people were also making use of Elephant Butte Lake for recreation, and the new village of Elephant Butte

soon rose up around the boating and fishing activities on the lake. It took 20 years to fulfill the plan to tap the dam for hydroelectric power, and ultimately the turbines there became part of a wider power network providing electricity from Truth or Consequences to Albuquerque. The dam forever altered and impacted the natural ecosystems along the river. It also changed not only what was grown here, but who grew it. Farmers from the South, lured by the promise of cheap, newly-irrigable land, poured into the Mesilla Valley. The populations of Las Cruces and Doña Ana County doubled by 1930. They bought up large tracts, and began growing what they knew best: cotton. By the end of the 1920s, almost every farmer was growing cotton, and by the end of the 1930s, Doña Ana County became one of the leading cotton producers in the country. The dam also made growing pecans feasible on a large scale, something W.J. and Deane Stahmann were the first to do south of Las Cruces in the late 1930s. The entire 100 miles of the Elephant Butte Irrigation District, which includes the dam area as well as miles of ditches and a network of bridges, culverts, flumes and checks, was placed on the National Historic Register in August 1997. Christopher Schurtz is a freelance writer and author of the new book "Historic Las Cruces." He can be reached at cschurtz@zianet.com.

(Here we go ago again – sounds familiar! OK - Where was this minnow before the dam failed? And, why is a minnow in SD named after a City in KS?)

Minnow discovery will delay dam work
Project on hold near Wessington endangered shiner
argusleader.com, Apr. 29, 2012

A project to rebuild the Rose Hill Dam south of Wessington, SD will be delayed while biologists decide what to do about some newly discovered Topeka shiner. The earthen dam in Hand County, west of Huron, breached during heavy rain two years ago, and the state Department of Game, Fish and Parks is using money from the Federal Emergency Management Agency to rebuild it.



Officials had hoped to begin construction this year, but the discovery of the endangered 3-inch-long minnow in a new area of Sand Creek means the state will have to formally consult with the U.S. Fish and Wildlife Service to ensure that building the dam won't harm the shiner population. The process could take about four months and will involve the U.S. Army Corps of Engineers determining whether the Fish and Wildlife Service needs to issue a biological opinion.

"Until the corps makes their decision on (the) effect (study), we're just waiting," said Terry Quesinberry, a biologist with the U.S. Fish and Wildlife Service. The prairie streams of eastern South Dakota are inside the northwestern boundary of the Topeka shiner's range: They're found in tributaries of the James, Vermillion and Big Sioux rivers. Nationwide, wildlife experts estimate that the shiner — an "indicator" species that is more sensitive to ecological degradation — has lost about 90 percent of its historic range. Construction of the dam probably will be put off until fall 2013. Cliff Stone, a regional Game, Fish and Parks manager in Chamberlain, said an architectural firm has been hired to build the new dam to higher engineering standards.

(The benefits of dams. Over 68 years saved 1/3 Billion dollars in flood damages, and provides hydro power too! – For video on project go to this web site:
http://www.kxii.com/news/headlines/Inside_the_Denison_Dam_150241025.html)

Inside the Denison Dam

Lake Texoma-- An inside look into the workings of the Denison Dam that does more than just control the raging Red River.

Posted: May 4, 2012, Reporter: Kylie Dixon, kxii.com

Lake Texoma-- It covers 143,000 acres with 580 miles of shore line and over 6 million visitors annually. Lake Texoma, it's where the Red and Washita Rivers meet a water way shared between Oklahoma and Texas, formed by the Denison Dam on the Red River. Lake Texoma lies

726 miles upstream from the mouth of the Raging Red. "A lot of folks take Lake Texoma for granted, they see it as a place to go sport fish and swim. But you really need to dig back to the 1800's to see the origin of Lake Texoma, how it come about." As BJ Parkey explains, Lake Texoma was placed in between the two states for a reason. In 1927, the Mississippi River's levee's failed. 27,000 square miles were destroyed by the flood. "So then Congress got into the act, passed a bill in 1928, directing the Corps of Engineers to come up with another plan, besides just building levies. So they spend 10 years studying everything. And what they came up with, was a plan to build dam's on tributaries to the Mississippi and on the top of that list, was a dam on the Red River," said, documentary film maker, Gene Lenore. He is studying the history of the Denison Dam. He says in 1939, President Roosevelt signed off on a \$54,000,000 dam project.

"The Dam worked started in 1939 and they closed the flood gates in 1944. And this was during the height of World War II. The country was fighting battles on two fronts," Lenore said.

The Denison Dam was the only civil work project that stayed fully funded throughout the war. In 1944 the world's largest Earth Rolled Field Dam was completed. Since then, there have been 3 major floods: in 1957, 1990, and 2007. "Lake Texoma's water shed is a little over 39,000 square miles. 39,714 square miles, that is just slightly less than the square mileage than the entire state of Kentucky. Imagine every drop of rainfall that falls on the entire state of Kentucky, gets funneled down to a particular location. That's Lake Texoma, Denison Dam," Parkey explained.

Today, the dam's job is more than just containing the mighty Red River. It serves as a hydroelectric power plant, it has the ability to generate 80 megawatts worth of power. That's 4.6 million gallons of water per second or the equivalent to over 19 Waterloo Pools. The intake structure, or the big cement block, near the dam, has gates that let water through. That's how the water is released to the dam. Which on a given day, can give electricity to 450,000 people.

We asked the Army Corps of Engineers for a tour of the Denison Dam. But since 9/11 the Dam has been closed to the public. "Obviously, there are some sensitive areas that most folks, shouldn't or needn't know about. So that's why so much scrutiny or security is needed in a place like that." But Parkey said if you have ever been inside the Hoover Dam, the 15,000 square foot Denison Dam is similar, but just on a much small scale. Lenore has been inside the Dam once before. "You can see the turbines in the floor, because the water that comes through turns the turbine and it generates the electricity. It's a great big space." In the 68 years since its completion Engineers estimate the Lake has saved downstream residents over a third of a billion dollars in flood damage. But perhaps the lakes biggest impact is an unintended consequence. It could be the millions of dollars in revenue it bring to both sides of the river every year.



Hydro:

Hamilton plant a model for U.S. energy projects

renewablesbiz.com, Apr 29 - The Journal-News

More facilities like the \$458 million Meldahl Hydroelectric Plant under construction on the Ohio River by the city of Hamilton should be built to help lower carbon emissions in this country, according to a report by the U.S. Department of Energy. The hydroelectric generation facility is an example of what will allow the country to lower its dependency on nonrenewable energy resources, according to the agency's report, which analyzed 54,391 of the more than 80,000 dams in the U.S. that now lack equipment to produce power. A little more than 2,500 of the dams are being used to produce electricity, the report says. Expanding hydroelectric capacity can "help diversify our energy mix, create jobs and reduce carbon pollution nationwide," Energy Secretary Steven Chu said in a release. At this point, only 6 percent of the country's electricity is produced by hydroelectric plants.

Construction on the city's newest hydroelectric generation facility was started in 2010 and is on track to begin operations in the summer 2014. It will allow the city to produce 90 percent of its own electricity. Hamilton and American Municipal Power Ohio have a joint development agreement to build the 105 megawatt run-of-the-river hydroelectric power station on 86 acres at the Capt. Anthony B. Meldahl Locks and Dam along the Ohio River in Foster, Ky., about 40 miles east of Cincinnati. Kent Carson, AMP-Ohio's senior director of communication, said nearly 100,000 yards of concrete have been poured for the powerhouse where 300 tons of rotating equipment will be situated at the plant. The powerhouse for the three turbines generating the electricity is being constructed by joint venture between Alberici of St. Louis, Mo., and Baker Concrete Construction in Monroe. Phil Meyer, the Meldahl project manager for AMP-Ohio, said there are 400 people working on the construction of the plant across two shifts. However, once the plant becomes operational, it will have between seven and 12 permanent employees. The locks and dam, which are on the Ohio side of the river, are about 50 years old, Meyer said. The Meldahl plant is one of four hydroelectric plant projects on the Ohio River that AMP-Ohio is developing that will have a capacity of generating 300 megawatts of electricity. Meyer said AMP-Ohio has the highest deployment of hydroelectric in the nation. Hamilton is entitled to 51.4 percent of the plant's output when it goes online in 2014, said Tim Werdmann, deputy city manager for utilities. The remaining capacity will go to AMP-Ohio members who are communities that run municipal power systems. Werdmann said the new plant will help stabilize electric rates for the next 10 years for its 29,000 residential, commercial and industrial customers; and fill the void for power generation when many older coal-fired plants are shut down because of new environmental laws. "This will keep us in a very stable position," he said. "Hamilton has competitive rates that are among the lowest in the state."

City officials have said that once Meldahl is completed, 70 percent of Hamilton's generation capacity will come from clean, renewable sources and the electric utility will have a budget of more than \$250 million. "The city also has experience with hydroelectric with the Greenup plant near Franklin Furnace, Ohio, near another set of locks and dam," he said. Werdmann said the city acquired the Greenup hydroelectric plan in 1982. "We saw the benefits and gained the experience so when the license for Meldahl came open, Hamilton went for it," he said. Through the bidding process in which estimates for the powerhouse construction came in lower than projected as well as lower interest rates, the project saved about \$55 million last year, city officials said. Power generated at the Meldahl plant will be carried to the grid via a 138 kilovolt transmission line that will cross the Ohio River and run about 2.2 miles to interconnect with the existing 345 kilovolt Zimmer-Spurlock transmission line in Clermont County. City officials have said 48.6 percent of the power produced at the 66 megawatt Greenup plant will be sold to AMP-Ohio once the Meldahl plant goes online. The city has agreed to sell half of the Greenup plant for \$139 million with the transaction is completed in 2014.

(Europe is speeding ahead with Pumped Storage. Although there are numerous proposed projects, we move at snail's pace.)

GE's Power Conversion Technology Drives Innovative 'Pumped Storage' Hydropower Project in Portugal

30/04/2012, finchannel.com

The Financial -- With more European countries harnessing their hydropower resources to stabilize their transmission grids and support greater alternative energy production, GE Energy's Power Conversion business announced it will supply its advanced power conversion technology to Voith for the new Frades II pumped-storage hydropower plant. According to General Electric Company, the facility is being built on the left bank of the Cávado River in the Braga region of northern Portugal. Frades II is one of six new hydropower plants that Portuguese utility Energias de Portugal (EDP) is building throughout the country. When construction is completed in 2014, the facility will be one of Europe's most powerful pumped storage power plants and will complement the existing Frades I and Vila Nova facilities. Demand for pumped-storage plants is increasing due to their flexible energy storage and grid stabilizing capabilities that can help utilities more effectively manage the intermittency of wind energy and other renewable sources.

The variable speed pumps will allow for better grid regulation, which will become increasingly important as Portugal seeks to dramatically increase renewable energy production. The country currently generates about 15 percent of its electricity from wind power but is planning to add another 5.4 Gigawatts of wind power capacity in the next 10 years. Portugal is one of Europe's pioneers in the development of renewables. Despite the high power levels, Frades II will still meet all of Portugal's stringent grid-connection requirements.

Germany-based Voith is supplying two reversible pump turbine sets and electromechanical equipment for the project, which represents the next generation of hydropower facilities. The two-pump turbine sets will feature GE's variable-speed power conversion technology, making Frades II the first pumped storage power plant in Portugal to use this system. At 420 MVA each in generator mode, the sets also will be the most powerful variable-speed systems in Europe. Speed variability of the pump turbines enables continuous control of the hydropower plant's output. Traditionally, operators have controlled pump output in fixed-speed, pumped-storage power plants by activating or deactivating individual machine sets. However, by using GE's variable-speed drive technology at Frades II, EDP will have greater control over the plant's turbine performance in pump mode, with each of the pump turbine sets able to handle a wider range of energy for the grid. Also, EDP will achieve higher efficiency levels—especially in partial-load conditions—because the plant's equipment can be adjusted to meet the grid's changing requirements.

"With our variable speed drive technology, pumped-storage plant operators are better able to meet the need for peak supplies of power. This capability is essential to the future integration of more renewable energy onto the grid," said Georg Möhlenkamp, senior leader product management of GE Energy's Power Conversion business. "GE's variable speed technology is playing a vital role in enabling pumped-storage power plants to have shorter response times and greater flexibility in reacting to changing wind power conditions that can undermine grid reliability. This is just one example of how GE's energy management solutions are playing an important supporting role in the expansion of renewable energy throughout Europe." GE Energy's Power Conversion business is a leading supplier of equipment for variable-speed pumped-storage power plants in Europe, with the company equipping 14 out of 16 variable-speed pump turbines that have been built or are under construction in the region, including: The Goldisthal pumped-storage power plant in the German federal state of Thuringia: With a total output of 1,060 MW, this facility is Germany's largest pumped storage plant of its kind in Germany. The facility has been operating smoothly since 2002. Switzerland: A total of 10 pump turbines at two plants are being equipped with variable speed drives. These systems generate a combined power output of more than 2,000 MW. GE Energy's Power Conversion business serves the power generation industry with the most advanced and complex technological solutions for converters, generators, connections and electronics that are specifically designed for hydroelectric, fossil fuel and nuclear power plants.

(If this is correct, NYC needs taken to the woodshed!)

Water over the dam? A wasted resource, officials say

Coalition of Watershed Towns asked again to back hydroelectric power permit

By J. Blake Killin, Hudson-Catskill Newspapers, May 1, 2012 2:08, thedaily.com

Mountaintop — To officials from New York City, it's just water over the dam. But to Delaware County officials, the water that flows over the dams that impounds water for New York City is a wasted resource that should be tapped and converted into clean, renewable electricity for the benefit of the Upstate communities. The idea dates back to 2007 when the local, non-profit Delaware County Electric Cooperative proposed tapping into the water overflow to create cheap hydroelectric power on four of NYC's reservoirs in the West of Hudson Watershed. On May 8, 2008, DCEC applied to the Federal Energy Regulatory Commission (FERC) for a permit to create what was to call the Western Catskills Hydro Project. Plans called for generating up to 62 megawatts of power. Attempts to reach a partnership agreement with NYC over the use of the water and its facilities went nowhere with NYC saying it didn't want anyone using any part of its

infrastructure.

NYC then submitted its own competing application to FERC on Sept. 22, 2008 seeking a permit to generate 28 megawatts at the Schoharie Reservoir. And since FERC favors municipalities over private developers, even non-profits, NYC was granted the permit. Soon thereafter, NYC's Department of Environmental Protection announced that its own plan was "un-economic" and said it was abandoning it. But despite its own findings, NYC-DEP submitted another application with FERC to develop hydroelectric power at the Cannonsville Reservoir. On April 2, 2012, FERC filed notice that the preliminary application was accepted and gave interested parties until June 2 to file challenges or appeals. At the April 16th meeting of the Coalition of Watershed Towns, representatives from Delaware County offered a resolution for the Coalition's consideration that would back DCEC's application over NYC's. According to Peter Bracci, supervisor of the town of Delhi, the locally generated electricity could provide cheaper power to local electric customers and provide a much-needed economic boost for the county. NYC was accused of deliberately applying for a lower generating capacity than DCEC knowing that the lower figure would not prove to be profitable. "They lowballed the estimate to show it wasn't economical," said Bruce LaMonda of the town of Olive in Ulster County. Attorney Kevin Young, representing the Delaware County Board of Supervisors said the business model would only work with the greater generating capacity proposed by DCEC. Coalition attorney Jeffrey Baker said a detailed submission would be needed if DCEC wanted to win its appeal. He requested copies of DCEC's proposal and data to support the competing application. He added that the case needed to be made that NYC had no intention of following through with the project in the first place. And even if DCEC is successful in its application, officials wanted the power sold locally and not to an outside utility like Con Edison, which would mostly benefit the New York City area. So, the Coalition agreed to support DCEC's efforts even though its chief executive had recently stated that the electric cooperative was no longer proceeding with its project. But others weren't willing to let the opportunity to wash over the dams. "We can't let it pass by," said Bracci. "This is a resource that we have and we want it to benefit the local communities," Young added. As part of the resolution seeking to appeal FERC's preliminary approval of NYC's permit, it was suggested that a sunset clause be added so NYC would have to act under a specific timeframe so the process doesn't stretch out for years. The proposal was unanimously approved by the Coalition's executive committee. The attorneys will draw up a proposal to be submitted to FERC by the June 2 deadline.

(You at least have to like the scenery. Only hydro can give you something like this. Ever try to recreate around a coal pile or at the bottom of a wind mill tower?)

Vermont entrepreneur pushes local hydroelectric project as clean energy solution

By Telly Halkias, 05/02/2012, advocateweekly.com

In "The Rime of the Ancient Mariner," Samuel Taylor Coleridge expressed humanity's historic frustration with the ubiquity of nature's greatest asset: "Water, water, everywhere, Nor any drop to drink." But drinking isn't on the mind of one North Bennington, Vt., citizen. Rather, Bill Scully, owner of several award-winning restaurants, is demonstrating that with patience, persistence and personal investment, one man can make a difference in the pursuit of clean energy and sustainable resources. Scully is attempting to convert the existing dam across the Walloomsac River at the now defunct Vermont Tissue Co. Mill into a functional power source



Copy obtained from the Nation

View of the spillway and Paper Mill Bridge over the Walloomsac River in Bennington, Vt.

Richard Hein Photography 2012

for his community. In 2009, he purchased the mill building and dam at the Paper Mill Village Bridge in Bennington and is pulling together private and public concerns to commission Vermont's first hydroelectric dam in 25 years.

"Water is the ultimate clean source of energy, and while once fueled only by water, Vermont now gets 15 percent of its electric power from hydro," Scully said. "With a lot of work, we can harness it. Past that, there are major bureaucratic and regulatory burdens we must meet to get it done right. We want to show that hydroelectric should be seriously considered as part of the global renewable energy package by starting here, at the grass roots." Scully said he had considered a project like this for years before finally acting by purchasing the entire mill facility at the dam. He started to work on the long conversion process, including all the state and federal permits necessary for commissioning. His motivation was multifold. "I began to think of how good Vermont has been to me in terms of my business success and wanted to give something back," Scully said. "But I also thought of what the future holds for our children and grandchildren. Setting an example is sometimes how these issues of the environment must be approached. I've gotten a lot of encouragement along the way." Over two years into the permitting, Scully's many supporters, from scientists to government officials, are cheering him on. Dr. Tim Schroeder, professor of geology at Bennington College, said critical ecological changes were already made to the river years ago when the dam was constructed. Its reuse in a sustainable way is desirable in terms of bringing back an otherwise moribund structure. "The system will use an existing dam with few modifications to generate electricity," Schroeder said. "The dam in the Walloomsac (River) at the paper mill was originally constructed as a hydroelectric facility, but ceased to be used as such many years ago. The only real way in which this dam will modify the river flow is to divert a portion of the water that currently flows over the dam through a turbine to generate electricity. This should constitute a very small change to the overall hydrology and ecology of the river."

Schroeder added that water-rich rural New England has a very high rate of flow through its watersheds, and a relatively low population density using that water. This suggests conditions ideal for conversion of the dam back to power generation. State Rep. Brian Campion is one of the project's most vocal supporters in Montpelier. He said Scully's determination and force of will are vital to the elaborate and sometimes frustrating permitting process. In the end, Scully's community of North Bennington will lessen its reliance on oil and nuclear power. "Bill brilliantly identified the opportunity before him -- harnessing the power of water to create energy," Campion said. "However, he unfortunately was met with many roadblocks; some so great that they would have caused many of us to forgo our plans." Scully acknowledged that four years -- in which his personal investments will be the primary source of funding -- was a modest estimate in terms of getting the dam up and running. "There are currently 1,200 unused dams in Vermont," Scully said. "Why? Adding hydroelectric energy back into the equation will create a far more dynamic and sustainable portfolio than what we currently have. But yes, the process can be long and challenging at times." Campion said that is what makes Scully's resolve necessary to the future success of such endeavors. He emphasized that the entrepreneur's leadership is what will convince other private citizens to step up to benefit local communities and the environment. "Thankfully Bill's persistence and intelligence has him moving toward reaching his goal and, by doing so, crafting a blueprint for an energy-creation-model for the state of Vermont," Campion said. "In addition to the financial and environmental benefits of Bill's work, he has also shown countless Vermonters -- young and old -- the power one person can have to make a change."

Cool DIY Hydropower Kits for Kids

EarthTechling.com Staff, Technology / Clean Technology, May 2, 2012, treehugger.com

© Science Kit and Boreal Laboratories

Kids these days: they can figure out how to take 3-D pictures on your iPhone, but all they know about electricity is that you're always going on about something called vampire power and nagging them to turn off the lights. It's time to put that tech smarts to work in getting a handle on renewable



energy, is it not? And we have just the toy to get them started. **The Hydropower Renewable Energy Science Kit** aims to help your budding genius explore the power of water, literally, by building models and conducting experiments with them. **It all starts with some good old-fashioned technology -- namely, the waterwheel, the sawmill, and the hammer mill, all of which offer a simple, intuitive, and easy-to-understand example of moving water's potential to accomplish physical work.** But here's the clever bit: this kit will also help your kids assemble a hydroelectric power station and actually generate their electricity, lighting an LED. We're imagining that when the light bulb in this kit goes on, some bulbs will light up for your kid too. (Playing with electricity hasn't been this fun since (or safe) since that infamous Xbox sleepover.) Water towers, communicating vessels and a water fountain further illustrate the scientific concepts of water pressure, while accompanying experiments demonstrate surface tension, adhesion and cohesion. **Your child can even unlock the mysteries of energy in ocean waves, tides, and rivers, and how we can harness and generate electricity from these diverse water sources.** The kit includes an experiment manual with illustrated instructions and background information, is available through Science Kit and Boreal Laboratories, and will set you back \$51.95 (<http://sciencekit.com/product.asp?pn=IG0051566&mr:trackingCode=19004DB5-6DC3-E011-9F24-0019B9C043EB&mr:referralID=NA>).

(Some hydro and family history. What a great hydro story! Imagine, the project is well over 100 years old and still ticking. Go and try to find any other generation that can do what hydro does – it doesn't exist!)

Landmarks: Nine Mile Falls Dam at core of enclave ***Brick cottages housed workers at hydro plant***

The Nine Mile Falls hydroelectric plant was constructed between 1906 and 1908 near Charles Road in Spokane County.

May 3, 2012, spokesman.com

The 16 miles from downtown Spokane to the Nine Mile Falls Dam on the Spokane River, WA was once considered such a long journey that a little village was created on site for the power plant workers and their families. **Today that whole enclave – the dam, powerhouse, 10 family cottages, a 30,000-gallon metal water tank (believed to date from the 1920s) and a one-story gabled storehouse – constitutes the Nine Mile**



Hydroelectric Power Plant Historic District, which was placed on the National Register of Historic Places in 1990. Spokane's growth in the early 1900s was shaped by the electric streetcars and interurban rail lines that would eventually have 250 miles of track connecting the city to the Palouse country and Coeur d'Alene. The lines provided freight service for farms in the region as well as passenger service – all under the umbrella of the Spokane and Inland Empire Railway System. The Spokane Power Development Co., owned by mining entrepreneur J.P. Graves, gained sites along the Spokane River to develop a power supply for the rail system, and in 1906 began construction of the \$1 million, 12,000-kilowatt hydroelectric plant in a rock canyon at the Nine Mile Bridge for the rail system that at the time contained 130 miles of track. The river had to be diverted from its natural channel, which was accomplished by building a concrete gravity dam in which the powerhouse itself was part of the water-stop system – apparently the only such structure in the state. **The dam, built of cyclopean masonry (large blocks of granite set in concrete), measures 363 feet across the top and is 58 feet high; and it provided room for placement of 10-foot flashboards atop the spillway during the water-storage season to increase its height and storage capacity.** The integrated three-story powerhouse measures 116 feet (north-south) by 139 feet (east-west) and is supported by buttress walls. It has four gates in the wall on

the upstream side through which water flows through to turbine chambers. Each gate covers openings that are 14 feet wide by 20 feet high.

The plant was completed in July 1908, at which time it was connected to the company's distribution center in Spokane, known as the Frequency Changing Station, by high tension transmission lines. From there direct current powered Spokane's streetcar system, and a portion of the power was converted to alternating current for a series of substations located along the railroad's routes. The Nine Mile Plant also furnished power to small communities along the rail lines, beginning with the town of Rosalia in 1908. In 1925 the plant was purchased by Washington Water Power Co. (now Avista), making it the sixth plant it owned along the river. In 1928 and 1929, WWP erected 10 small brick homes in the Craftsman and English cottage style in order "to provide housing for its personnel at the remote location," one document reads. Each of the cottages had three bedrooms, a bathroom, kitchen and living room. Steve Wenke, who is today the chief generation engineer at the Nine Mile power plant, grew up there and remembers it as a tight-knit community set among cottonwood, willow and black locust trees. He also recalls carrying lunch to his father, a dam operator, at midday. Today several of the cottages are occupied by rangers who work at Riverside State Park, the 7,600-acre recreation area which borders much of the power plant site, and a number are vacant. Avista spokesperson Anna Scarlett said the plant now has a 26.4 megawatt capacity when all four Francis turbines are running, enough power to supply electricity for 19,500 homes. And there have been numerous improvements over the years, not the least of which is the installation of a spillway with a modern spill plate (no more wooden flashboards to increase the amount of water stored behind the dam) in 2001. Still, a walk through the area is evocative of those earlier days, when Nine Mile was truly remote. Today kayakers and other water and hiking enthusiasts can be seen enjoying the surroundings. It remains one of the best-preserved older hydroelectric plants and one of the most significant of the remaining properties connected with interurban rail history in the state.

(Interesting, the Department of the Interior is at the forefront of removing dams on the Elwha and Klamath Rivers and they pound their chest about a small 1.1 MW project.)

C Canal hydro project starts producing power

Facility will produce \$250,000 worth of electricity annually

heraldandnews.com, May 4, 2012, Joel Aschbrenner H&N Staff Reporter

A top federal water official flipped the switch Thursday on a hydroelectric facility that will produce up to \$250,000 worth of electricity a year for the Klamath Irrigation District.

U.S. Bureau of Reclamation Commissioner Michael Conner said the 1.1 megawatt facility will help mitigate the rising cost of power for Klamath Reclamation Project irrigators. Power rates for project irrigators have increased more than ten-fold since a deal for historically low rates expired in 2006. "We have to try to deal with that problem and this is a way to address those costs," Connor said about the hydroelectric facility. The facility, named the C-Drop Hydroelectric Project, is on the Klamath Irrigation District's C Canal near the district headquarters in the Henley area. It diverts water through an electrical turbine as it falls from the A Canal to the C Canal. The C-Drop can produce up to 3,000 megawatt-hours a year, enough energy to power about 113 homes. It is built at the same location as a hydroelectric facility that burned down more than 50 years ago. About 50 irrigators, federal agents and local officials endured chilly May winds for the dedication of the new project. There was an oversized ribbon cutting and even a commemorative coin minted for the occasion.

More projects

Klamath County Commissioner Al Switzer said he hopes to see more hydroelectric facilities developed on canals and waterways around the Klamath Reclamation Project. "We've had a lot of division in our agriculture community and this is something that will help bring our ag community back together," he said. The irrigation district will sell power back to the grid, with revenue increasing over the next 25 years as the district pays down the cost of building the facility. "It's going to take some time," said Ed Bair, a hay and potato farmer and member of the KID board, "but it will pay off."

Minneapolis hydro plant shows existing dam potential

By Dan Haugen • 5/04/2012, midwestenergynews.com

An array of small hydro turbines at Saint Anthony Falls in Minneapolis (Photo courtesy Brookfield Renewable Energy Group). A U.S. Department of Energy [report](#) last month sought to draw attention to an underutilized national resource: dams. The nation's waterways are broken up by more than 80,000 dams, but only about 2,500 of them are used for generating power. The Midwest could add more than 5,000 megawatts of generating capacity by incorporating turbines into existing dams on the Ohio and Mississippi rivers, the report says. A newly operating small hydro plant in Minneapolis offers a potential model for developers elsewhere in the region. The 9.2-megawatt Lower Saint Anthony Falls hydroelectric project was built into an Army Corps of Engineers' lock and dam on the Mississippi River. It started generating in December. It's the first U.S. facility to use a technology called [StrafloMatrix](#) — a modular system in which turbines and generators sit in window-fan-like boxes that can be stacked and assembled to fit unique spaces. The Lower Saint Anthony Falls project has 16 turbines stacked two deep and eight across. The turbines are made by an Austrian company called Andritz Hydro. The equipment is designed to be compact enough to fit inside existing dams. It also allows for individual sections to be pulled out of the water for maintenance without disturbing the rest of the system. "It's an interesting concept," said Peter Rodrigue, a senior consultant with Hatch Energy in Amherst, N.Y. In general, it's more economical to have fewer, larger turbines, but a matrix system may have an advantage for certain existing facilities, Rodrigue said. Hatch Energy consulted on a proposed project on the Ohio River in the 1990s that would have used the technology and concluded they weren't economical at that time.



But hydropower is a very site-specific business, more so than wind power, and so it's hard to generalize about how widespread a turbine could be used, Rodrigue said. Brookfield Renewable Energy Group and Nelson Energy, which own the facility, applied for their federal permit in 2004 and started construction in 2009. The \$38 million project was paid for in part with a grant from Xcel Energy's Renewable Development Fund. Glenn Cada, a fish biologist with the Oak Ridge National Laboratory who studies the impact of hydropower, said he's unaware of any conclusive studies on how the small, matrix turbines might affect aquatic life. There are three main ways in which fish are harmed by hydroelectric facilities. One is being struck by turbine blades. Others are the extreme pressure changes and water velocities. "It's like a fish traveling through the jet of a fire hose," Cada said. "There's turbulence and sheer stresses that can remove scales or even tear gill cover." The smaller blades leave less space between them for fish to swim through, Cada said, but on the pressure change and water velocities in matrix turbines are likely less intense and therefore more fish-friendly. As a run-of-the-river hydro facility, it doesn't involve creating any new reservoir, avoiding the carbon-sink penalty [we reported on Wednesday](#). "[M]any of the monetary costs and environmental impacts of dam construction have already been incurred," the DOE report says, "so adding power to the existing dam structure can often be achieved at lower cost, with less risk, and in a shorter timeframe than development requiring new dam construction."



Environment:

(See aerial photos below. Taking down Glines Canyon Dam wore out a hammer. At least the concrete was good. Nothing more to say)

A river almost freed: Aerial photographs show state of Elwha

peninsuladailynews.com, April 28, 2012

Port Angeles, WA — Lake Aldwell is gone. And a shrinking Lake Mills is pouring over a lowered Glines Canyon Dam. Aerial photographs of the Elwha River taken Friday show the state of the river on the eve of a two-month “fish window” beginning Tuesday that requires all work in the water to be paused. **Barnard Construction crews began dismantling the two dams, which were built without fish ladders, in mid-September as part of a \$325 million federal project to restore the river's once-famous salmon runs.** Now only a silver stream of a wild river can be seen where Lake Aldwell once stretched behind the former Elwha Dam, once 108 feet tall, the remnants of which were removed in mid-March. Crews continued to lower the river channel through the former Elwha Dam site last week, excavating the material used to plug the bottom of the dam (5 miles from the mouth of Elwha) after it blew out in 1912, Olympic National Park officials said.

Glines Canyon Dam

Eight miles upriver, Glines Canyon Dam's one-room headgate house was removed last week. The structure once housed the controls that regulated the amount of water from the reservoir that entered the powerhouse through a large pipe called a penstock. In the next few months, the boom of explosives will emanate from Glines Canyon Dam. During the fish window — which allows sediment to clear downstream — **the contractor will use explosives to remove the sections of dam that are above the water level. Once it ends June 30, controlled blasting will continue to take down the dam, once 210 feet tall, and the tallest dam to be dismantled in U.S. history.**

Hammer silenced

A hydraulic hammer on a floating barge in Lake Mills had been used since September to chip away at Glines Canyon Dam. **But it has finished its useful life,** the park said. During repairs last week, mechanics found wear patterns that showed it had reached its capacity, so they began relocating the excavator and dismantling and removing the barge from Lake Mills.

<http://www.peninsuladailynews.com/article/20120429/NEWS/304299988/a-river-almost-freed-aerial-photographs-show-state-of-elwha#>



All Photos by Keith Thorpe/Peninsula Daily News - The Elwha River braids its way through what used to be Lake Aldwell behind the former Elwha Dam. With the dam now removed, practically nothing remains of the lake it impounded. U.S. Highway 101 can be seen crossing the river in the foreground.



Glines Canyon Dam - A large construction crane towers over the scene Friday.



A braided delta is shown as the Elwha River cuts channels through previously submerged areas of Lake Mills behind the former Glines Canyon Dam.



A braided delta is shown as the Elwha River cuts channels through previously submerged areas of Lake Mills behind the former Glines Canyon Dam.

Lake Mills in Olympic National Park reveals large areas of previously submerged shoreline as removal of Glines Canyon Dam, visible at the lower end of the lake, progresses Friday.



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5/18/2012



Some Dam – Hydro News™

And Other Stuff



Quote of Note: “Act as if what you do makes a difference. It does.” — William James

“Good wine is a necessity of life.” - Thomas Jefferson

Ron’s wine pick of the week: Castoro Cellars Petite Sirah Shell Creek 2009

“No nation was ever drunk when wine was cheap.” - Thomas Jefferson

Other Stuff:

(Excerpts - If you build something that you can’t control, you should have to live with it, and not expect to be paid by raising consumer rates. The wind advocates solution is shutting down other cheaper power sources so they can have taxpayer paid for tax credits. Full article:

<http://www.statesmanjournal.com/article/20120506/GREEN/305060028/BPA-reins-wind-farms?odyssey=mod%7Cnewswell%7Ctext%7CNews%7Cp>)

BPA reins in wind farms

Excess hydro power forces order

May 6, 2012

For the second year in a row, spring rain and snow melt have led to an oversupply of hydropower on the Columbia River. And for the second straight year, the government agency charged with both marketing hydropower from federal dams and running the region’s power grid has ordered the growing wind-energy sector to stop producing — and selling — electricity. Now, as then, the industry isn’t happy with the situation. The order forced wind farms along the Columbia River to shut down for about 10 hours during the past weekend. Michael Milstein, a BPA spokesman, said there may be more periods this spring when wind farms have to shut down. -----.



Dams:

(Controversy reigns on the Klamath River – who knows what the facts are?)

Fired Scientists Returns With Doubts About Klamath Dam Removal

May 7, 2012 | OPB, earthfix.opb.org

Klamath Falls, Ore. — A former government scientist says the Department of Interior has painted too positive a picture of ecosystem recovery if dams are removed on the Klamath River. Paul

Houser was a scientific integrity officer. And he says he was fired for expressing his dissent. Houser spoke to an enthusiastic crowd in a high school gym in Klamath Falls on Sunday. The Department of Interior has been researching the impact to salmon of removing four dams on the Klamath River. The dams are owned by PacifiCorp. Houser says some of the department's studies showed that factors like climate change and water pollution could hinder salmon recovery even if the dams come out. But Houser says that kind of critical information was left out of the summary for policy makers and the public. **The Interior Department in January issued a report concluding dam removal would be economically and environmentally beneficial.**

"It's important for decisions makers to know the risks and uncertainties, and those just weren't put in. So they could send this message that removing the dams was a good thing," Houser said.

Houser says he was told not to document his concerns. He did, and then he was placed on probation and fired. Houser has filed a whistleblower complaint with Interior. According to news reports, the department has declined to comment on why Houser was fired and is investigating his complaints. Houser now teaches at George Mason University in Virginia. His appearance in Klamath Falls Sunday and Yreka, Calif. Monday are hosted by the Cal-Ore Bi-State Alliance.

[\(The view of the "don't remove the dams" side\)](#)

AWB - Opinion

Some dams should come down, but not Snake River dams

May 7, 2012, kpbj.com | Don Brunell

There are dams that should come down and those that shouldn't. Demolishing the two dams on the Elwha River west of Port Angeles is a good thing and, hopefully the salmon and steelhead will return in record numbers. The dams were built in the early 1900s to bring electricity to the Olympic Peninsula at a time when salmon and steelhead were plentiful in other Pacific Northwest rivers. On the Elwha River, the issue was clear: Two barriers were blocking salmon from moving upstream. The care with which the demolition was planned, studied and implemented is a credit to all involved, and now fish can swim up to the high mountain tributaries in the Olympics to spawn and start the lifecycle over again.

But breaching the four lower Snake River dams is an entirely different matter. For one thing, the billions of dollars paid by Bonneville Power ratepayers to improve fish passage and spawning habitat throughout the Columbia and Snake River system is now paying off — salmon are moving up the Columbia and Snake rivers in great numbers. For example, in 1992, a single male sockeye salmon dubbed Lonesome Larry managed to swim 900 miles from the mouth of the Columbia River to Redfish Lake in Idaho's Sawtooth Mountains to spawn. Last year, the Idaho Fish and Game Department reported that 1,070 sockeye returned to Redfish, and the Columbia River Inter-Tribal Fish Commission counted more than 27,000 adult fall chinook above the Lower Granite dam, the uppermost dam on the river. Another major difference: While the Elwha dams produced very little electricity, replacing the electricity generated by the Snake River dams would take two nuclear plants, three coal-fired generators and six gas-fired power plants. Hydropower is the most efficient way to generate electricity, capable of converting 90 percent of the available energy into clean electricity. Wind turbines, on the other hand, are only about 30 percent efficient at best. Another difference between the Elwha and Snake River dams: Ice Harbor, the westerly most of the lower Snake River dams, irrigates 36,000 acres of farmland, vineyards and orchards. Consider also the marine highway created by the Columbia and Snake rivers is the most environmentally friendly way to move cargo from Lewiston to Astoria. Barging keeps 700,000 trucks off Northwest highways every year, and barges are extremely fuel-efficient, moving a ton of goods 576 miles on a gallon of fuel, compared with 413 miles for rail and 155 miles for trucks.

A plan exists to carefully manage the Columbia and Snake rivers for the benefit of both fish and people. Years ago, fisheries scientists from tribes, federal and state agencies and thousands of people whose lives depend on those two rivers came together to develop a comprehensive management plan which became known as the Biological Opinion or "Bi-Op." The Bi-Op was

supposed to be implemented two years ago, but U.S. District Judge James Redden, who recently retired, blocked it saying that spilling water to allow young salmon to migrate to the ocean wasn't good enough. He told Idaho Public TV reporter Aaron Kunz that there was no need to go the expense of demolishing the dams. "You just dig a ditch and let the river go around them." All this nonsense about digging a ditch around those four massive structures is just that — nonsense. We should thank our lucky stars the four lower Snake River dams are there and get on with implementing the cooperative management plan that allows both fish and families to thrive. *(Editor's Note: Don Brunell is president of the Association of Washington Business.)*

(This is the history of the Dworshak Dam in Idaho. The article was sent to me to share with all by dam historian extraordinaire, Dick Wiltshire.

Click on this link to go to the Digital Library - <http://www.lib.uidaho.edu/digital/dworshak/>)

Idaho dam debate goes digital

By Eric Barker, Lewiston Tribune staff, 05/06/2012

Lewiston, Idaho -- Some predicted that salmon and steelhead runs would be wiped out, bountiful big-game herds would crash and a beautiful canyon would be turned into a mud-lined reservoir. Others said a gorgeous lake would be born, downstream floods would be a thing of the past and a recreational playground would bring economic stability to a rural outpost. In the end the pro-dam forces won the argument. But when the millions of yards



of concrete dried and the North Fork Clearwater River backed up behind a new dam at Bruce's Eddy, neither side could claim to have been 100 percent accurate in their forecasts. The predictions and public debate that preceded construction of the project that would later be named Dworshak Dam and Reservoir are preserved in the University of Idaho's Special Collections and Archives. The university recently made hundreds of the letters, newspaper clippings and photographs of and about the project available in an online archive.

History eventually proved opponents correct, to a degree. The dam did wipe out a wild steelhead run, but its genetics live on in a hatchery fish produced below the dam. Important winter elk range was swallowed by the reservoir but the herd was not wiped out. The dam and reservoir helped control flooding but it didn't prove to be a mecca to recreationists as supporters hoped. The archives show those who argued against its construction were regarded as wildlife-loving cranks standing in the way of progress. "If Bruce's Eddy is going to hurt fish and wildlife resources a great deal, we (the Corps of Engineers) would be hesitant about giving it our full hearted support," Gen. E.C. Itschner was quoted in the Lewiston Morning Tribune as he addressed civic leaders at Orofino in July 1958, prior to the project gaining approval. "And I have testified before Congress that there is no truth in the opposition. They (opponents) are not fair or they are completely ignorant. It would cause infinitesimal damage." Orofino Mayor A.B. Curtis said the dam would be a tourism draw and described those opposed to it as obstinate. "They are totally unapproachable. I have tried to draw the stinger out but I have found a growing amount of misunderstanding and deliberate misunderstanding at that. They are deliberately unapproachable to an explanation." So it was for those who tried to stop the dam at Bruce's Eddy. They were heard and then dismissed. The dam, which would later be named after Idaho Sen. Henry Dworshak, was completed on the North Fork Clearwater River in 1972. It protects downriver communities like Portland, Ore., and Vancouver, Wash., from flooding and produces power for the grid, but the promise of local economic blessings has yet to fully come to fruition. The public debate preceding its approval, as well as the construction of the dam, was preserved by Curtis, who was one of the project's biggest boosters. His collection of photographs and documents was donated to the University of Idaho and was recently digitized along with other archives, which are now available to anyone with access to the Internet.

Officials at the University of Idaho Library identified the collection as both interesting and highly used by students and other researchers, and singled it out to be preserved electronically. "We digitized all the correspondences and the photos and the other related literature," said Devin Becker, UI digital initiative librarian. He and others spent months scanning in the photographs and documents and created a website, and then made it more user-friendly with tools such as a time line and the linking of images to Geographic Information Systems. "We are adding this functionality to a lot of our collections," said Becker. The photographs are the candy of the collection. Pictures of the lower North Fork prior to the dam and images detailing the immensity of the structure and the wonder of its construction draw in the viewer. Just as remarkable, though, are the letters, newspaper clippings and other documents that provide extraordinary details into the culture and viewpoints of the government and public during the height of America's dam-building era.

At the same time the Bruces Eddy project was under consideration, there also was a proposal to build a dam at Penny Cliffs, east of Kooskia on the Clearwater River, and three competing proposals to build more dams on the Snake River in Hells Canyon. If all of them had been constructed, including one below the mouth of the Salmon River, wild salmon and steelhead runs in Idaho might now be a relic of history. Opponents of the dam correctly predicted that plugging the river at Bruces Eddy would wipe out steelhead and salmon runs. The North Fork strain of steelhead, known for large fish, lives on through Dworshak National Fish hatchery but an entire sub-basin of prime spawning habitat was lost. Critics also said the dam would destroy winter range used by the Clearwater Basin's famed elk herd. They proved right on that count as well. Supporters maintained the dam would create a wonderful lake ringed with cabins and brimming with fish and fishermen. It does support popular bass and kokanee fisheries today but visitation suffers because of something neither critics or proponents could have foreseen -- the lake is lowered 80 feet every summer. The reservoir was supposed to be drawn down in the winter, as water was shot through turbines to produce power to heat homes and businesses. And it was for many years. But as salmon and steelhead populations in the rest of the Snake River basin dwindled, Dworshak's water was called to cool the Snake and flush young fish seaward. Curtis hoped the dam would be a boost to Clearwater County's meager tax base. He and other supporters said those against the dam were not local and their arguments should be dismissed. But the foes did include prominent leaders in the hook-and-bullet crowd, both in Lewiston and across the United States. They included men like Vernon Speer, founder of Speer Bullets, a predecessor to today's ATK, and Jack O'Connor, the famous gun and ammo editor for Outdoor Life magazine. Renowned conservationist Mort Brigham of Lewiston also warned that the dam would do more harm than good. "We really wanted to show both sides of it and Curtis' collection does," Becker said. "There is even some mild hate mail. It's mild, very polite." In addition to newspaper clippings, the collection includes letters between Curtis and Dworshak, with the mayor urging on the senator and the senator explaining the legislative realities to the mayor. "We think of it as historical digital scholarship on the web that hopefully will bring more researchers to the university and allow them to use our collections from a distance," Becker said.

(Here's a novel idea to finance dam repairs in PA. There's only one issue. If the repairs are based on a probable maximum flood using now old data, that should be reviewed first because it may need updated.)

Plan to save dams like Hereford Manor Lakes

Posted on May 9, 2012 by Press Releases, news.ellwoodcity.org

State Rep. Jaret Gibbons has introduced legislation that would use revenue from oil and gas operations on state-owned land to fund the reconstruction of high hazard dams, such as the Hereford Manor Lakes in Franklin Township, Beaver County. "Marcellus Shale drilling on state-owned land is generating millions of dollars for the state and creates a rare opportunity to repair and rebuild high risk dams, like Hereford Manor," Gibbons said. "The extraction of our natural resources is generating the revenue and directing a small portion to address the critical needs of these dams is a wise and appropriate investment." Gibbons' bill, H.B. 2307, would annually

transfer 5 percent of the revenue the state receives from leases and royalties from the Oil and Gas Lease Fund to the Pennsylvania Fish and Boat Commission for the specific purpose of repairing and rebuilding high hazard dams owned by the commission. The maximum annual transfer would be \$6 million. "The Hereford Manor Lakes are important to our region's economy and quality of life," Gibbons said. "Lakes like Hereford Manor offer boating, fishing and hiking opportunities and boost local economies." A legislative hearing Gibbons hosted found that more than 120,000 licensed anglers live within 30 miles of the Hereford Manor Lakes and the average angler spends more than \$600 annually on fishing. "The Fish and Boat Commission has expressed interest in rebuilding the Hereford Manor Lakes, but it lacks the funding. This legislation would help address the funding needs at no additional cost to taxpayers," he said. The Oil and Gas Lease Fund has an estimated balance of \$45 million. If Gibbons' bill is enacted, more than \$2 million would be available to repair the PFBC's seven high hazard dams. Gas royalties are volatile, but the funds balance could rise significantly as Marcellus Shale exploration continues to expand. The General Assembly created the Oil and Gas Lease Fund in 1955 to invest revenue from the sale of oil and gas resources owned by the state into conservation, recreation, dams and flood control.

"Rebuilding these dams is a wise use of these funds and consistent with the original purpose of the Oil and Gas Lease Fund," Gibbons said. The Upper and Lower Hereford Manor Lakes have been drained and dismantling of the dams is scheduled to be completed later this year. The immediate area around the lakes currently is closed to the public, but following the demolition work is expected to re-open as public green space. Until the dams are rebuilt, Hereford Manor will remain property of the commonwealth, but could be temporarily leased to local groups for maintenance and conservation uses. The property cannot be sold to a private entity without authorizing legislation passed by the General Assembly, which none has been introduced. Gibbons said he would oppose any future attempts to transfer the property for private or commercial use. Both dams were built in the 1950s as part of a strip mining operation. The PFBC purchased the lakes in 1973 and the dams were classified as "high risk" in 2001. Engineering studies concluded heavy rains could cause the dams to fail, posing a risk to lives and property along the Deer Run and Connoquenessing Creek, including the Zelenople Community Airport. Gibbons represents the 10th Legislative District in Lawrence, Beaver, and Butler counties. For more information visit www.pahouse.com/Gibbons, or get regular updates on Twitter and Facebook.

Watershed Council mulls expanding & building dams

By Jan Neish & BOR Staff Reports, May 10, 2012 edition, islandparknews.com

Fremont County, ID — The Bureau of Reclamation (BOR) and the Idaho Water Resources Board (IWRB) are exploring ways to meet local and state water needs through water storage, conservation, and other methods. Raising the Island Park and Ashton reservoirs and damming Moose Creek to create a reservoir and hydro plant are three alternatives the Bureau of Reclamation (BOR) is proposing to increase water storage in the Henry's Fork Basin. The Moose Creek alternative would pipe some of the water for the Moose Creek reservoir from Big Springs, a trout spawning site at the head of a National Water Trail.



Ashton Dam

For nearly two years the two agencies have been collaborating with the diverse group of professionals and citizens who comprise the Henry's Fork Watershed Council to gather ideas and data concerning current water issues. On Tuesday May 8, representatives from both agencies attended a Watershed Council meeting to share their technical memos and gather feedback. The memos are the result of winnowing more than 40 ideas down to 17 focus areas, which were then grouped into the five categories: Dam Raise Alternatives, Managed Recharge Alternatives, Municipal and Industrial Conservation, Agricultural Conservation Alternatives, and Teton Dam Option. The study area is upstream of the Henry's Fork's confluence with the Snake River and includes the North Fork of the Upper Snake River, Fall River, and Teton River watersheds. Alternatives are supposed to be in accordance with the aquifer recharge program of the Idaho Water Resource Board and in consideration of the environmental impacts to the entire Snake River basin. This summer BOR and IWRB representatives and other professionals will meet in small groups to review existing data, add more information, and discuss alternatives. They'll produce an interim report that will be presented in the October 2012 Watershed Council meeting and posted on the web at usbr.gov/pn/programs/studies/idaho/henrysfork/index.html. The final step in this study is to take the resulting proposals of the Interim Report, evaluate them, and formulate recommendations which will be published as the Henry's Fork Basin Study Report due in October 2013. This final report is designed to be a resource for future federal, state, and local actions.

In this week's meeting, the Dam Raise Alternatives presented the most questions concerning Island Park. Two of the proposals involved the Island Park Dam going from a 1 foot to a 2 foot "bladder" or raising the 8,000 foot dyke 8 feet which could adversely affect at least 100 homes and possibly 18 wildlife species. These changes would increase the reservoir capacity by 74,000 acre feet. The need for storing water in the Upper Henry's Fork Basin was identified in 2007, when the Idaho Department of Water Resources (IDWR) launched a study to pinpoint at least five sites on the Eastern Snake Plain Aquifer (ESPA) that could be used to recharge hundreds of billions of gallons of water back into the ground to help combat declining groundwater levels and spring flows. The goal was that each of the five locations on the ESPA would recharge up to 500,000 acre feet of water annually back into the aquifer. Declines in spring flows and groundwater levels have evolved over the years as a result of increases in groundwater pumping coupled to reduced recharge due to increased efficiency in irrigation practices. About 800,000 acres of land irrigated by groundwater have been brought into production on the Eastern Snake Plain since the 1950s. IDWR has compared groundwater levels measured in 1996 to groundwater levels measured in 1980. The results show declines of up to 10 feet or more in nearly all areas of the 10,000 square-mile aquifer. "This is an ongoing process that hopes to bring together those who might normally disagree, to realize that finding mutual ground is better for the greater good," said Bob Schattin, Reclamation activity manager. Once the interim report is completed, the final phase of the study will evaluate the proposed alternative and formulate recommendations. The final phase of the study will last approximately one year and culminate in a final basin study report due in 2013. After that, the costs of building, operating, and maintaining facilities would be estimated, and then there's the matter of finding the money to fund the plans. Any alternative chosen would also have to meet requirements of numerous federal and state laws that protect water, air, wildlife, and other resources. Public input will also be required at various points along the way.

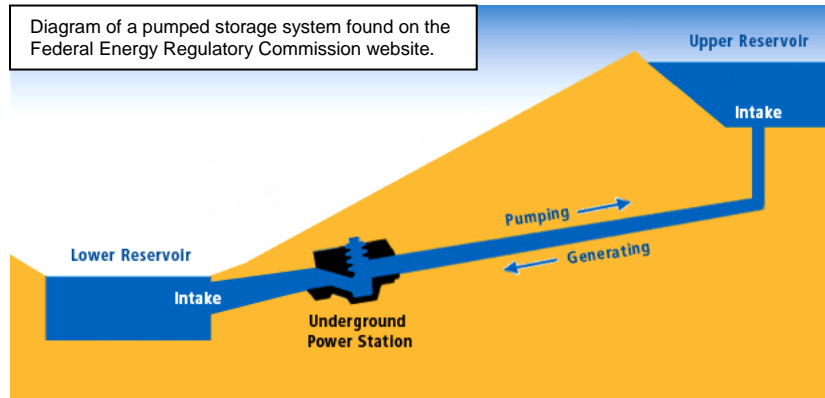


Hydro:

(Who drew that diagram with the tilted powerhouse at the wrong elevation and power and tailrace tunnels with a backwards shape and wrong slope??? And, how 'bout that generator going through the roof?)

Mason County considered for hydropower project

A Boise, Idaho-based company has filed with the federal government to study the feasibility of a hydropower project in Mason County. Gridflex Energy, LLC, filing under the name Maysville Pumped Storage, LLC, filed an application for a preliminary permit with the Federal Energy Regulatory Commission



on Dec. 16, 2011, to conduct the feasibility study, according to a legal notice published in The Ledger Independent on April 23. On Friday, Matthew Shapiro with Gridflex confirmed the company has made application with FERC to conduct the study, for the purpose of large scale energy storage, which would then be sold to prospective electric power companies that serve Kentucky, Ohio and Indiana. Shapiro said the company has been in discussion with Carmeuse Lime and Stone, because the desired site is situated on Carmeuse property. Shapiro also noted a site study for hydropower project was conducted in the area 20 years ago and because Gridflex is a specialist in the development of stored energy, the study caught its interest.

The project would involve an upper and lower reservoir, spaced at least 1,000 feet apart and with a steep descent between the two. The water between the reservoirs would travel through an underground tunnel, feeding into the lower reservoir which could potentially be located in an unused area of the Carmeuse mine, 1,000 feet underground. An underground powerhouse would also be part of the project, Shapiro said. The 1,000 megawatts generated at the powerhouse would be fed out to transmission lines. The estimated average annual generation is 2,190,000 megawatt-hours. The upper reservoir surface area would encompass approximately 130 acres, with the lower reservoir having a surface area of up to 266 acres, and a storage capacity of 10,000 to 12,000 acre-feet, Shapiro said. The projected cost is \$1 billion, and would have immediate impact to the local economy by bringing tax money and hundreds of construction jobs into the area, Shapiro said. The project would also bring a dozen permanent jobs to the area. Currently, there are 75 applications on file with the Federal Energy Regulatory Commission for hydropower projects, Shapiro said, adding the Mason County project would have a greater likelihood of being developed than any other projects. "It may be the best in the country," he said. The public has 60 days after the issuance of the legal notice -- April 23 -- to comment on the application. In most instances, a preliminary permit is issued by FERC 45 days after the close of public comment, which grants exclusivity of the site to Gridflex for study purposes. In the case of such projects, federal and state permits are required and environmental studies conducted before construction can begin. The timeline could be three to five years before completion.

(Excerpts- The City better be careful. A public entity entering a deal with a private group could bring problems.)

Dam plan gets nod

Local group can proceed

sentinelsource.com, May 4, 2012 | By Abby Spegman, Sentinel Staff

The Keene City Council signed off on a handful of infrastructure-related projects at its meeting Thursday, including a plan to bring hydropower to the Ashuelot River dam and how to name a new pedestrian bridge. The council agreed to let a group of citizens working to put a small hydropower plant at the dam on West Street apply for permits for the project, including with the Federal Energy Regulatory Commission. The city already has a preliminary permit from that commission, which the private venture could benefit from. Robert King, James A. Putnam and

Kenneth A. Stewart submitted a letter to the council in March asking to work with the city in studying and re-implementing hydropower at the dam. The motion passed unanimously Thursday with little discussion.

What remains unknown is whether the dam will be kept or taken down. Last year, city officials received a letter of deficiency from the N.H. Department of Environmental Services Dam Bureau identifying necessary upgrades the city said could cost \$425,000. Officials are waiting for a report from city staff on the dam before moving forward on a decision about its fate. -----.

(Bureaucracy at its best!!!! Imagine, after all these years someone came up with the idea of sitting down and discussing how to fix this problem. Huh, why wasn't that done way back when like it used to be done?)

Federal officials call for summit on Lowell dam dispute

By Jennifer Myers, lowellsun.com, 04/21/2012

Lowell, MA -- In an effort to end years of battling through letters filtered through the Federal Energy Regulatory Committee, U.S. Department of the Interior officials are calling for a face-to-face meeting with officials from Enel North America, FERC, and state and federal historic preservationists to discuss Enel's controversial proposal to replace the wooden flashboards at the Pawtucket Dam with a pneumatic crest-gate system. The Department of the Interior, which oversees the National Park Service, has long opposed the project, arguing that the \$6 million project would destroy the historic integrity of the dam, which provided the water power that built Lowell. State and federal historic preservation organizations also oppose the project. Earlier this year, in an attempt to satisfy the concerns of the Lowell National Historical Park, Enel filed an additional mitigation proposal "which will not require large volumes of concrete or other materials to be irreversibly installed on the Pawtucket Dam."

The original plan called for a concrete slab to be poured on top of the dam to provide a level surface for the crest gate, which would be controlled by an inflatable bladder. Under the amended proposal, the crest gate would be attached to a steel anchorage assembly that would be attached by rock anchors through the dam and into the underlying bedrock. Enel Vice President Victor Engel told The Sun that in addition to avoiding the permanent concrete cap, the new installation proposal can be done by using divers and barges, eliminating the need to draw down the river during construction, which would impact the National Park Service's boating program. Peter Aucella, assistant superintendent at the Lowell National Historical Park, said the Park Service disagreed, stating that the proposed anchor system requires 111 anchors to be drilled through the dam into the bedrock, which the Park Service suspects will cause more damage. The consultation process required under the National Historic Preservation Act was canceled by FERC when the National Park Service and other historic agencies refused to sign on to a memorandum of agreement on the project. Aucella said the memorandum failed to "mitigate the damage that would be done to the resource." Last month, FERC determined changes made by Enel to the design of the project mitigate any harm the project would cause to the historic structure. In an April 19 letter to FERC, Department of the Interior Counsel Andrew Tittler proposes a meeting at LNHP headquarters on Kirk Street May 31 to discuss the project. "The applicant's new proposal attempts to respond to many of the expressed concerns of the NPS and indicates there may be more flexibility in the design than NPS had previously believed," Tittler wrote in the letter, which was copied to officials from Enel, Aucella, state Historic Preservation Officer Brona Simon and representatives from the Advisory Council on Historic Preservation. "We feel strongly, as we have stated in the past, that a meeting in person, among as many consulting parties as possible, is the only way in which to move toward any resolution." The goals of the meeting, Tittler said, would be "to gain a full and shared understanding of the effects of the applicant's new proposal on the Pawtucket Dam; to discuss methods to further reduce the impact of crest-gate installation; (and) to see whether some version of a crest-gate system is acceptable to all parties can be arrived at." Aucella said the Park Service is putting together a technical review team that may include representatives from the Bureau of Reclamation and a National Park Service hydropower specialist to participate in the process.

Engel said he welcomes the invitation. "We have actively sought this very scenario from the beginning to openly and transparently discuss the proposed modifications and fully and thoughtfully consider all reasonable alternatives," he said.

(Excerpts)

Riverbank Power Closes \$38 million Project Financing for 7.5 MW Dorena Lake and 4.7 MW Clark Canyon Run-of-River Hydroelectric Retrofit Projects

May 11, 2012, newswire.ca

Toronto, May 11, 2012 /CNW/ - Riverbank Power Corporation ("Riverbank Power" or the "Company"), a developer of pumped storage and run-of-river hydro generation assets, today announced that it has closed a \$26 million non-recourse debt and a \$12 million sub-debt financing to fund construction for its 7.5 MW Dorena Lake in Oregon and 4.7 MW Clark Canyon in Montana run-of-river hydroelectric retrofit projects. The non-recourse debt financing was structured and arranged by Travelers Capital Corporation and funded by Industrial Alliance Insurance and Financial Services Inc. and the remaining financing was provided by the Infrastructure Coalition Program, an investment vehicle managed by Aquila Infrastructure Management ("Aquila"). "Closing this financing marks a significant milestone for Riverbank as we transition from developer to independent power producer," said John Douglas, President and CEO of Riverbank Power. "I am particularly proud of our team's ability to successfully work with the U.S. Army Corps of Engineers and FERC in the case of the Dorena Lake project to finalize our design and approval to commence construction." Both projects are expected to be commissioned in 2013. The forecast annual electric output for both projects is estimated at 30 GWh, enough to provide electricity to approximately 2,000 homes. Alina Osorio, CEO of Aquila added: "We view these projects as an important first step in a broader strategic partnership with Riverbank Power, whose capabilities and pipeline are impressive. We look forward to the successful commissioning of the Dorena Lake and Clark Canyon facilities." -----

Agencies Team Up to Create Hydroelectric Plant

by KREX News Room, krex.tv.com, by Courtney Griffin, May 10, 2012

Montrose, Colo. - The Delta-Montrose Electric Association is teaming up with the Uncompahgre Valley Water Users Association to create a hydroelectric plant. They plan to use the water coming through the Gunnison Tunnel, which currently irrigates the surrounding towns and will soon create megawatts of energy. Jim Heneghan, renewable energy engineer, said the idea to create energy from the canal was generated back when the tunnel was built in 1909. "The total amount of kilowatt hours that are generated by these two power plants would serve a year's worth of use in about 3,000 to 3,500 homes." DMEA says the water will leave the tunnel and fall 372 feet to generate electric power. Officials say it will be enough power to light every town and every farmhouse in the Uncompahgre Valley, and provide power for all kind of commercial and industrial purposes. Officials say they plan to have the two power houses finished by May 2013.



(More studies debunking the ridiculous GHG assertions of International Rivers Network and other NGOs – go to websites below for better details)

Hydropower Results – Life Cycle Assessment Review

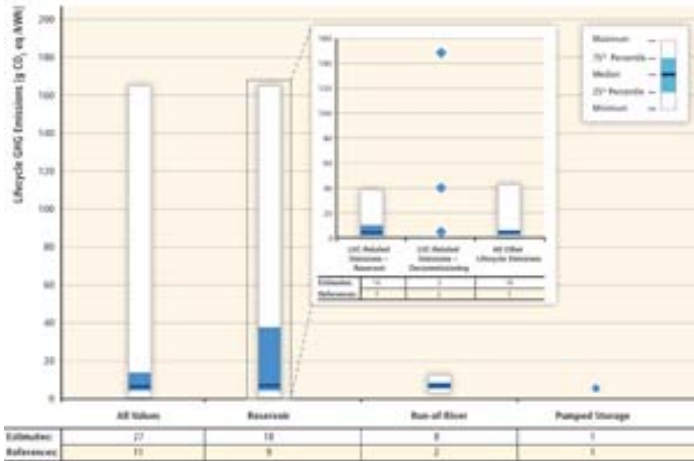
http://www.nrel.gov/analysis/sustain_lca_hydro.html

For more information, visit:

Special Report on Renewable Energy Sources and Climate Change Mitigation:
http://srren.ipcc-wg3.de/report/IPCC_SRREN_Ch05.pdf

Hydropower

OpenEI: Data, Visualization, and Bibliographies: <http://en.openei.org/apps/LCA/>



Lifecycle greenhouse gas emissions of hydropower technologies.

Credit: Kumar, A., T. Schei, A. Ahenkorah, R. Caceres Rodriguez, J.M. Devernay, M. Freitas, D. Hall, Å. Killingtveit, Z. Liu, 2011: Hydropower. In IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation [O. Edenhofer, R. Pichs-Madruga, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer, C. von Stechow (eds)], Cambridge University Press. Figure 5.15

[Enlarge image](#)

emissions from hydropower systems are low. Additional life cycle assessments on all hydropower technologies are needed to increase the number of estimates and the breadth of their coverage in terms of climatic zones, pre-impoundment land cover type, technology types, and dam sizes.

To clarify the state of knowledge on hydropower systems, NREL completed a [comprehensive review and analysis](#) of life cycle assessments on run of river, reservoir, and pumped storage hydropower systems published between 1980 and 2010. The figure below summarizes the results of the systematic review and analysis. The majority of lifecycle greenhouse gas (GHG) emission estimates for hydropower cluster between about 4 and 14 g CO₂eq/kWh. The outliers, which show reservoir hydropower estimates of over 150 g CO₂eq/kWh—much higher than run-of-river or pumped storage—stem from studies that included assessments of GHG emissions from land use change (LUC) from reservoir hydropower, an area of active research. **In comparison to fossil energy generation technologies, the lifecycle GHG**

(Some Companies file permits on anything that doesn't move and often jump before they look. This was a big waste of everyone's time.)

Hydropower lock and dam projects nixed

By Chris Hubbuch | Lee Newspaperswinonadailynews.com | May 12, 2012, winonadailynews.com

Conservationists and angling interests are expressing relief — but little surprise — that a Boston company has abandoned plans for five hydroelectric projects on the Upper Mississippi River.

Meanwhile, federal regulators on Friday issued a preliminary permit that will allow another company three years to develop plans for a 5-megawatt turbine proposed for Lock and Dam 8 at Genoa, Wis. Preliminary permits do not give the holder rights to build but provide exclusive rights while they develop plans. **Free Flow Power last week surrendered preliminary permits** for power projects at locks and dams on the Mississippi near Red Wing, Minn., Alma, Wis., Trempealeau, Wis., Dresbach, Minn., and Lynxville, Wis., citing lower water flow than the company had estimated as well as market forces such as historically low natural gas prices and uncertain renewable energy tax credits that made the projects financially unfeasible. "That was predictable," said Marc Schultz, chairman of the La Crosse County Conservation Alliance, which opposed the projects. "When you look at how much electricity they're getting and the money and all the hurdles with the agencies, you just scratch your head and wonder." **Each of those projects would have generated an estimated eight to 15 megawatts — enough to power 4,000 to 15,000 homes.** By comparison, Dairyland Power's coal-fired plant at Genoa has a capacity of 379 megawatts. Mark Clements, owner of Captain Hook's Bait Shop and Clements Fishing Barge in Genoa, said he was happy but not surprised about FFP's decision. He remains concerned about Symbiotics

LLC's plans for a hydropower plant at Lock and Dam 8 — or anywhere in the 261-mile Upper Mississippi River National Wildlife and Fish Refuge. "I know it affects my business. To me it goes beyond that," Clements said. "I don't want to see hydro in the refuge." The U.S. Fish and Wildlife Service, which manages the refuge, has weighed in with a letter on the Symbiotics preliminary permit, which was approved Friday by the Federal Energy Regulatory Commission. In particular, the placement of a powerhouse or other permanent structure on refuge land would not be permissible, said refuge manager Kevin Foerster. "It would take an act of Congress for that to occur," Foerster said. "It's not my farm to give away. If Congress wants to do it, they can." In general, Foerster said the Fish and Wildlife Service discourages such usage within the refuge because of potential impacts to fish and wildlife as well as the agency's ability to manage the habitat through changes in water levels. Ron Benjamin, fisheries supervisor for the Wisconsin Department of Natural Resources, said he's supplied information for several such hydropower projects over the years. For economic reasons, none has come to fruition. Benjamin said the primary concerns are impact to fish populations — and the ripple effects that has on recreational uses of the Mississippi. "It looks good on the surface, and then you dig down into and it doesn't look so good," Schultz said. "I'm not saying they can't do it in a way that's friendly and green, but what they've proposed so far isn't." In addition to the Symbiotic project, Free Flow Power has retained preliminary permits on Mississippi River locks and dams near Belleview, Clinton and Muscatine in Iowa and Gladstone, Ill. Those projects are larger — between 17 and 25 megawatts each — and thus more feasible, said project development director Jon Guidroz. Despite the challenging economics of the Upper Mississippi, there are some 77,000 dams in the U.S. with the potential to generate electricity. "There's definitely a lot of opportunity in the hydropower space," Guidroz said. "We're still bullish on hydropower."



Environment:

(It's always a mystery as to why people do the things they do just to catch a fish? Does anyone standing on that dam know that what they're doing is dangerous to their health?)

Bloomsbury Dam to be demolished by Army Corps of Engineers

lehighvalleylive.com, May 12, 2012, By Douglas B. Brill | *The Express-Times*

The U.S. Army Corps of Engineers plans to knock out most of the Bloomsbury Dam. The Army Corps says the 170-foot-wide, 7-foot-tall dam on the Musconetcong River is obsolete and bad for fish and plants. The plan is to remove all but 70 feet of the dam, which is on the border of Bloomsbury and Greenwich Township. The earliest the partial removal would start is the end of 2013, said Adrian Leary, project manager for the Army Corps. He said some residents were under the mistaken impression the work would start in weeks or months. The dam used to be a power source for a mill but now only interferes with aquatic life, he said.



Most Musconetcong dams "just make the river a whole lot less friendly to fish and the little critters that the fish eat," he said. The Army Corps has the support of the Musconetcong Watershed Association. The association reported improved aquatic life in the river after the Finesville Dam was removed last year. "Dam removal is good for the stream," said Beth Styler Barry, a spokeswoman for the watershed association, which has no role in the Bloomsbury project but is

keeping track of it. "There are some people who prefer the look of a dam, but those aren't the people who own it." Owners of dams often want them removed because they're costly to maintain and create liabilities, she said. The Greenwich portion of the Bloomsbury Dam is owned by Asbury Graphite Mills Inc., and the Bloomsbury portion by a nearby homeowner, according to a public notice from the Army Corps. A representative for the business couldn't immediately comment. The homeowner isn't named in the public notice.

(Oh oh, did someone forget to follow the rules that they insist others should follow?)

Rep. Herger critical of Englebright Dam removal report

May 12, 2012, appeal-democrat.com

U.S. Rep. Wally Herger is taking a dive into the discussion about the fate of Englebright Dam with a letter sent last week to a federal agency criticizing the agency's approach in determining the dam should be removed. "We just have questions from beginning to end," said Herger, R-Chico, who sent the letter last Wednesday to the National Oceanic and Atmospheric Administration and its sub-agency, the National Marine Fisheries Service. Herger's district includes the Yuba-Sutter area. Herger's letter criticizes the fisheries service for not consulting with the U.S. Army Corps of Engineers, which maintains the dam, or the Yuba County Water Agency, before releasing an opinion in February suggesting the dam be removed.

See The Letter: <http://richmedia.onset.freedom.com/marysville/m3xs0p-nmfsyubabiop05.09.12.pdf>

In the biological opinion, the service states continuing to operate Englebright and Daguerre Point dams severely affects the possibility of recovery for three endangered fish species, including salmon and steelhead. But the federal Endangered Species Act requires consultation with local agencies on such opinions, Herger said. "I can't overemphasize how important it is for them to check with these local entities," he said. His letter also notes the fisheries' service canceled three scheduled meetings with the Corps and water agency in February before issuing the opinion. Herger said the opinion also didn't consider economic impacts from removing the dams, such as farmland that could be flooded or a loss of potential water sales. And removing Englebright would require a huge financial commitment at a time when federal money isn't there, he said. Jim Milbury, a spokesman for the fisheries service based in Southern California, said his agency had seen the letter but he did not know how soon a response being written now would be released. A spokesman for the Corps' Sacramento office said it wouldn't be appropriate to comment on a letter sent to another agency. The South Yuba River Citizens League, an environmental group based in Nevada County that has advocated for Englebright's removal, said Friday removing the dam shouldn't come at the expense of public safety. Corps spokesman Todd Plain said his agency is already engaged in an effort to help restore fish runs on the river, pointing to a project with a UC Davis biologist to establish gravel beds for habitat below Englebright.



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5/25/2012



Some Dam – Hydro News™ And Other Stuff



Quote of Note: *“Never get so busy making a living you forget to make a life.” - - Unknown*

“Good wine is a necessity of life.” - -Thomas Jefferson

***Ron’s wine pick of the week:* Penfolds Koonunga Hill Shiraz Cabernet 2009**

“No nation was ever drunk when wine was cheap.” - - Thomas Jefferson

Other Stuff:

(Sometimes you have to wonder if anyone in Washington, DC knows anything about energy. If you want to ruin the U.S. competitive edge, here’s a good way to do that! More support for junk energy!)

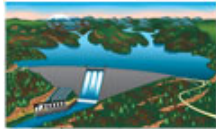
GUEST VIEWPOINT: Federal proposal to alter BPA responsibilities ill-advised

By Katherine Schacht, May 19, 2012, registerguard.com

Local publicly owned utilities take pride in providing reliable electric service at the lowest reasonable cost, consistent with good environmental stewardship. But recently, Energy Secretary Steven Chu has taken actions that threaten to increase the cost of our power and increase electricity rates in our community. **We receive most of our power supply through long-term contracts with the Bonneville Power Administration, a part of the U.S. Department of Energy that sells hydropower generated at federally owned dams.** The power is sold at cost-based rates — the amount necessary to cover the costs of generating and transmitting the power, including the interest on the federal investment in the dams where the power is produced. Customers also pay the entire costs of any necessary upgrades to the generation and transmission facilities that are part of the system. This principle is known as “beneficiary pays,” and it has worked well on these projects for decades. **It has allowed our community to receive low-cost, reliable and clean hydropower that benefits our local economy.**

However, on March 16, Secretary Chu sent a memorandum to the BPA and other power marketing administrations directing them to change their fundamental and long-successful purpose to include a wide variety of new programs. **The goals of many of these new programs — such as new transmission lines for wind and solar energy, increasing energy efficiency, and deploying electric vehicles — are laudable.** But it is not clear whether the federal power marketing administrations are the appropriate entities to carry out these new proposals. More importantly, it is not appropriate that the current power customers will be required to pay for these new programs, even if they don’t benefit from them. It would raise electricity costs in our region

substantially, and it would move us away from the “beneficiary pays” principle. Chu makes clear in his memo that he wants the rate structures modified to provide “incentives” for these new programs. In this case, “incentives” is the same as “subsidies” — which means those benefiting from the new programs, such as private developers of wind and solar energy projects, will have part of their costs paid for by the current power and transmission customers. There are other problems in Chu’s memo. Decisions about the power marketing administrations and the federal hydropower projects from which they sell power will be shifting away from the regions they serve to more decision-making by the Department of Energy in Washington, D.C. Chu also wants to initiate new markets for selling energy that are similar to the energy markets in the eastern United States that have resulted in much higher electricity prices — prices that often bear no resemblance to the actual cost of producing the power. A nationalized grid would cost the Northwest ratepayers dearly. In short, Chu’s directives are ill-advised, unnecessary and would increase electricity costs for millions of Americans at a time when families and businesses still are struggling to keep their economic footing. Chu should withdraw his directives and allow BPA to continue its successful and low-cost operations. Katherine Schacht was appointed by her fellow members of the Emerald People’s Utility District Board to the Policy Makers Council of the American Public Power Association in Washington, D.C.



Dams:

(He’s been active the last 2 weeks with articles in favor of dams.)

Washington View: Columbia River dams make life better in Northwest

By Don Brunell, columbian.com, May 15, 2012

In 1942, the completion of Grand Coulee Dam was hailed as the “Eighth Wonder of the World.” Seventy years later, most of us aren’t aware of what that dam or the others on the Columbia River continue to do for us. To commemorate Grand Coulee’s completion, the Bonneville Power Administration commissioned legendary folk singer Woody Guthrie to write songs praising the dam that harnessed the mighty Columbia River. Guthrie toured the region from the Bonneville Dam to Grand Coulee, and within a month he had written 26 songs, the most famous of which is “Roll On Columbia.” “And on up the river is Grand Coulee Dam, the mightiest thing ever built by a man, to run these great factories and water the land, it’s roll on, Columbia, roll on.”

Recently, I drove most of Guthrie’s route and saw eight of the 11 dams now operating on the Columbia in Washington. Most had their floodgates open, spilling water to move young salmon to the ocean. At Grand Coulee, flood control was the concern as operators dropped its massive reservoir to handle spring runoff from the mountains of Montana, Idaho and British Columbia. When I arrived home in Vancouver, the Columbia was at its high-water mark, as it often is this time of year, but it wasn’t flooding. That’s in stark contrast to the scene on May 30, 1948 when a levee on the flood-swollen Columbia River ruptured, sending a 10-foot-high wall of water crashing into Vanport (North Portland). Sixteen people died and Vanport -- at the time, Oregon’s second-largest city -- disappeared forever. President Harry Truman flew west to see the devastation. Speaking to an audience in Portland, Truman said the flooding could have been averted if a network of dams along the Columbia, Snake and Willamette rivers was in place. He scolded Congress and told them to get off the dime and fund the Bureau of Reclamation to complete its flood-control projects. Over the next 20 years, the McNary, The Dalles and John Day dams were completed on the lower Columbia and the Ice Harbor, Lower Monumental, Little Goose and Lower Granite dams were completed on the lower Snake, adding flood-control capacity, creating a 465-mile water transportation network, and generating much-needed hydropower.

‘Darkness to dawn’

One verse of Guthrie’s song talks about the electricity generated by the dams as “turning our darkness to dawn.” Washington’s Columbia River dams produce enough power each year to

provide electricity for nearly 7 million homes. In fact, the Grand Coulee Dam is the largest producer of electricity in the United States. The electricity from those dams made it possible for the aluminum industry to locate in the Northwest and for Boeing to build B-17s and B-29s during World War II. Boeing became the world's premier aircraft manufacturer due largely to affordable and reliable electricity. Grand Coulee alone transformed 671,000 acres of desert into some of the world's most fertile farmlands. According to the federal Bureau of Reclamation, the Columbia River Basin Project produces \$630 million worth of irrigated crops, \$950 million in power production, \$20 million in flood damage prevention, and \$50 million in recreation income. For most of us, the dams have always been here. We never knew a time without them, when electricity was scarce, when we struggled to grow crops on barren land and lived in fear of raging floodwaters. But we shouldn't take them for granted. Some activists want to remove the dams -- but consider what our lives would be like without them. Don Brunell is president of the Association of Washington Business, Washington state's chamber of commerce. Visit <http://www.awb.org>.

LAKESIDE: San Vicente dam project passes milestone

By Bradley J. Fikes, nctimes.com, May 16, 2012

Related Links (Watch the time lapse photos – it's worth it! _ Hold down Ctrl key and click on this link - [Time-lapse view of San Vicente dam raise construction](#))

Construction on a \$450 million project to [raise San Vicente Dam](#) has entered its final phase, as workers began pouring concrete above the level of the existing dam. The project, by the San Diego County Water Authority, will more than double San Vicente Reservoir's capacity, said Kelly Rodgers, project manager for the dam raise. "It is the largest single increase in water storage in the county's history," Rodgers said Tuesday in an on-site interview. As of Tuesday, the project has extended two feet above the existing dam height.



The \$450 million price tag for the dam raise and its associated projects comes to nearly one-third the \$1.5 billion cost of the Water Authority's Emergency Storage Project, the umbrella name for the authority's plan to boost local storage to a six-month supply. Set amid East County's boulder-strewn mountains off of State Route 67, San Vicente Reservoir is owned and operated by San Diego. It would also be the terminus of a pipeline to San Diego County from the Imperial Valley, if that pipeline is ever built. The pipeline, which could cost more than \$2 billion, is now under study by the authority. It would allow the authority to circumvent using the infrastructure of Metropolitan Water District. The authority is suing the giant Southern California water wholesaler on the grounds that Metropolitan is charging the authority illegally high fees, a charge Metropolitan flatly rejects. The Emergency Storage Project began in 2000 as a response to a severe drought about a decade earlier, which briefly threatened homes and businesses with the loss of half of their water. That would have been catastrophic for businesses such as life science companies, which require water in their manufacturing process and in research. The authority says the increased local supply will help the county weather any crisis, such as an earthquake, that interrupts its supply of imported water. Until recently, construction workers have poured concrete below the level of the dam. Now, the workers will pile on the concrete in terrace fashion to boost the dam's height from 220 feet to 337 feet. That 117-foot increase will increase the reservoir's capacity from 90,000 acre-feet to 242,000 acre-feet, an increase of 152,000 acre-feet. An acre-foot equals

about 326,000 gallons, enough for two average single-home families of four for one year. The original storage belongs to San Diego; the additional storage belongs to the Water Authority. "This is the largest component of the fourth and final phase of the Emergency Storage Project," Rodgers said. "The cornerstone of the Emergency Storage Project was the construction of Olivenhain dam and reservoir."



Hydro:

(A good example of an NGO giving miss-leading testimony and miss-characterizing the FERC licensing processes as being less thorough. The FERC testified and debunked their claim. There is never less environmental review regardless of the process! This small project has wasted too much time for too many people.)

Aspen's hydro process is criticized before Congress

Guest - Non ADN Writer: Brent Gardner Smith, Byline: Special to the Aspen Daily News, aspendailynews.com, May 14, 2012

The city of Aspen's proposed hydropower plant was used as an example of what not to do when a project critic gave testimony last week in front of a House subcommittee in Washington D.C. The Colorado conservation director for American Rivers, Matt Rice, on May 8 called into question the city of Aspen's initial approach toward gaining approval for its proposed Castle Creek hydro plant. He testified in person and submitted written testimony to a subcommittee of the House Energy and Commerce Committee in support of the Hydropower Regulatory Efficiency Act of 2012 (H.R. 3680). The bill seeks to reduce the regulatory hurdles for certain types of hydropower projects, including "conduit" projects. Conduit projects involve installing small hydropower generators in existing pipelines, canals and tunnels that were not designed or built to generate power. The proposed legislation, introduced earlier this month by Rep. Cathy McMorris Rodgers (R-Wash.) and Rep. Diana DeGette (D-Colo.), would exempt conduit projects from review by the Federal Energy Regulatory Commission (FERC), but includes a 45-day public review to vet any issues that could become controversial or are called into question, prompting a more thorough review. Rice said the review period would be a "safeguard" that's "critical to catch projects being proposed by developers that are intent on bending the rules," Rice said via email after his testimony. He noted that American Rivers, a Washington D.C.-based nonprofit dedicated to protecting and restoring the nation's rivers and streams, worked to include the 45-day review period in the bill and has been dubbed "the Aspen provision."

"The city of Aspen, Colorado is proposing to rebuild a 1.1 megawatt conventional hydropower project that operated from 1890 to 1958," Rice wrote. "The proposal includes a significant increase in diversion from two streams beyond their municipal water supply demands to feed the facility. The proposed project is extremely controversial within the community and Aspen is currently in litigation with upstream water right holders. "In an effort to expedite the permitting and avoid environmental review of the project, Aspen chose to pursue a small conduit exemption for the project," Rice wrote in his testimony, which is posted on the house committee's website. "But Aspen had a problem: It did not have a conduit. So the city built what was in reality a hydropower penstock and misleadingly labeled it as a conduit in order to receive favorable regulatory treatment. "While Aspen eventually backed off of its pursuit of a conduit exemption because of public pressure, it continues to maintain that the project should qualify for FERC's conduit exemption. ... If H.R. 3680 were to become law without this critical provision for a notification period, neither the local community nor affected water rights holders would have had an opportunity to challenge Aspen's incorrect characterization of the project, and Aspen may well have been able to construct the project without any meaningful public review," Rice wrote. City officials have contended that the pipeline built two years ago was necessary — first and foremost because it serves as an emergency drainline for Thomas Reservoir, where municipal water is

stored at the top of Doolittle Drive and above residential neighborhoods. The pipeline also would serve as a penstock to carry water from the reservoir to the proposed site of the hydropower turbine to be located underneath the Castle Creek Bridge.

After being criticized by a group of residents, and American Rivers, for pursuing its conduit exemption and subsequently a less-stringent environmental review, Aspen chose to seek regulatory approval from FERC by submitting an application. It then asked FERC to review its application under its "Traditional Licensing Process" and not its "Integrated Licensing Process," which is a more comprehensive review. American Rivers urged FERC not to choose the "traditional" process to review Aspen's application, but the federal agency did so nonetheless. A FERC official also submitted testimony to the House subcommittee and offered some insight into the differences between the "traditional" and the "integrated" processes. "The integrated licensing process (ILP) front-loads issue identification and environmental study to the period before an application is filed, and is thus well-suited to complex cases with substantial issues," wrote Jeff Wright, the director of FERC's Office of Energy Project, in testimony in support of the proposed legislation. "The traditional licensing process (TLP), in which environmental and other work can occur after the application is filed appears to work best for less controversial matters. The TLP may be the process that is best-suited for many simple cases involving exemptions or small, low impact licenses," Wright's testimony states. The proposed Hydropower Regulatory Efficiency Act of 2012 encourages FERC to streamline its regulatory review of small hydropower projects; Wright also told the subcommittee that the approach taken by project opponents can either make FERC's job harder or easier. "To the extent that a proposed project, even one of small size, raises concerns about water and other environmental issues, it may be difficult for the Commission (FERC) to quickly process an application," Wright stated. "It is also important to remember that the small capacity of a proposed project does not necessarily mean that the project has only minor environmental impacts." Wright also said that community relations matter when seeking federal approvals. So far in its development process, the city of Aspen has generated mistrust among some in the community by its approach to FERC licensing.

"Another, and related factor is the extent to which project developers reach out to affected stakeholders," Wright told the House subcommittee. "If a developer contacts concerned citizens, local, state, and federal agencies, Indian tribes, and environmental organizations, and works with them to develop consensus as to what information is needed to understand the impacts of a project and what environmental measures may be appropriate, and to develop support for the project, the application and review process is likely to be simpler and quicker. "Where a project comes as a surprise to affected entities or where a developer does not respond to expressed concerns, the commission's job becomes more difficult," the FERC official stated.

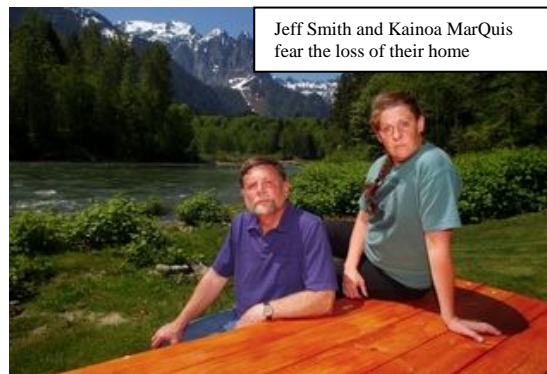
Dam fight grows; Skykomish on list of at-risk rivers

American Rivers declares the south fork one of the most endangered rivers in the nation due to the hydropower idea.

By Bill Sheets, Herald Writer, May 15, 2012, heraldnet.com

The Snohomish County Public Utility District is studying building a small dam just above Sunset Falls near Index. A national environmental group, American Rivers, plans Tuesday to include the south fork of the Skykomish River on its annual list of the 10 most endangered rivers in the nation. The river will be listed at No. 7 because of the possible PUD project, said Brett Swift, regional director for the American Rivers Northwest branch in Portland. "We recognize

hydropower is important to Washington but this is no place for a dam," she said. Unlike the PUD's recent small hydropower project on Youngs Creek near Sultan, the possibility of a dam at Sunset Falls has drawn opposition from several environmental organizations, along with some of the





people who live near the falls.

Officials with the PUD stress they're only studying the possibility and have not decided to build. The utility in March received a federal permit, good for three years, to examine the project. "All we're doing at this point is simply studying it," PUD general manager Steve Klein said. "The opposition allows us to get input to look at everything of concern." Other groups, including Puget Sound Energy, have considered building dams near Sunset Falls over the years but none of

the plans have panned out, according to American Whitewater, another group opposed to any dam at the site. "This river's kind of been under siege for decades," said Jeff Smith, who says he lives on the river about 50 yards from where the dam would be built. Residents' concerns include flooding above the dam and reduced water flow below it; glare from lights; noise and traffic during construction, and the effect on the scenery.

The Sunset Falls dam would cost between \$110 million and \$170 million, according to the PUD's preliminary estimates. Water would be diverted into a pipeline above the dam and sent to a powerhouse below the falls. It would generate enough power for nearly 10,000 homes. The \$29 million Youngs Creek project is expected to generate power for an average of about 2,000 homes. While the individual dams generate only a small percentage of the PUD's electricity, they're part of a long-term plan to diversify power sources for the utility, officials say. This includes exploration of geothermal and tidal power and providing incentives for solar installations. The PUD currently buys 92 percent of its electricity from the federal Bonneville Power Administration. **The Skykomish is the only river in Washington or Oregon on this year's American Rivers list,** Swift said. Whether a river makes the list depends on its environmental value combined with the timing of any threats it may face, she said. Rivers are nominated and the list is compiled anew each year, Swift said. Environmental groups and neighbors nominated the Skykomish this year, she said. The designation carries no legal weight. It does, however, come with a call for people to let the three-member PUD board of commissioners know they're opposed to any dam on the river, Swift said. The river already has two listings that offer limited protection, and is up for another that could offer more. It's part of the state's Scenic Rivers System. Under this designation, development is discouraged but not prohibited. The Skykomish has been listed since 1988 as a protected river by the Northwest Power and Conservation Council, a Portland-based, power-supply planning group.

This designation also doesn't prevent development. The Federal Energy Regulatory Commission, however, which would decide on a license for any dam, is required to consider the listing in its decision, said John Harrison, a spokesman for the agency. The U.S. Forest Service has proposed the south fork of the Skykomish to be included on the list of National Wild and Scenic Rivers, which would prevent development. This designation has to be approved by Congress, which could take years, according to American Rivers. The Youngs Creek project is built 1½ miles above a steep waterfall,



meaning it would have no impact on spawning salmon, PUD officials said. They currently believe the same about Sunset Falls, but the coming studies will make or break the project, they say. Other environmental groups opposing a dam on the Skykomish are the Sierra Club, American Whitewater, the state's Hydropower Reform Coalition, the Alpine Lakes Protection Society, the North Cascades Conservation Council, The Mountaineers and Washington Wild, according to American Rivers. Officials with the PUD said a lack of resistance was a factor in deciding to build the Youngs Creek dam. This case has attracted opposition, but to make a difference, opposition has to come from ratepayers, Klein said. "This means the entire county in which we serve, not just a handful of people, not national organizations but people who live in the community who rely on the utility for low-cost power," Klein said.

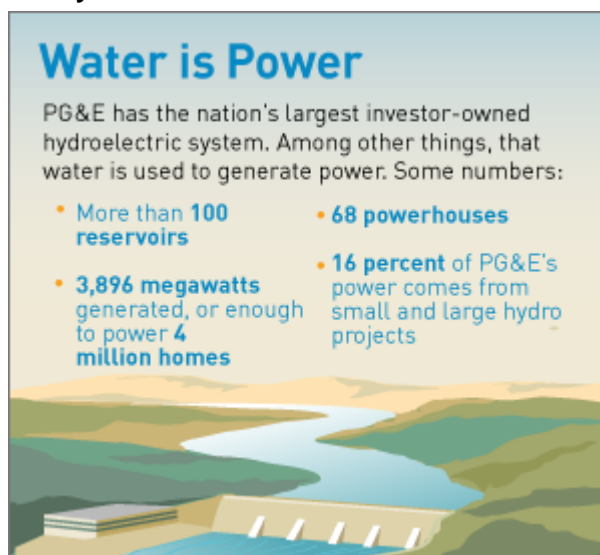
PG&E Veteran: Huge Potential for Hydropower Growth

By David Kligman, Posted on May 16, 2012, pgecurrents.com

San Francisco—Generating electricity from falling water has been around so long that some might not realize it's as clean and renewable an energy source as solar or wind power. In fact, hydropower accounts for 8 percent of electricity in the United States. That's more than double all the other sources of renewables combined. Yet, by definition in California, PG&E's hydro powerhouses that produce more than 30 megawatts (representing more than 90 percent of PG&E's total hydropower) don't qualify as renewable under the state's renewable portfolio standards (RPS). But, says PG&E's David Moller, all hydropower is "inherently renewable." Moller is a director in PG&E's power generation department and a leader nationally on hydroelectric issues. He was just re-elected as president of the National Hydropower Association. "If you had a hydro powerhouse on a river somewhere and it was 29 megawatts and right across the river you had another one that was 31 megawatts, one qualifies as RPS renewable and one does not, and yet they're equally renewable," said Moller. [Read more about David Moller.](#) By 2020, the state of California has required that PG&E and other electric utilities get a third of their electricity from eligible renewable sources, such as wind, solar and geothermal. Only small hydro counts (facilities with less than 30 megawatts) toward that RPS requirement as a way to stimulate new sources of renewable power.



Nearly four decades with PG&E



Moller, who has worked for nearly four decades for PG&E, helps run the country's largest privately-owned hydropower systems, some of which dates to the California Gold Rush. "It is totally taken for granted because it's been around for a long time," Moller said. "Hydropower is such an ingrained part of the power generation infrastructure for PG&E and nationally." PG&E's 68 powerhouses from Redding to Bakersfield provide nearly 4,000 megawatts of safe, reliable and renewable energy—enough electricity to power 4 million homes.

While generating power from water has not changed much over the past century, the

rules that hydroelectric operators must follow have. The Federal Energy Regulatory Commission licenses the powerhouses, with each license lasting typically 30 to 50 years. Today, renewing a license requires an incredibly thorough and lengthy review of all impacts to affected resources, especially the land and waterway. This is where much of PG&E's work takes place—balancing power generation needs with sound environmental stewardship, including the interests of conservationists, area businesses, whitewater rafters and others. **Since 2001, PG&E has completed the relicensing process for nine of its 26 licenses and is currently negotiating to renew seven others.** "It's very challenging because everybody has different interests," said Moller. "But PG&E is looked at as a national leader in reaching collaborative agreements. We're very well known for really working hard to find these balanced solutions." **PG&E's hydro powerhouses range in age from 25 to over 110 years, with most built in the first half of the 20th century.** Regardless of the age of the facilities, renewing a license involves re-balancing use of the resources in the context of current social priorities.

Balancing environmental interests

PG&E's Battle Creek hydro facility in Tehama County exemplifies this give-and-take process. Working with federal and state resource agencies, as well as conservation groups, the utility is voluntarily removing or modifying several dams and has [agreed to give up some of its hydropower generation to help with the recovery of endangered salmon.](#)

"We are opening up 48 miles of premier salmon spawning habitat," Moller said. "It was a case where we produced a relatively small amount of hydropower, but there was the potential to do something really beneficial for the environment. It's a great success story and it's a good example of who we are as a company." As president of the [National Hydropower Association](#), Moller actively engages on hydropower issues of national importance. "My focus is on figuring out how hydropower can help even more to be part of the solution to meet our country's clean energy goals," Moller said. "Hydropower is an essential tool in the clean energy toolbox. It already does a lot, and it can do much more."



Haas Powerhouse

Retrofitting existing dams a huge potential

The potential for hydropower growth in the United States is huge, Moller says, in part because most existing dams don't produce hydroelectricity. Less than 3 percent of the nation's 80,000 dams have power-generation facilities. **"When people think of hydropower they think of large dams,"** Moller said. **"And yet there's tremendous growth potential by basically retrofitting what's already there, especially the federal dams."**

Retrofitting can include adding hydropower generation to existing non-power dams or efficiency improvements to old equipment to get more power. That's what PG&E is doing with its 1950s-era Rock Creek powerhouse on the Feather River in Butte County. PG&E is increasing the output by 11 megawatts simply by upgrading the existing equipment. And, Moller adds, "That 11 megawatts qualifies as RPS renewable." For PG&E, Moller pointed to three major themes guiding hydropower operations:



A construction crew in Tehama County works on a PG&E project to give up some hydropower to benefit endangered salmon. (Photo by David Kliaman.)

- Be a responsible environmental steward: "It's a privilege to be able to use these resources for power generation. And we take that very, very seriously."

- Keep the projects running: “From a societal standpoint, it’s a clean way to produce energy.”
- Grid reliability important: “The operating flexibility of hydropower is essential to grid reliability and integrating intermittent renewables like wind and solar. And hydro pumped storage continues to be the only grid-scale energy storage technology (like Helms, where energy is stored during off-peak hours and can be used during peak periods).”



Water:

(The American Rivers statement that reservoirs don’t create new water doesn’t meet the Ho Ho test!. Of course a reservoir doesn’t create new water. News flash – the purpose is to store water for when you do need it because “it never rains where or when you need it”. In the middle of August, it ain’t gonna rain much – huh! The last few sentences of the article show an amateur at work.)

Chattahoochee back on list of endangered rivers

Reservoir plans put waterway at risk

By Ashley Fielding, gainesvilletimes.com, May 15, 2012

Thanks in large part to a proposal to dam a tributary upstream of Lake Lanier, the Chattahoochee River has landed on a top 10 list of endangered rivers in the country today. The Chattahoochee, at the center of a decades-long struggle between Georgia, Florida and Alabama over control of its water, is the only river in the Southeast to make this year’s list, which is compiled annually by the American Rivers organization. The river has made the list three other times, but the group hasn’t called the river “endangered” since 2000.



The Chattahoochee’s spot on the list this year is directly related to a plan to dam Flat Creek in North Hall, impounding the water there to create an 850-acre reservoir. American Rivers also lists a proposal to build Bear Creek Reservoir in South Fulton County as a “significant threat” to the river.

Hall County officials, like Hall County Board of Commissioners Chairman Tom Oliver, tout their proposed reservoir as a necessity for securing the county’s future water supply. In a proposal submitted to the U.S. Army Corps of Engineers, county officials project the reservoir could help supply some 72.5 million gallons a day of water to Hall County customers. The corps is awaiting the results of a study of the impacts of the Glades Reservoir proposal before it will permit Hall County to build it. A draft of the study is expected late this year, and a permit decision likely will be made next year. Oliver argues the reservoir “will have no more impact than Lake Lanier does on the Chattahoochee River,” and that the corps-commissioned study will show that building Glades is more important now than ever. “It’s something that has to be done,” Oliver said. Jenny Hoffner, the director of water supply for American Rivers, said the group, by listing the Chattahoochee, hopes to draw attention to the proposals to dam the Chattahoochee and what she says is a larger trend across the country to build reservoirs. The group also wants to call attention to what it says are viable alternatives to building reservoirs, including more aggressive conservation measures. They hope the attention the list brings results in the corps’ denial of a

permit to build Glades Reservoir. The report released today doesn't outline the country's most polluted waterways, only those that stand to be significantly changed by an imminent decision. "I think as we're learning more and more here in the Southeast, water is finite..." Hoffner said. "I think the lesson here is that there's no new water. **These reservoirs do not create new water. We're essentially robbing Peter to pay Paul.**" In addition to listing the Chattahoochee as endangered, American Rivers, along with the Upper Chattahoochee Riverkeeper and the Southern Environmental Law Center, last month submitted comments to the corps on Hall County's proposal to build the reservoir on Flat Creek. The comments are meant to guide the corps-commissioned study of Glades' impacts on the larger river basin. The groups' letter called into question the county's intentions to build the reservoir or its need for the water Glades might provide. "We are unconvinced that this is not in fact an amenity lake disguised as a water supply reservoir for permitting purposes," the letter states. **American Rivers' "most endangered" list also calls Glades and Bear Creek "amenity lakes for new subdivision developments."**

"Following court rulings and recent multi-year periods of extreme drought, project proponents have repackaged these projects to justify them as water supply options," the report states. Oliver disputes that claim, though he acknowledges that there will be development in the area around the proposed reservoir. But, he said, "the setback (required from the reservoir's shoreline to any development) and the restrictions will be such that it is not an amenity lake." The groups' letter also asked the corps to consider the impact of the proposed reservoir on water temperatures in a trout habitat downstream of Buford Dam. The trout habitat is also mentioned in the report released today. Trout Unlimited lists a section extending below Buford Dam to Roswell as one of the country's 100 best trout streams. Kevin McGrath, president of the upper Chattahoochee chapter of the organization, says it's also one of two trout streams in a major metropolitan area in North America. He said the survival of that trout fishery is dependent upon a certain amount of cool water coming from Buford Dam. If another reservoir lessened the water coming from the dam, it could affect the river's temperature, which could affect the fish and the food that they eat, McGrath said. **His organization, like American Rivers, advocates exhausting conservation efforts first and then expanding existing reservoirs before building another.** "Water is a valuable and important resource to all Georgians and to our neighbors in Alabama and in Florida," McGrath said. "And anything that is done in terms of modifying the flow of the river or impounding water is going to affect everybody in the local area where that reservoir is built downstream to Apalachicola Bay ... all those actions have a cumulative effect."

Oliver cites the small watershed in North Georgia as a reason to impound more of the basin's water for Hall County's use, saying Glades could be an "asset to the river" during a drought situation. "With the city of Atlanta located in one of the smallest water basins in the country, it just makes sense for us to build more reservoirs in our area to have more water supply," Oliver said. "I think what (Glades) will allow us to do is to enhance the value of the watershed." But even if the proposal to build Glades is meant to secure future water, Hoffner says it will have the opposite effect. "When you impound more water, you're evaporating a significant amount of water," Hoffner said, estimating that some five million gallons of water would evaporate from the surface of Glades and Bear Creek daily. **That's water lost to the system. It's water lost to downstream users. It's water lost to everybody who values the river.** "Creating more reservoirs in a basin like this actually becomes a liability in terms of water supply, instead of an asset," she added.



Environment:

Who takes more wild salmon on the Columbia River, sea lions or fishermen?

May 14, 2012, oregonlive.com, By Scott Learn, The Oregonian

Columbia River fishermen vs. California sea lions is not among them. Today it's the fiercest battle on the Columbia River. It includes sea lion "hazing" with thousands of "crackershells" and "seal bombs," YouTube videos of [sea lions tugging salmon away from fishermen](#) and a controversial state program to kill California sea lions spotted dining near Bonneville Dam. It's also central to a new lawsuit attempting to stop the government's killing of the animals, with a key hearing scheduled this morning. The plaintiffs, led by the [Humane Society of the United States](#), want a federal judge to shut down the program immediately, then let the lawsuit proceed. They say -- and some judges have backed them up -- that the government allows fishermen to take far more salmon than sea lions take at the dam. Tribal groups disagree. They estimate that the California sea lions capture five times more endangered or threatened salmon if you look at the 146 miles of the Columbia River downstream from the dam. "We see sea lion predation throughout the river," says Doug Hatch, "and everybody who has been on the river and seen the sand sees the same thing."



Agnes Strong of the Columbia River Inter-Tribal Fish Commission prepares to fire a "crackershell" at a sea lion

The numbers debate

At first glance, the numbers strongly back the sea lion supporters. Since 2002, when the government started tracking sea lions at Bonneville, fishermen took a yearly average of about 37,500 spring chinook, the variety sea lions like best. California sea lions at the dam took roughly 3,200 annually. But simple numbers are deceptive, say tribes and the fish and wildlife departments in Oregon, Washington and Idaho -- the agencies killing sea lions caught eating salmon at the dam. The bulk of the fishermen's catch is hatchery fish, marked so fishermen can distinguish them from wild salmon covered under the [Endangered Species Act](#). Sea lions make no distinctions. And the growing population of sea lions eats salmon from the Columbia's mouth up to the dam, Hatch says, not just fish that observers at the dam are able to spot. For the most recent court case, Hatch estimated the 300 to 500 California sea lions in the river each spring eat 3,300 threatened wild spring chinook a year -- 500 at the dam and another 2,800 in the rest of the river below Bonneville. Below the dam, fishermen killed about 600 wild fish, according to state estimates, or about five times less. But the numbers debate doesn't end there. Hatch's estimate doesn't account for all the fishing upstream of Bonneville, the first dam in the system, notes Sharon Young, the Humane Society's marine issues field director. That fishing, mainly by tribes, brings fishermen's take of listed fish to 3,500 annually, topping the sea lions' total. Hatch also overestimates the salmon sea lions eat when they're away from the dam, Young says. In a lawsuit filing, [Jack Stanford, a University of Montana fishery scientist](#) called sea lion consumption estimates "little more than guesswork"

NOAA's role

It's true, no one really knows how many endangered or threatened salmon sea lions eat in the Columbia. And the gap has already given some judges pause. That includes the 9th Circuit Court of Appeals panel which ruled in late 2010 against sea lion killing. The government said fishing caused "minimal" harm to runs listed under the Endangered Species Act, but concluded California sea lions could be killed despite lower damage to salmon. The judges said that doesn't make sense. Their decision shut down the lethal take in 2011. The [National Oceanic and Atmospheric Administration](#), the agency charged with reviewing the sea lion kills, issued a new

California sea lions at Bonneville Dam

- * 1972: Marine Mammal Protection Act bars killing sea lions and other marine mammals.
- * 1991: First Columbia River salmon run listed under the Endangered Species Act (13 runs now listed).
- * 1994: Amended law allows killing mammals if they significantly impact salmon or steelhead on endangered list.
- * 2002: Sea lion monitoring at Bonneville Dam begins.
- * 2008: Sea lion trapping and killing program begins.
- * 2010: Appellate court stops program, saying the government hasn't explained why fishermen are allowed to catch more fish than sea lions catch at the dam.
- * 2012: Federal government issues new authorization and the removal program resumes. Fifty sea lions killed or relocated since 2008. Lawsuit in progress.

authorization in March allowing killing up to 92 animals a year through May 2016. The states have killed nine California sea lions this spring and relocated another to an aquarium. That's on top of 40 removed since the program began in 2008. So far, NOAA has remained out of the numbers debate. Initial modeling of sea lion consumption is too uncertain to bank on, the agency says. But its early model runs indicate sea lions and fishing may have roughly equivalent effects on extinction risk. Instead of arguing numbers, NOAA emphasizes that fishing -- promised to tribes under treaties signed more than 150 years ago -- can be dialed back if runs are low. But "we can't tell the sea lions to stop fishing," says NOAA spokesman Brian Gorman. Whether that argument satisfies U.S. District Judge Michael Simon may become clearer today when he hears the Humane Society's request for a temporary injunction.

More conflicts coming

Out on the river, it's a tranquil Columbia River Gorge scene: towering basalt cliffs topped with conifers; fishermen casting from shore in the soft morning light. Then a sea lion pokes his head up by their lines. Bobby Begay wheels a 22-foot sea dory closer. He motions, and a deckhand fires a 12-gauge "crackershell" just upstream of the animal, the blast echoing off the cliffs. The sea lion takes off, Begay and crew in pursuit. Begay works for the inter-tribal commission. He's authorized to fire the relatively harmless shells to keep sea lions away from Bonneville's fish ladders. He also sees the sea lions' salmon consumption firsthand, often shortly after they've been hazed downstream of the dam. Hazing can be part of the sea lion solution, he says, but can't solve the problem. "The animals that have been here awhile know the whole system," he says. "They know we're not going to harm them." The states figure hazing can drive away many new arrivals. If the states remove or kill the veterans, salmon consumption should drop. Timothy Ragen, executive director of the **Marine Mammal Commission**, warns that conflicts will rise as more mammals recover. "We worry about solving problems on the backs of wildlife," Ragen says, adding that he's not speaking for the commission. Earlier this year, **NOAA proposed removing Steller sea lions**, increasingly munching salmon and sturgeon at the dam, from the endangered species list. That could open the door to lethal take of Stellers, too -- if Judge Simon endorses the states' approach.



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