10/07/2011

Some Dam – Hydro News™

And Other Stuff

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Quote of Note: *"The man who never alters his opinion is like standing water, and breeds reptiles of the mind." -- William Blake*

"Good wine is a necessity of life." - -Thomas Jefferson
Ron's wine pick of the week: **Girard Artistry Red Napa Valley 2008**
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson

Other Stuff:

(The truth is a brutal reality. We're becoming a 3rd world country.)

Crumbling infrastructure ranks U.S. behind Barbados

By Bill Straub - Scripps Howard News Service, therepublic.com, September 22, 2011

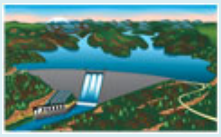
Washington - There's nothing wrong with America's infrastructure that trillions of dollars can't cure. Any number of recent studies has cited the nation's crumbling roads, deteriorating bridges, inefficient airports and leaky dams as a reason for public concern and a deterioration of America's standing on the international stage. The World Economic Forum, which as recently as 1995 listed U.S. infrastructure as tops in the world, now maintains the country has slipped to 23rd place behind, among others, Barbados. The American Society of Civil Engineers, in its most recent infrastructure report card, gave the country a "D" and asserted it would require an investment of $2.2 trillion over five years to get it in shape. Meanwhile, a report prepared by a panel of 80 experts for the Miller Center for Public Affairs at the University of Virginia -- chaired by Norman Mineta and Samuel Skinner, two former secretaries of the U.S. Department of Transportation -- estimated that an additional $134 billion to $262 billion must be spent per year through 2035 to rebuild and improve the nation's road, rail and air transportation systems. "America's unwillingness to confront its infrastructure challenges is undermining the ability of our urban areas to compete globally," said Maureen McAvey, executive vice president of the Urban Land Institute, a nonprofit organization that focuses on land use. "If we persist with shortsighted decisions, we will lose talented workers and companies to nations and cities overseas that are committed to infrastructure as a vital component of livability and economic viability," McAvey said.

"Infrastructure as a national priority is not political rhetoric. It's a must to keep America's standing as a global leader in innovation." Over the years, the U.S. actually has witnessed a decline in infrastructure spending, going from 3.1 percent of the nation's gross domestic product in 1963 to 2.4 percent in 2007. Faced with a potentially dangerous situation, President Barack Obama made infrastructure revitalization a key component in his recently unveiled jobs creation package. The president proposed spending $50 billion above what already is planned to build or repair 150,000

miles of roads, 4,000 miles of railway, 150 miles of airport runway and update the air traffic control system. Obama also recommended the creation of an infrastructure "bank" that would provide project funds in a manner that differs from the congressional earmark process. The bank would promote private sector investment in projects of significant national or regional importance. The private sector currently provides about 6 percent of the nation's infrastructure spending.
But the plan faces serious Republican opposition. Rep. John Mica, R-Fla., chairman of the House Transportation and Infrastructure Committee, said an infrastructure bank "run by Washington bureaucrats requiring Washington approval and Washington red tape is moving in the wrong direction." Mica said the problem should be addressed by giving more power to the states.
Rep. Larry Bucshon, R-Ind., acknowledged the nation has an "infrastructure deficit," but he expressed reservations about spending more money on infrastructure now, noting that he doesn't want to "borrow more money again and put that on the backs of our children and grandchildren."

But the national infrastructure need appears staggering:
-- The Associated General Contractors of American released a report this month maintaining that 55 percent of the nation's rural roads were rated poor, mediocre or just fair, and that 23 percent of rural bridges were either structurally deficient or functionally obsolete. That's significant since the fatality rate on the nation's rural roads was 2.31 deaths for every 100 million vehicle miles of travel -- three times the fatality rate on all other roads.

- The U.S. General Accountability Office, in a 2010 report, found that one-quarter of the nation's more than 600,000 bridges are deficient in some sense.
- Road systems and water treatment plants built with federal grants 40 or 50 years ago have reached the end of their life cycles, noted Ernst & Young in its Infrastructure 2011 report, and now many counties and towns do not have the wherewithal to repair or replace them.
- The Association of State Dam Safety Officials, in a January 2009 report, estimated that $16 billion would be needed to repair the most critical dams over a 12-year period. Out of this, needed repairs at publicly owned dams are estimated at $8.7 billion with the remaining $7.3 billion needed for privately owned dams.
- Building America's Future Educational Fund asserted that the U.S. has the world's worst air traffic congestion. The national average for all delayed flights in the U.S. -- about 56 minutes -- is twice that of Europe's average. Much of the problem can be attributed to out-of-date conditions. Air travel, for instance, relies on a ground-based tracking system from the 1950s, requiring planes to use inefficient routes in order to stay in contact with controllers.
- America's drinking water systems need at least $11 billion to replace facilities that are near the end of their useful lives and to comply with federal water regulations, according to the American Society of Civil Engineers. Leaking pipes lose an estimated 7 billion gallons of clean drinking water a day.



Dams:

(Recommended viewing. Take a look at this guy's photos over Hoover Dam and Grand Canyon – very grand!)

Grand Canyon, Hoover Dam, Lake Mead Helicopter Tour

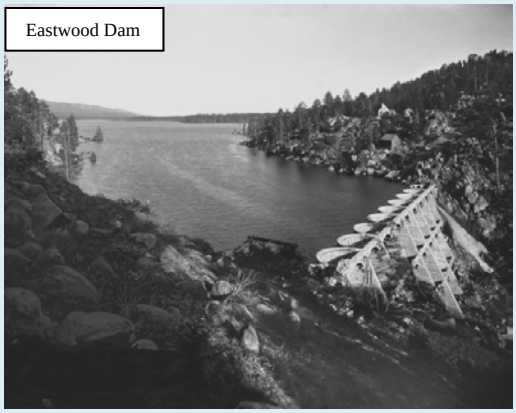
*By spike | September 28, 2011*September 28, 2011

http://spikesphotos.com/2011/09/28/grand-canyon-hoover-dam-lake-mead-helicopter-tour/

(Another 100 year anniversary. If anyone cares to read a truly interesting story, Southern California Edison has published a book titles – "The Big Creek Story". Great reading! SCE can be contacted about a copy.)

Big Bear Lake Dam was built by the best

Mark Landis, Correspondent, 09/20/2011, sbsun.com


Eastwood Dam

One hundred years ago, John Eastwood, one of the West's most innovative civil engineers, left his mark in the San Bernardino Mountains with one of his trademark multiple-arch dams at Big Bear Lake. Born in 1857 near Minneapolis, Eastwood showed an early proclivity for mathematics and physics. He attended the University of Minnesota, where he studied the technical arts. In 1880 he traveled west and began working as a surveyor and construction engineer in the Pacific Northwest. In 1883, he moved to Fresno where he opened a small office and began laying out roads as a deputy county engineer. Fresno became Eastwood's hometown, and in 1885, he married Ella Tabor, a youth program organizer at the Baptist church he attended. Dissatisfied with government work, Eastwood struck out on his own and took a number of jobs in the mining and logging industries in the western Sierra Nevada Mountains. He became fascinated with the intricacies of the mountain streams and rivers, and he began doing surveys and engineering work for irrigation projects.

In 1895, Eastwood became the vice president and chief engineer of the San Joaquin Electric Co., where he developed groundbreaking designs for harnessing hydroelectric power in the Sierra Nevada's. In 1902, railroad tycoon Henry P. Huntington and a group of investors formed the Pacific Light and Power Co. Its primary mission was to provide inexpensive, reliable hydroelectric power to Huntington's extensive electric rail system in Southern California. That same year, the Pacific Light enlisted Eastwood to lay out the largest hydroelectric power generation project ever conceived. Eastwood was given 10 percent of the newly formed company that would harness the flow of the upper San Joaquin River into the hydroelectric system known as the Big Creek Project. In 1906, at the age of 49, Eastwood came up with his concept of the multiple-arch dam. He believed that the traditional rockfill and concrete dams wasted tremendous amounts of material. Eastwood's multiple-arch design was not enthusiastically accepted by Pacific Light or the dam engineering community at large. The graceful buttressed arches were mockingly referred to as a "lace curtain design." Fortunately, Eastwood was able to sell his design to the Hume-Bennett Lumber Co., and the first multiple-arch dam was built in 1908 at Hume Lake Reservoir in the Sequoia National Forest.

In the fall of 1909, the Bear Valley Mutual Water Co., based in Redlands, began soliciting bids to build a higher dam at the Bear Valley Reservoir and increase the lake's storage capacity. The company wanted to raise the lake's level 12 feet above the arched-masonry dam built in 1884. Hearing of his success at Hume Lake, the water company enlisted Eastwood to bid on a multiple-arch dam at Bear Valley. Eastwood provided a winning estimate of $80,000 for the dam, and he took a $6,000 fee for his engineering work. The dam's height was raised an additional 7 feet over the originally proposed 12 feet, bringing the total increase to 20 feet. The cost increased to $137,000. Opened in 1911, the new dam more than tripled the reservoir's capacity from 22,550 acre-feet to 70,000 acre-feet. Eastwood's design has withstood the test of time. In 1916, the dam stood up to heavy storms and flooding that caused water to spill over its crest. The dam easily rode out a magnitude 6.8 earthquake in 1918, and survived the magnitude 6.5 Big Bear quake in 1992 with minimal damage. Eastwood went on to build a number of multiple-arch dams across the West. One was built at the Littlerock Reservoir in the San Gabriel Mountains in 1924. At the height of his success, Eastwood died on Aug. 10, 1924, at the age of 67. He drowned after suffering a heart attack while swimming in the Kings River at his small ranch east of Fresno. Eastwood was a determined, pioneering engineer who took tremendous pride in the grace and efficiency of his designs. His favorite slogan about his trademark multiple-arch was: "Bulk does not mean strength."

(Dams go to the movies – not good news though!)

Filmmakers document dams removal

By Leah Leach, Peninsula Daily News, peninsuladailynews.com

Port Angeles, WA — Filmmakers are documenting the demolition of the two Elwha River dams, and will be filming for the three years the massive project will take. One webisode, by NarrativeLab based in Portland, Ore., is already on the Olympic National Park Elwha River website at http://tinyurl.com/26n58n9. The five-minute introduction to the $350 million river restoration project was created in June. Six more are planned, said Jeff Gersh, producer. “We’re documenting the dams coming down, and along the way, we will deliver webisodes as chapters in the story,” he said. Jan Mouder of the nonprofit Wings Over Watersheds, a Bainbridge Island organization, is the project administrator. Under a cooperative agreement with the National Park Service, Wings Over Watersheds will produce the web videos, a longer visitor center orientation film and a 60-minute documentary, said Barb Maynes, park spokeswoman. Maynes did not say how much the contract is for. Gersh said more money will need to be raised, “because it’s such a big palette and there’s so much to tell.” Directors of photography are David Fox and Diana Wilmar, both of Seattle. The broadcast piece will possibly be for public television, Gersh said. But that won’t be finished for some time. “We have three years of shooting to do,” Gersh said.

(A little humor)

Elwha dams removal project has a doubter

By Seabury Blair Jr., kitsapsun.com, September 26, 2011

I ran into Manfred Rancid the other day. He's an old character of mine who used to hang out in grocery stores, trying to pick up women and ranting about how oxygen is the enemy of freshness. Rancid claims that he is now the world's leading authority on the Elwha dams. I wouldn't believe a word of what he had to say, and I'd advise you to do the same. First off, Manny says they're making a big mistake by removing the Elwha and Glines Canyon dams. "Hoot zig, what about all the fish in Lake Aldwell and Lake Mills? They'll all be killed when they let the water out." Rancid begins every paragraph with "Hoot zig." I've never asked him what it meant, but I will save you the annoyance of having to read the words each time I quote him. "Actually," I said, "they plan to restore the once-great salmon fishery on the Elwha River once the dams are removed." "Ain't gonna work," said Rancid. "Salmon haven't gone up that river in almost a century. What're ya gonna do? Send the stupid fish an email? Let 'em know the river's runnin' free?" "I got a newsflash for ya: fish can't read."

I told him that the biologists have a plan for repopulating the river for each species of salmon. Rancid made a disgusting noise by pursing his lips and blowing. "I can't hardly wait for that," he said. "LMAO!" I had no idea what LMAO meant. I had to look it up in Wiktionary. "For instance," I said, "the plan to restore the legendary chinook runs to the Elwha involve creating flows of clean water during spring and fall migrations of king salmon. And they're going to scatter eggs and fish upstream, so they'll return to the Strait of Juan de Fuca and the ocean as they mature." I told Manny that biologists figure that next to kings, chum were the second most abundant salmon species in the river, and there are very few left. The plan is to release smolts from the hatchery, plant fertilized chum eggs in the lower and middle Elwha, and scatter fry at some upstream locations. Manny made that noise again. "I really like chums. They're my friends." When he cackled, it sounded like a loose fan belt. "So they take the dams out," Manny folded his hands across his ample stomach, "and the dam salmon start running upstream and multiplying all over the place. You know what's going to happen then?" "Nobody is sure," I said. "They think there'll be a fish on everyone's plate." "The way I see it, that's not going to happen. Think about it: All those fish, what're the biologists going to do? They'll be out of their cushy taxpayer-funded jobs." I had to admit it. Rancid had a point. Some biologists fashion lifetime careers for themselves, studying such diverse things as rare fescues or river otter poop. "Hey, I listen to NPR," I told Manny when he chortled at the mention of river otter poop.

(It seems that all the dam news is about tearing dams down! Yet, we know that we are still building dams but the media never has much news about that.)

Countdown to destruction: end nears for Condit Dam in Wash.

katu.com, 9/30/11

Near White Salmon, Wash. - A dam removal project being called "historic" in terms of size and environmental impact is counting down to the day explosives level the structure and restore a popular Washington river to its natural state. Large amounts of high explosives were slowly lowered into place at the Condit Dam on the White Salmon River in preparation for the explosion. KATU News recently toured the operation and got a closer look at what PacifiCorp engineers are up against in the historic project - the largest dam removal project so far in the United States.

The Condit Dam, 100 years old and 127 feet high, is scheduled for demolition on October 26. Work crews have been prepping the structure for explosives for weeks, and it hasn't been easy. The dam is located in a narrow canyon in mountainous terrain. That means access is limited for the heavy machinery needed to prepare the dam for destruction and the restoration of the river it holds back. Crews strung thick, high-strength cables across the canyon and lowered heavy equipment and explosives down to the base of the dam where a massive tunnel is being drilled into the base of the structure. Up top, giant vacuuming machines are removing 100 years' worth of silt that the White Salmon River has backed up against the dam. Crews are removing the silt to keep it from clogging the last few feet of the blast area and to prevent it from washing down the river all at once when the structure is removed. Too much silt could harm river habitat areas and change how the river is expected to flow on its way to the Columbia River downstream. Crews also carefully moved about 200 Chinook salmon to another part of the river. When the dam is blown, a surge of muddy water is expected to race down the White Salmon River. "That last little bit of cement will get blown, and there will be a rush of water right through here," Todd Olson, the project manager, told KATU News as he stood on top of the dam.

Salmon eggs already placed by spawning fish will likely be buried or washed away when the dam crumbles, but the river is expected to clear the silt over time to allow the fish to spawn again in the future. Once the dam is gone and the White Salmon River returns to normal flow patterns, it is expected to become a recreational Mecca for whitewater enthusiasts and fishermen, even more so than it already is. The river is already a popular rafting destination and Olson said he expects the areas of the river that open up will also feature many rapids and challenges for rafters, kayakers and anglers. Once the dam is reduced to rubble, the material will be removed and native plants will be placed to return the area to its natural state. The dam was originally built to supply electrical power to a Camas paper mill and the surrounding region. The decision to take the dam down came after it's permit extensions expired and PacifiCorp decided the needed changes to fit environmental regulations were too expensive to make.

(Shucks – all you need is $800 million. It's not Billions or Trillions but it's still a lot of cash!)

Water and dams: What's next

By Joel Aschbrenner and Sara Hottman H&N Staff Reporters | October 2, 2011, heraldandnews.com

The studies are done. The science is being analyzed. And a decision about removing four Klamath River dams will be made by spring. But even if Secretary of the Interior Ken Salazar determines the four dams should be removed, implementation of a wide-reaching water agreement that aims to stabilize water supplies for Basin irrigators could be years off.
Why? It needs nearly $800 million in federal funding, which requires an act of Congress. Procuring that funding for the Klamath Basin Restoration Agreement could take years, said U.S. Sen. Jeff Merkley, D-Ore., missing the 2012 deadline stakeholders in the agreement wanted.

"This is a complicated story, and even simple things can be complicated in the Senate," Merkley said. “Our strategy is to take a number of years to pursue funding. Hopefully as people come to understand it, understand the logic of it … they’ll do what’s best for the region.” Stakeholders in the KBRA and associated Klamath Hydroelectric Settlement Agreement say the agreements will stabilize limited water resources for their interests — agriculture, commercial fishing, tribes, endangered fish — a necessity for the Southern Oregon and Northern California counties that over the past decade have suffered a number of catastrophic water-related losses. But until Congress passes legislation, the KBRA will remain unfunded, stymieing implementation, and the KHSA cannot move forward. Federal officials say the climate in Washington, D.C., is far from conducive to funding the multi-million dollar KBRA, and a California lawmaker in a key committee position says he never will allow the KHSA through.

Hydro:

(Win some – lose some, net = 0 loss of energy.)

Orono, Stillwater dam upgrades to fill energy gap left by removal of other dams

By Nick McCrea, BDN Staff, Sept. 21, 2011, bangordailynews.com

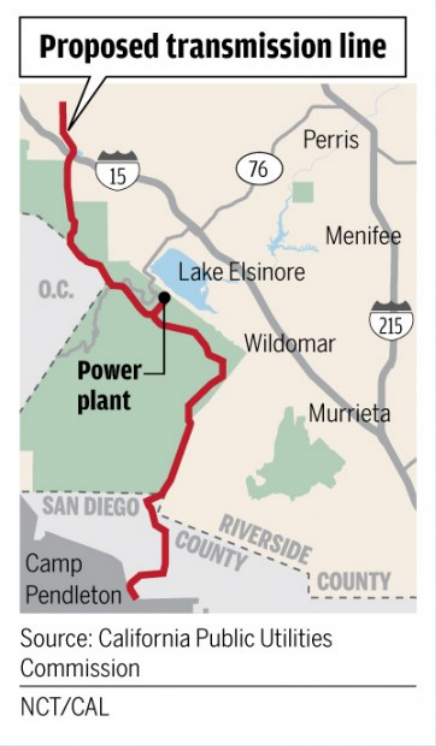
Orono, Maine — Two dams have received approval to boost their energy capacity and fill the gap left when three other Penobscot River dams are demolished or decommissioned over the next two to three years. The Department of Environmental Protection cleared Black Bear Hydro Partners LLC, the company that owns the Stillwater and Orono dams, to build new powerhouses and turbines at both dams that will more than double their capacity, according to Scott Hall, Black Bear Hydro’s manager of environmental services. The project still needs to go through the Federal Energy Regulatory Commission’s licensing process, which should be completed by the end of the year, Hall said. “We hope to start construction on those projects next year,” he said. The construction will include a new powerhouse at each site, as well as expanded turbine units. The additional turbines will harness the power of water that today just spills over the top of the dams when the river is running high. Black Bear Hydro estimates the upgrades will boost the energy capacity of the Orono dam from 2.78 to 6.52 megawatts and the Stillwater dam from 1.95 to 4.18 megawatts. “With these two upgrades, and with all the other improvements that are being made, we believe it will replace all the energy being lost by removal of two other dams,” Hall said.

The two dams slated for removal are the Veazie dam and the Great Works dam in Old Town. The Penobscot River Restoration Trust purchased those dams and another in Howland with plans to put them out of service and allow fish to travel farther up the Penobscot River into the central portions of the state. The trust plans to dismantle the Great Works dam in the summer of 2012 and the Veazie dam sometime in 2013 or 2014. The Howland dam will be decommissioned and bypassed by a fish lift. A dam in Milford also is scheduled to get a fish lift. Hall said the construction at the Orono and Stillwater dams would cost around $20 million, with smaller fish passage and energy upgrades at other Black Bear Hydro-owned dams adding to that price tag. There aren’t any plans to expand energy capacity beyond past levels, but it could be a possibility for the future after projects associated with the river restoration are completed, Hall said.

(As much as a good pumped storage project might do, especially with its ability to quickly go on line to generate, this sounds like trying to push a rope up a hill. As far as other projects out there that can do the same thing, it looks like the opponents don’t have a clue – there aren’t any in that area.)

LAKE ELSINORE: Hydroelectric project touted as panacea for blackouts

By Michael J. Williams, North County Times | nctimes.com, September 21, 2011



The proponent of a huge hydroelectric project in Lake Elsinore is hoping to rescue the plan from a federal agency's dismissal by touting it as a solution to blackouts like the one that recently left a swath of the Southwest and all of San Diego County without energy. Project Manager David Kates of Nevada Hydro Inc. submitted a letter Monday to the Federal Energy Regulatory Commission arguing that the Lake Elsinore Advanced Pumped Storage project and an associated proposal for a transmission line through the Cleveland National Forest would have buttressed the statewide electrical grid against the widespread outage that occurred Sept. 8 and 9. According to the letter, if the system was in place, it could have provided at least 1,000 megawatts to SDG&E's system. "The transmission line and LEAPS, in our view, would have prevented the blackout from happening altogether," Kates said in an interview Wednesday. Kates' letter to Director L. Keith O'Neal was accompanied by more than 300 pages of background documentation. The package responds to the commission's announcement that it will conduct an inquiry into the cause of the outage. In his letter, however, he notes that the application for the hydroelectric project was dismissed in July by the commission's Office of Energy Projects director, a decision the Vista-based company has appealed.

Kates, who could not be reached for comment by The Californian on Wednesday, concludes the letter by pleading for O'Neal and the commission to intervene. He states the dismissal "will be a tragedy for the region's reliability future, particularly when the next blackout occurs." A spokesman for the commission in Washington said the body eventually will decide whether to conduct a hearing on the appeal or uphold the dismissal without a hearing, but there is no timetable for that decision. The projects have been in the works for years following an agreement forged between Nevada Hydro and the Elsinore Valley Municipal Water District in 1997 to partner in the effort, a pact the district board backed out of after the dismissal announcement. The hydroelectric component consists of the construction of a power plant near Lake Elsinore and the excavation of a reservoir and dam in the overlooking mountains. Water from the reservoir would be released through pipes down the mountain to electricity-generating turbines in the plant below, and water would be pumped back up from the lake to the reservoir at night when, theoretically, electricity costs are lower. The plant would be linked to the state's power grid by a 500-kilovolt transmission line that would run 32 miles through the Cleveland National Forest between connections north of Lake Elsinore and Camp Pendleton's northern border to the south at the Orange County line. Supporters say the projects, estimated to cost as much as $1 billion, would provide another energy source for the region, a means of stabilizing Lake Elsinore's water level and numerous jobs. Opponents describe the projects as environmentally devastating to the forest and lake, and question whether the hydroelectric component would supply the energy boost as promised.

Jonathan Evans, an attorney with one of the opposing groups, the Center for Biological Diversity, said other projects in the region, such as SDG&E's Sunrise power line, already have been approved to bolster the region's energy supply so whether Nevada Hydro's power lines and plant would be of benefit could be beside the point. "It's a little bit of a red herring to point to an unapproved project and say it would alleviate a problem when there are other projects out there that could already meet that need," he said. Jointly known as the Lake Elsinore Advanced Pumped Storage project, the power line and plant have run into major bureaucratic obstacles, culminating in the federal commission's dismissal and the water district's action. Nevada Hydro's

inability to get clearance for the proposal from the state's water quality agency led the federal commission to table its environmental review in recent years and the company has since sued the water agency for dismissing its application. The company's pursuit of a transmission line with the California Public Utilities Commission that could be used separately as a link between SDG&E's and Southern California Edison's systems without connecting to the hydroelectric project led to a dispute with the water district. That disagreement was in turn cited as a crucial factor by the federal energy projects director in his dismissal decision. Further exacerbating the dispute, the water district recently revealed in a communication to the federal commission that it had to pay Nevada Hydro's $131,294.68 tab with the state water quality board in fees, late penalties and interest. Elsinore Valley attorney John Brown said the district had no choice in the matter "because Nevada Hydro refused and continues to refuse to honor its obligation to the state and the district and refused to make the payment." As a result, state officials threatened to take the money directly from the district, which is a state-authorized agency, Brown said. "The district determined it was not in the best interest of citizen taxpayers to have that hanging over the district's head," said Brown, adding that he couldn't discuss what action the district might take to seek reimbursement. Kates declined to discuss Elsinore Valley's issue, while saying Nevada Hydro disagreed with the state agency over the bill. "It's part of an ongoing dispute we have with them," he said. "They claimed we owed it and we claimed we didn't. That's the crux of the matter." Evans said the bureaucratic and legal snafu demonstrates the need to quash the whole proposal and that it would behoove the district to go after Nevada Hydro for the money it has spent on the cause. "It would seem to be in the ratepayers' and water district's best interests to seek compensation for the millions of dollars spent by ratepayers on a fruitless project," he said. "It's like a bad trip to Las Vegas."

(American Rivers playing with the truth as usual just to keep their hands in the pot! The truth is that the current exemption process doesn't exempt anything. Projects on canals and conduits are subject to environmental review and conditions that cannot be challenged by the developers. Environmental agencies have a blank check to do as they please. In fact, a simpler legislation would be to apply this rule to the existing FERC conduit exemptions and Bureau leases.)

Tipton says jobs will flow from bill streamlining small hydro

Critics say his bill would gut fundamental environmental laws

By Troy Hooper | 09.23.11 | coloradoindependent.com

A hydropower bill that U.S. Rep. Scott Tipton introduced this month is intended to create clean energy jobs, but the director of the state chapter of American Rivers says the legislation badly misses the mark. "I don't know how much it helps hydropower developers. More than anything, it's another example of Republican House members looking for any way they can to attack this nation's bedrock environmental laws and regulations, in this case NEPA (the National Environmental Policy Act)," Matt Rice, conservation director at American Rivers Colorado, said in a recent interview with The Colorado Independent. H.R. 2842 would provide blanket authorization for installation of small hydropower on all U.S. Bureau of Reclamation canals and conduits. It also would require the Bureau of Reclamation to offer preference to water user organizations for the development of such projects under a federal lease of power privilege. Further, the bill would exempt small canal and conduit projects of less than 1.5 megawatts from the environmental assessment requirements of the National Environmental Policy Act. Waiving the powers of NEPA for small-scale hydro, in Rice's view, "actually creates an incentive for developers to deliberately build underpowered projects in order to avoid the environmental review." Developers already can exempt low-impact hydropower projects through either the U.S. Bureau of Reclamation or the Federal Energy Regulatory Commission, opponents of the bill have noted. In fact, that was the point Bureau of Reclamation Deputy Commissioner of Operations David Murillo made to the House Subcommittee on Water and Power last week. While the Bureau of Reclamation supports much of the bill's goals, it opposes exempting 1.5-megawatt projects from NEPA reviews.

"The department understands the intent of H.R. 2842 to be that conduits and canals are existing man-made structures where environmental impacts associated with construction have already occurred or been mitigated," he said. "However, the department's view is that low-impact

hydropower, particularly in conduits and canals, can be efficiently developed by utilizing existing environmental review provisions that will not unduly delay project development and ensure environmental health and safety." National Hydropower Association spokesman Matt Nocella said his organization has not taken a position on H.R. 2842 yet but is "currently evaluating and discussing it with our membership." The bill, however, is galvanizing support from those who want to slash as much red tape as possible. At last week's hearing, Robert Lynch testified on behalf of the Irrigation and Electrical Districts Association of Arizona and the National Water Resources Association, saying untapped water potential is typified by a Department of Energy report that found 1,400 megawatts of unused capacity in canals and ditches in Colorado where units of less than 5 megawatts could be installed. Lynch said the total of the small units is comparable to the 1,312-megawatts Glen Canyon Dam on the Colorado River. "At a time when our country needs to focus on domestic energy production and job creation, hydropower can play a critical role in providing clean renewable energy while expanding job opportunities in rural America," Tipton said. Detractors of Tipton's bill say the environmental reviews for small hydro projects by the Bureau of Reclamation aren't as onerous as some people have made them out to be, but Chris Treese of the Colorado River Conservation District and Family Farm Alliance maintains development uncertainties can get in the way of districts and developers making timely investment decisions. "Environmental reviews under NEPA are universally time-consuming and expensive," Treese said. "Even 'just an Environmental Assessment' will require considerable time and expense. The river district's current experience with an EA on a non-construction action has taken over a year and nearly $1 million in outside expenses, not including substantial 'unbillable' district time and expense." Still, given that exemptions already exist for low-impact projects and that proposed NEPA exclusions would not encourage efficient power output, Rice says there are better reforms on which to focus.

"It's not always clear whether the developer needs to apply for a FERC (Federal Energy Regulatory Commission) license or a Bureau of Reclamation lease of power purchase," Rice said. "While Reclamation and FERC have a memorandum of understanding, it's a case-by-case determination and, as we know, determinations take time so if they were to come up with a real clear process, that would be a lot more valuable way to more quickly develop Bureau of Reclamation hydropower projects." One of the best existing programs for streamlining small-scale hydropower projects can be found in Tipton's home state of Colorado, Rice said. A memorandum of understanding (PDF) between the state and FERC, enacted last year under former Gov. Bill Ritter, authorizes exemptions for conduits and projects under 5 megawatts that are added to existing infrastructure and meet the criteria clearly spelled out in a number of environmental safeguards. "There already is a model," Rice said. "From our perspective, Colorado's program is the type we like."

(More red tape and road blocks for hydro! Showing us a photo of more junk energy won't solve anything! The notion that changing how a hydro project operates will even remotely affect climate change is as dumb as they come. More hydropower = less greenhouse gases.)

Two new climate change studies

New reports find challenges to meeting targets in state's new global warming law

By Christopher Arns, 09.29.11, newsreview.com

It's finally happening. Starting next year, California law will require mandatory caps on certain sources of greenhouse gas emissions. Officials hope the new measures will result in higher usage of renewable energy and significantly lower emissions by 2020, as required by the state's landmark 2006 Global Warming Solutions Act—also known as Assembly Bill 32. Two studies released this summer are raising concern about how to best achieve those goals. Both raise questions about whether government agencies are doing enough to

develop sources of renewable power, which must supply 33 percent of the state's power in just nine years. In "Potential impacts on hydrology and hydropower production under climate warming of the Sierra Nevada," UC Davis professor Dr. Joshua Viers and others argue that climate change could drastically reduce hydroelectric output from Northern California dams by 2050 unless officials develop contingency plans. Hydropower is a form of renewable energy that currently makes roughly 20 percent of the state's power supply.

Yet the Federal Energy Regulatory Commission, the agency charged with licensing many hydroelectric dams in the state, has refused to consider climate change when issuing licenses to new and existing facilities. According to Viers, who also serves as Associate Director of the Center for Watershed Sciences at UC Davis, the impact of that decision could dramatically affect how cities and local communities receive hydropower. "Once we decide on how a particular hydropower project is going to be operated, for all intents and purposes, that's locked in for 30-50 years," said Viers. If average temperatures in California rise just two degrees Celsius by 2050, rainfall and snowmelt levels could become more unpredictable according to some climate change projections. As a result, hydropower output could plunge by 25 to 35 percent during the summer when energy demand often peaks. Viers argues that FERC's decision means dam operators may lack a uniform response to changing conditions. If that happens, another source of renewable energy such as solar power might need to pick up the slack. But some analysts don't think the solar industry is growing rapidly enough in California to support that kind of future demand. The other study released in July— "Economic Fiscal Impact Analysis of Residential Permitting Reform"—blames local government red tape for hampering progress. Commissioned by SunRun, a San Francisco-based solar company, the study argues that cutting fees and streamlining the permit process could increase residential and commercial solar installations by 13 percent in the near future.

Ethan Sprague, director of government affairs for SunRun, said he's hoping Gov. Jerry Brown and other state officials can rally local governments to use electronic permitting systems that would lower fees and create a more uniform process. "I think the governor has the personality to make that pitch," said Sprague. Sprague also hopes the state's Integrated Energy Policy Report, due out by year's end from the California Energy Commission, will also recommend ways for local governments to resolve the permitting issue. But Robert Weisenmiller, chairman of the reporting commission, believes that even if the IEPR concurs with SunRun's study, it'll still be up to city and county governments to take the initiative. "We can identify the issues, but we need to work with the local governments to come up with the appropriate solutions as opposed to just the energy commission saying, 'go do it now,'" said Weisenmiller. At least in Sacramento, city planners have already responded to SunRun's study. Solar permit fees will soon drop from an average of $720 to $280 and Sacramento officials plan other reforms, said Tom Pace, the city's principal planner. That's a step in the right direction according to Stanley Young, spokesman for the California Air Resources Board, which is the agency tasked with implementing A.B. 32. "We have to find this balance between (letting) the process exist and making it move as quickly as we can."

[i]This compilation of articles and other information is provided at no cost for those interested in hydropower, dams, and water resources issues and development, and should not be used for any commercial or other purpose. Any copyrighted material herein is distributed without profit or payment from those who have an interest in receiving this information for non-profit and educational purposes only.

10/14/2011

Some Dam – Hydro News™

And Other Stuff

i

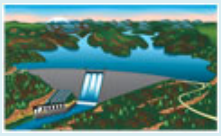
Quote of Note: *"The only people who claim that money is not important are people who have enough money so that they are relieved of the ugly burden of thinking about it." -- Joyce Carol Oates*

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

Ron's wine pick of the week: **Girard Napa Artistry Red 2008**

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

Other Stuff: (This says it all!)



Dams:

(If you really have a need to see the destruction of the two dams on the Elwha River – here's a webcam site that shows that slide by slide!)
http://www.nps.gov/olym/photosmultimedia/elwha-river-webcams.htm

(A 5.6 is not that large in terms of western earthquakes. Virginia just had that 5.8!)

Multi-million dollar renovation under way at Echo Dam

By John Hollenhorst, October 3rd, 2011, ksl.com

Coalville, Utah — The Echo Dam near Coalville is only the latest of a dozen dams in Utah and Wyoming that have been upgraded in recent years because of what we've learned about earthquakes. The goal is to avoid the nightmare situation a moderate earthquake could create: a wall of water racing down Weber Canyon, taking out town after town on its way to Ogden and the Great Salt Lake. Marvin Mair has lived at the foot of Echo Dam as caretaker for more than 40 years. Last week crews tore out the two houses he's lived in. "It was home to me, home to my family. I raised two kids here," Mair said.
He never worried much about the big dam looming over his home. But now he and his pet peacocks are moving out to make way for the big fix. "It needed to be done," Mair said. "Yep, it's just progress."

The problem is the dam was built 80 years ago, when scientists knew a lot less about earthquakes. If the earthen dam shakes, rock, dirt and sand under it could liquify, causing the dam to slump and possibly fail catastrophically. "That's worrisome because you have 12 or 13 towns along the Weber River between here and Salt Lake," said Mike Talbot, project engineer with the U.S. Bureau of Reclamation. "(It's) a significant amount of people," Talbot continued, "and you'd have damages estimated to be in the billions." A surprisingly small quake could trigger that catastrophe; above magnitude 5.6, the risk is there. The fix will raise the safe level to magnitude 7.2. Crews plan to excavate to bedrock at the foot of the dam and widen the dam with compacted dirt and rock. They'll also lower the reservoir and beef up the dam on the upstream side. The timing of reservoir levels will be crucial over the next two winters to avoid what farmers and irrigators dread: water shortages at the wrong time of year. "We hope not, and we won't want that to happen. But there could be (water shortages)," said Ivan J. Ray, general manager of the Weber River Water Users Association. Meanwhile, Mair is going to be OK. The veteran caretaker is moving to a new home a few miles away and says the government is making it good on the financial side. The project is scheduled for completion in 2015 at a cost of at least $40 million.

(Sounds like a good idea that is opposed by environmental groups – surprise!!!!)

Exchequer Dam enlargement moves another step in Congress

Washington, D.C., October 5, 2011, centralvalleybusinesstimes.com

A bill that would raise the height of New Exchequer Dam, about 40 miles east of Modesto on the Merced River, has been approved by the House Committee on Natural Resources. A higher dam would allow more water storage in Lake McClure, the reservoir behind the dam. Rep. Jeff

Denham, R-Mariposa, who carries the legislation, calls it "a simple, common sense" bill that will provide water storage during wet years in the San Joaquin Valley. The bill will allow for storage of up to an additional 70,000 acre-feet of water, with the potential for generation of an additional 10,000 mega-watt hours of electricity, increased recreation activity in the area and agricultural benefits, as well as the creation of about 840 jobs, Mr. Denham says. Specifically, H.R. 2578 will allow the Federal Energy Regulatory Commission to consider a proposal by the Merced Irrigation District to raise the spillway at the Exchequer Dam by 10 feet without using any state or federal dollars. But the bill has been opposed by a raft of environmental groups. "[I]n effect this legislation would roll back federal Wild & Scenic River protection for a portion of the Merced River upstream of Lake McClure reservoir. Congress has never before stripped a river in the National Wild and Scenic Rivers system of protections," the 11 groups said in a June letter to the House Committee on Natural Resources. Mr. Denham says the legislation has bipartisan support, pointing to the backing of Valley Republicans Kevin McCarthy and Devin Nunes as well as Valley Democrats Jim Costa and Dennis Cardoza.

(Well, at least he gets a blast out of life!)

Business is booming for Nampa dam-blasting firm

The feds turn to a Nampa company to bring down giant structures across the region

By Rocky Barker, idahostatesman.com, 10/08/11

Marmet Dam Removal 2007

Idahoans Morris Hans Knudsen and Harry Morrison created a business empire building dams, and now Jerry Dilley has made a business out of blowing them up. Dilley, the owner of Superior Blasting in Nampa, has become an expert at demolishing dams to restore free-flowing rivers like the Sandy and Elk Creek in Oregon. Now he and his team of seven Idahoans are helping to demolish the Elwha and Glines Canyon dams at Washington's Olympic Peninsula. The U.S. Park Service and the Bureau of Reclamation are removing the two dams to restore salmon runs into Olympic National Park. The $180 million project, slated to last almost 20 years, started taking down the dams last month. Dilley did his first blasting on the aging Elwha structure earlier this week on 1,300 yards of concrete that was far thicker than engineers thought. The major blast on the lower dam is expected to come in the next few days, when crews begin using a series of closely timed blasts on the diversion channel. But they'll wait until after salmon migrate through the dam before they blast it away and begin to allow the reservoir to empty. "If we shot the whole thing off at one time, it would just carry the sediment down the river," Dilley said.

Decades Of Dams

Morrison and Knudsen thrived because the nation was building new dams. They built their first dam for the government in 1914, the same year the Elwha Dam was built. Their global company headquartered in Boise went on to build more than 150 dams, including Hoover Dam on the Colorado River and Brownlee Dam on the Snake River. Dilley's company will never become a global conglomerate like the one Morrison Knudsen became. His family business does blasting for various projects, including highways and bridges. It has benefited from work on removing and repairing aging dams His first one was breaching the Minidoka Dam near Rupert so the Bureau of Reclamation could install a new electric powerhouse in 1997. "We've done as much work reinforcing dams as taking them out," Dilley said. Dilley doesn't get involved in the politics of dam removal. "We work at the pleasure of the owner," he said. "We don't have an opinion." But taking out dams is more than blasting concrete and pushing aside rock, said Bob Hamilton, a Bureau of Reclamation engineer in Boise who managed the Elwha project for the agency until it turned the job over to the National Park Service. "With dam removal, you not only have the environmental issues but also the emotional issues and the people who are attached to the dam," Hamilton said.

At Elwha, concerns included threatened marbled murrelets, which fly from the forest to the sea daily to feed using the river canyon; migrating salmon; and even near-shore species like crabs, orcas and clams. The demolition team also is sensitive to Indian religious sites, including one the Lower Elwha Klallam Tribe believes is at a site that is now under water. "That whole area is filled with sites that are sacred to the tribe they haven't been able to access," Hamilton said. The more environmental issues that come up, the more expensive the job is. Dilley wouldn't divulge how much he is getting paid for this job but said he gets from $300,000 to $700,000. "We take pride in the fact that we can tear up the target without tearing up the country."

More Big Explosions To Come

Superior Blasting will be on the scene at least through February. It also plans to help bring down the upriver dam, the Glines Canyon Dam. The 211-foot-high structure will be the highest dam to come down to date of the more than 400 dams that have been removed since the Edwards Dam in Maine came down in 1999. Superior Blasting's most prominent demolition was the Marmot Dam on the Sandy River near Portland in 2007. Portland General Electric wanted a good show when it blew the dam in a popular river restoration project. Dilley revealed his secret to making the blast look more dramatic for photos: "That is mostly 600 pounds of kitty litter."

From The Army To An Idaho Mine

Dilley learned demolitions in the U.S. Army in the 1960s. When he left, he went to work with explosives in the Bunker Hill Mine in Kellogg. In 1976, he went out on his own, starting Superior Blasting in Nampa. All of his employees are from Idaho, and he keeps his team intact between jobs. They all must go through exhaustive security clearances through the federal Bureau of Alcohol, Tobacco and Firearms. "It's not like you hire people off the street," Dilley said. It takes all of Dilley's training and experience to be able blast different materials, from dirt to rock to concrete, he said. Each job is different. When it comes to rivers and all of the special concerns associated with them, a blast has to come off right the first time, Dilley said. "You only get one shot at it," he said. "If it doesn't work, you can't go back."

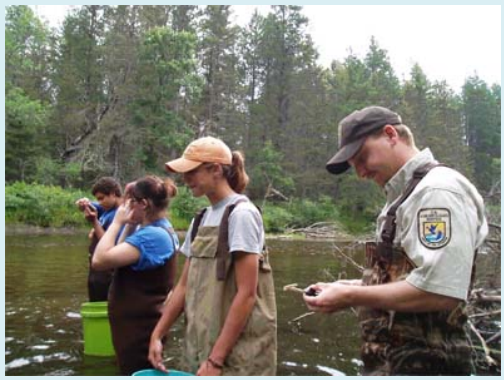
Hydro:

(Got this from a U.S. Fish & Wildlife Service web site. It's for educational purposes I guess. Is there anyone over 30 that works for these folks?)

Hydropower Planning

Reducing impacts to fish and wildlife and their habitats

Hydropower Coordinator: Nick Utrup, fws.gov



Hydropower in Wisconsin

In Wisconsin, hydropower accounts for 4.1% of the electric generating capacity and 4.4% of the total electricity generated, which is equal to about 2.1 billion kilowatt hours per year. This is enough electricity to supply the residential needs of approximately 650,000 people. Nearly all of the hydropower produced in Wisconsin is licensed by the Federal Energy Regulatory Commission (FERC). The Federal Energy Regulatory Commission authorizes the initial construction of hydropower facilities, issues licenses for operation of hydropower projects, and reconsiders mandatory license renewals every 30 to 50 years. Though hydropower is free of greenhouse gas emissions it not free of environmental impacts. And while it is an important source of energy in the state, hydropower projects need to include environmentally sound measures that provide for the protection and

enhancement of Wisconsin's natural resources. The U.S. Fish and Wildlife Service works to conserve, protect, and enhance fish and wildlife resources through environmental review of hydropower projects prior to the issuance of a license by FERC, to incorporate appropriate environmental protection and enhancement measures. For more information on hydropower licensing please visit: http://www.fws.gov/habitatconservation/hydropower.html

Fish Passage Around Hydropower Dams
One of our major priorities is promoting fish passage around existing hydropower dams where prudent, especially relative to lake sturgeon migration. The Lake Sturgeon (*Acipenser fulvescens*) is identified as a threatened species in Michigan, a species of special concern in Wisconsin, and a federal species of concern by the U.S. Fish and Wildlife Service. The current population of adult sturgeon in Lake Michigan is less than 1% of the historical abundance. It's widely accepted that much of this decline in numbers is because of loss of spawning and rearing habitat due in large part to the presence of hydropower dams. Through the FERC relicensing process, the Wisconsin ES Field Office works closely with dam owners and other stakeholders to try and develop lake sturgeon passage and protection provisions as part of the operating license for several dams where lake sturgeon passage and protection is critical. For more information on lake sturgeon in the Great Lakes please visit: http://www.fws.gov/midwest/sturgeon/

Freshwater Mussels and Hydropower Dams
Another major environmental concern relative to hydropower dams is their impact on freshwater mussels. Freshwater mussels are among the least understood and yet most imperiled aquatic species worldwide. In Wisconsin alone, more than one third of the native mussels are considered threatened or endangered with an even higher proportion considered species of concern. The USFWS listed 21 of the 78 known species of freshwater mussels in the Midwest as federally endangered, threatened or candidate species. On a larger scale, the Nature Conservancy reported that nearly 70 percent of mussels in North America are extinct or imperiled. Mussel surveys and assessments by our biologists near hydropower dams help guide the development of more environmentally friendly hydropower operations that hopefully reduce impacts to these sensitive species.

(Dividing the cheap hydropower pie a little more provided there's a little element called water)

House advances Hoover Dam electricity bill

By Karoun Demirjian, Oct. 3, 2011 | lasvegassun.com

The House passed a bill to extend the allocation of electricity created by the Hoover Dam for another 50 years Monday afternoon without any objection, and well in advance of the deadline to divvy up the output from the regional power center. The deal under which Nevada, California and Arizona share power produced at Hoover Dam is set to expire in 2017; Monday's bill would preserve it until 2067. It would also create a new category of power recipient: under the new contract, the participating states would agree to take 5 percent of their allocations -- for a total pool of about 100 megawatts -- that would be made available to tribes, irrigation districts, and rural cooperatives that were previously unable to tap electricity coming from the Hoover Dam. Nevada Rep. Joe Heck, who was the chief sponsor of the bipartisan bill, praised the smooth passage of the bill.

"Extending Nevada's access to low cost, renewable energy through this legislation is critical to Nevada's economic recovery because it helps create certainty over future electricity prices," Heck said in a statement. "Certainty is exactly what our economy needs right now in order to get people back to work." But certainty only goes so far. This deal comes against a backdrop of growing concerns about the Hoover Dam's ability to continue producing power -- a fate that relies on the future of Lake Mead. The lake's levels have been dropping dramatically in recent years, save for a brief recent reprieve, and if they fall too low, Hoover Dam won't be able to crank out any power. Local officials' worst estimate is puts the date the Dam runs short of power well ahead of 2017, when the new contract starts. The bill doesn't take such concerns into effect; the main objections to it have been from lawmakers concerned that the five-percent pool won't split things fairly

between tribes, local farmers, and townships. Among Nevada representatives, the support has been strong. Senator Harry Reid's office rushed Monday afternoon to applaud the House's passage of what they stressed was "Reid's Hoover Power Allocation Act." The measure has not yet passed the Senate; an earlier version of it was stalled last year as part of a greater public lands bill.

(I guess this is good news, but one cannot forget that there are people who oppose hydro no matter what good there may be. Gotta pay for that Beemer!)

Experts: Good things ahead for hydropower

Oct 5 - McClatchy-Tribune Regional News - Christine Pratt The Wenatchee World, Wash., renewablesbiz.com

Hydropower is conquering the environmental demons of its past and faces a bright future, clouded only by the threat of new regulations and their added costs. That was the message that Chelan County PUD General Manager John Janney and visiting energy expert Craig Gannett delivered Tuesday to a smart, like-minded audience of about 60 people at Wenatchee Valley College. The PUD and college teamed up to present the talk, part of a series of events to commemorate Public Power Week, which ends Saturday, and the PUD's 75th anniversary. "The prospects for hydropower playing a role in the energy product are as good as they've been in the last 30 years," said Gannett, an energy and natural resources attorney from his Seattle base with the national law firm Davis Wright Tremaine. "All forms of energy that do not emit carbon will grow in value."

Gannett based his optimism on three points:

- The fish protection issues that have plagued the hydropower industry have become better managed.
- People -- but not everyone -- are awakening to "the obvious" that hydropower is a renewable resource.
- As long as science continues to point to climate change as a man-made effect, dam-produced, carbon-free electricity will continue to increase in value.

A frequent lecturer on climate change policy and hydropower relicensing, Gannett said that the expansion of wind power, which displaces hydro-generated electricity for limited space on the region's power grid, will likely slow post-December 2012. That's when federal subsidies to the industry will expire and likely not be renewed, Gannett said, given the still-lagging economy. And to the newly acute issue of whether hydropower or wind energy should have priority on the seasonally crowded power grid? "That's a legal and regulatory hairball," Gannett said, amid chuckles from the audience. "It's going to come at some expense of the wind developers."

(Probably a good bet that the opposition doesn't know what a pumped storage is about!)

Hydroelectric facility proposed near Malin

heraldandnews.com, Oct 7, 2011

A California developer wants to build a $1.5 billion pumped storage hydroelectric facility near Malin, OR. But landowners in the area say they want nothing to do with the project that would inundate hundreds of acres of farmland and require about 35,000 acre-feet of water. The proposed Bryant Mountain Pumped Storage Hydroelectric Project could produce 1,250 megawatts of electricity, enough to power 1.25 million homes, according to an application filed by developer Bart O'Keeffe with the Federal Energy Regulatory Committee. The facility would store electricity, not generate it. When there is excess power on the grid, water would be pumped uphill to a reservoir. When more power is needed on the grid, water would be sent 1,200 feet downhill through electrical turbines to a lower reservoir.

But the project is just a concept at this point. O'Keeffe submitted his application to FERC last month to study the feasibility and possible impacts of the facility. It will be two to three years before the studies are complete and O'Keeffe can apply to begin construction. Farmers and residents near the proposed site were upset when they received notice last month about the

project. The lower reservoir would encompass about 590 acres of farmland about two miles northeast of Malin, behind a 2.6-mile earthen dam.

(Probably has a chance in a "Million" to ever get built!)

Federal agency wants more info on pipeline

Environmental groups, proponent differ on the effect on Flaming Gorge pipeline.

chieftain.com, October 8, 2011, By Chris Woodka

A federal notice of deficiency for the Flaming Gorge pipeline project has sparked a new disagreement between environmental groups and the project's main proponent. The Federal Energy Regulatory Commission issued the notice this week on Aaron Million's preliminary permit application for hydroelectric power along a proposed 500-mile pipeline from the Green River and Flaming Gorge Reservoir in Wyoming to Colorado's Front Range. Western Resource Advocates seized upon the notice as an indication of reluctancy of federal agencies to take on a "hot potato" of a water project, saying the Bureau of Land Management or Bureau of Reclamation should be the lead agency in evaluating the proposal. "This is yet another indication that the Flaming Gorge Pipeline is nothing more than an empty promise," said Stacy Tellinghuisen, senior policy analyst for Western Resource Advocates. "We are over two years into the process of evaluating the project, yet fundamental questions are still unanswered."

In July, Million pulled his environmental impact statement study from the U.S. Army Corps of Engineers because the process was taking too long. He is submitting a new application to FERC that concentrates on the power generation aspects of the project. The purpose of the pipeline would remain providing a new supply of water for cities in both Wyoming and Colorado. "The notice has no impact, actually," Million said. He characterized the notice as a standard request for more information about the project, a standard procedure in any federal process. The notice cites two deficiencies in Million's application: Identifying owners of the reservoirs to be used in the project, which are the Bureau of Reclamation for Flaming Gorge and Lake Hattie in Wyoming. Identifying the location of certain features of the project, including the Wild Horse Canyon pumped storage project, nine natural-gas powered pump stations, and four reservoirs that would be built as part of the project. The notice also states Million would need additional permits from other federal agencies since FERC has jurisdiction over hydroelectric power generation only. FERC also asked for mapping details of elevation changes.

FERC also pointed out it could take up to five years to complete the process. Million was not fazed by any of the requests in the FERC notice, and said he thinks the Flaming Gorge pipeline will progress more quickly as an energy project. "FERC is the only federal agency with a maximum timeline," Million said. "They get the information and then you move on." Last month, environmental groups unsuccessfully tried to convince the Colorado Water Conservation Board not to fund a Flaming Gorge task force. They testified against it, began online petitions and erected billboards criticizing the project. The task force, which was approved and will convene in the near future, will look at Million's proposal and a competing plan by the Colorado-Wyoming Coalition to build a similar pipeline. The task force will identify issues associated with the pipeline, but will not endorse a project. Million has always argued his concept protects Eastern Colorado agriculture and high mountain environmental water resources in Colorado by providing a new supply of water from a different climate zone. Environmental groups say the project depletes flows that are needed in the Colorado River basin to maintain water for fish, wildlife and ecosystems. One of the issues that concerns the CWCB, municipalities that import water from the Western Slope and Western Slope water groups is the impact of a Flaming Gorge pipeline on Colorado's entitlement to Colorado River water under the 1922 Colorado River Compact.

(If you can find the dam in the photo without a magnifying glass – you have good eyes! This is really low-head hydro, but the opponents are coming out of the woodwork anyway..)

Ellis Dam studied as hydroelectric power site

Oct. 5, 2011, Written by Brian Gadd Staff Writer, zanesvilletimesrecorder.com

Dresden, OH -- Another private hydroelectric company is exploring the possibility of using Ellis Dam just south of Dresden to provide additional electric generation to nearby American Electric Power lines. If those plans are carried out, however, the project also could have an effect on recreational boating on the river above the dam and endanger aquatic species, local officials said. The Federal Energy Regulatory Commission has accepted a preliminary application from American River Power of Collingswood, N.J., to conduct feasibility studies of the Ellis Dam area in Muskingum County and the Luke Chute area in Morgan and Washington counties. Dave Mathew, current president of Dresden Village Council, said he was concerned with this current proposal and another offered previously by Free Flow Power, of Gloucester, Ma. "If they are going to divert water, that could drop the water level in the upper pool (north of the dam) of the river, and that could impact boating," said Mathew, an avid boater. He also said the outflow of water from the diversion canal could make boating just south of the dam difficult because of the change in current.

Free Flow Power announced plans in 2009 to study nine low-head dams and canals on the Muskingum River for the possibility of installing hydroelectric turbines, including at Ellis and Luke. Pending the results of the study, that company could begin the formal permitting process with FERC sometime in 2012. Public meetings were conducted earlier this year in Zanesville, McConnelsville and Beverly to gauge public reaction to the proposal. Jon Guidroz, director of project development with Free Flow Power, previously said local comments would be considered as plans for the hydro projects are refined during the next year. Further environmental studies also will be conducted. He said it could take three to five years to receive final federal approval for the project. As for American River Power's proposal, the company has three years to determine whether to go forward. American River Power is looking to spend up to $500,000 on the feasibility study of constructing a new power canal on the east side of the Muskingum across from Ellis. The diverted water then would be used to power four generation turbines, and the generated electric would be channeled to local utility lines nearby by a new transmission line. The facility is forecasted to generate 9.7 gigawatt-hours of energy annually, according to the permit application filed in August. A phone message was left and email sent to John Henry, president/manager of American River Power, but Henry had not responded. Marilyn Ortt, president of the Marietta-based Friends of the Lower Muskingum River, said members are concerned with increased sedimentation resulting from a change in the river flow if projects such as those proposed move forward. "The sedimentation could bother the mussel beds that are really special to the Muskingum River and endanger other forms of aquatic life," Ortt said. "If a project like this is done, we want to make sure that is protected." Ortt admitted she just learned of American River Power's proposal but also is worried how diverting large amounts of water for power generation could affect the surrounding areas. "Think about all of the water that is needed for the shale gas development, and if they are using all of that water for six months a year for the power, that's a real problem," she said. If Luke Chute also is to be studied by American River Power, Ortt said the group likely will stand up for that area again, because the FLMR has acquired through state funds and a conservation easement more than 60 acres of property in the area.

Water:

(A new kind of crew cut! Oh my, don't inundate a kayak run for something like drinking water!)

Brentwood dam expansion nears critical milestone

By Mike Taugher, Contra Costa Times, 10/08/2011, mercurynews.com

Construction crews could finish the $118 million expansion of Los Vaqueros Reservoir by the end of the year if the weather cooperates, Contra Costa Water District officials said Friday. The expansion, which started in April, is expected to hit a key date in the coming days: the end of the 13-year-old dam's "haircut" and the beginning of work to raise the dam 34 feet. "That's a critical milestone for us," said Bob Henry, the water district's project manager. "That's the point where the contractor thinks we're going to be able to go fast." Once the dam is raised, there will still be about three months of finishing work, Henry said. In order to raise the dam, crews first had to cut it down by nearly five stories. With that phase nearly complete, the district plans to close the marina on Monday in preparation for moving it to higher ground. The north entrance to the watershed will remain closed to the public, but visitors can still enter it from the south entrance. There will continue to be limited shoreline access for anglers and some open hiking trails, according to the district. Los Vaqueros was completed in 1998, and since then the reservoir has been used to hold high-quality water that comes through the Delta in the wet months that it blends with the saltier water at the district's intakes in drier months. The expansion will increase the capacity of the reservoir by 60 percent, increasing the district's drought reserves and its ability to blend water.

On Friday, water district officials took news crews on a tour of the construction site. On average, about 150 people are working there each day, and the work continues 20 hours a day, six days a week, said Dan Owre, the district's director of construction. So far, the project has gone smoothly for the most part, though Owre said there were enough fissures and fractures in the sandstone of the right abutment that a lot of rock had to be removed and replaced with concrete. "That's a million-dollar fix right there," Owre said, nodding at the concrete plug from a position near the abutment on the other side of the dam. Although the expansion will increase the capacity of the reservoir from 100,000 acre-feet to 160,000 acre-feet, the district is considering a further expansion of up to 275,000 acre-feet if other water districts want to buy into the reservoir. One possible partner is the East Bay Municipal Utility District, which is considering raising its reservoir on the Mokelumne River in the Sierra Nevada, which would inundate a scenic and popular kayak run. That project is more controversial than the Contra Costa district's reservoir, largely because Los Vaqueros does not dam a major river. Instead, it is a valley in which Delta water is stored.

Environment:

(Oh oh, this is gonna make a lot of people unhappy!)

Federal ruling causes waves at Lake of the Ozarks

chron.com, October 2, 2011

St. Louis (AP) — Thousands of property owners along the Lake of the Ozarks are facing the prospect of having to tear down all or part of their homes, decks, gazebos and patios after learning they were built on land that belongs to Ameren Missouri's Bagnell Dam and Osage hydroelectric project. The Federal Energy Regulatory Commission, the agency that regulates the

lake, the dam and the hydroelectric plant, has issued an order stating that all of the so-called nonconforming structures must be removed. The structures include 1,200-plus residences.

The St. Louis Post-Dispatch reports that (http://www.stltoday.com/news/local/metro/article_f273a0b8-2f52-50f6-bb60-6b9a6580b860.html) Ameren has asked the federal agency to reconsider. Roy and Karen Walker, from Columbia, Ill., have been left scrambling for answers after learning their condominium is among those too close to the shoreline. "How can you buy a home, pay taxes on it, take care of it and have someone say you don't own it?" Karen Walker said. "It seems like a bad dream." Ameren, then known as Union Electric Co., created Lake of the Ozarks in 1931 when it completed the 2,500-foot Bagnell Dam impounding the Osage River. The project powers the Osage hydroelectric plant. Since the 1980s, the utility has managed the shoreline under federal oversight. The Amy Corps of Engineers oversaw shoreline development for the first 50 years. As required, Ameren submitted a master plan to FERC in 2008 for managing the lake and its shoreline in the face of continued development. The plan makes clear that Ameren knew at the time that thousands of structures, some dating back 75 years or more, were built on utility land or easements. Some of the structures — homes, docks, gazebos and patios — were built before any restrictions or formal permitting procedures were in place. In other cases, they may have been improperly situated, the plan said. Ameren proposed redrawing the project boundary to exclude as many structures — in particular homes and condos — as possible.

On July 26, FERC issued a 28-page order approving the plan with one major change, requiring Ameren to remove the 4,000-plus structures that sit too close to the shoreline and within the boundary of the Bagnell Dam project. Ameren sought a rehearing last month. Others backing the request for a rehearing include chambers of commerce from counties bordering the lake, banks, title companies and both of the state's U.S. senators. FERC declined to discuss the situation because it is the subject of a potential rehearing. "There's no time clock running as to when they must act," agency spokesman Craig Cano said. Already, uncertainty caused by the property ownership questions and FERC's order is having consequences. Neighbors of the Walkers are hesitant to make improvements to their homes because they worry they won't be able to sell. "It obviously creates uncertainty and apprehension in a tough economy, and that's the last thing we need," said Gregory J. Gagnon, CEO of Central Bank of Lake of the Ozarks, the area's largest community bank. In a letter to FERC, Gagnon said the uncertainty "could plunge the real estate market at Lake of the Ozarks into turmoil by casting a cloud on the value of lakefront property." No one's sure how long it will be until FERC will issue a final order.

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10/21/2011

Some Dam – Hydro News™

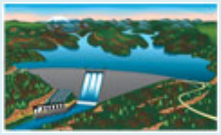
And Other Stuff

i

Quote of Note: *"We do not stop playing because we are old; we grow old because we stop playing." – Unknown*

"Good wine is a necessity of life." - -Thomas Jefferson
Ron's wine pick of the week: **Charles Krug Merlot 2008**
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson

Other Stuff: (How come we don't hear more about this issue?)



Dams:
(Look at this web site - This is worth the time. Some great photos!)
Construction of Hoover Dam
Posted Oct 11, 2011, blogs.denverpost.com

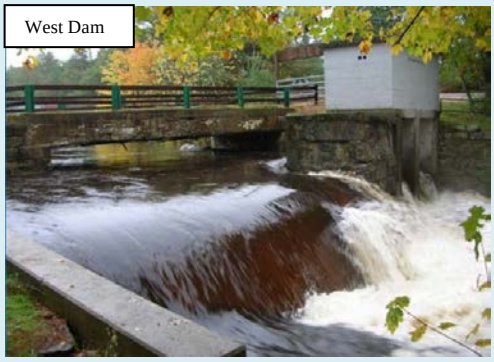
September 30, 2011 marked the 76th anniversary of the dedication of Hoover Dam. The dam straddles the border of Arizona and Nevada in the Black Canyon of the Colorado River and was dedicated by President Franklin D. Roosevelt in 1935. Rising 726.4 feet from its foundation, Hoover Dam was constructed in five years, beginning in 1931 and completed in 1936. Take a look back at its construction and history.
http://blogs.denverpost.com/captured/2011/10/11/construction-of-hoover-dam/5024/

(Not much dam here. I guess the dam's motto is: "Hell no, I won't go!" But, the jackhammer will win in the end.)

Historic dam won't go gently

Efforts to demolish structure hit a wall

By Tricia L. Nadolny / Monitor staff, October 11, 2011, concordmonitor.com


West Dam

Allenstown, NH - As workers tried to dismantle the east Buck Street dam yesterday, the dam put up a fight. An excavator slammed against the stone spillway, pried at the concrete and dropped a massive boulder against the rocks. But the structure refused to budge. Or even crack. "We'll call this one the most stubborn," Deb Loiselle, the state's river restoration coordinator, said with a laugh as she waited for the dam to show any sign of strain. Even a jackhammer proved a weak match against the piece of Allenstown history, and after three hours Department of Environmental Services officials promised to return today with a more formidable opponent. "There must be a lot of mortar in there," DES Design Engineer Grace Levergood said. "That's all we can think." Once this dam and the west Buck Street dam beside it are taken down, officials expect it to free up thousands in state funds that currently go to maintaining the archaic structures. Levergood said the move won't be the saving grace for those living on the flood-prone Suncook River, but said it will help lower the water levels during large rainstorms.


East Dam

Demolition is scheduled to begin on the western dam in November, once the currently high waters recede. If workers have more success today, it will mean the end for a dam with a nearly 300-year history. In the 1700s, the structures here fed mills at the center of the small community of Pembroke. Wooden dams were later replaced with stone ones before the Suncook Mill Co. took control of them in the 1800s. The state of New Hampshire purchased the dams in 1962.
Because of the site's rich history, the removal permitting process included an agreement with the state's Division of Historical Resources, which calls for sections of both dams to be maintained. On the east dam, the gears of the gate house, which date back to the 1920s, will be saved and a historical plaque will be installed, Levergood said. The historical impact study commissioned by the state was completed by Monadnock Archaeological Consulting, and yesterday the company's investigator Alexandra Chan was on site to watch for unexpected historical artifacts. Chan said most of the materials being removed hold little historical significance, but she added that there could be relics beneath the dam that deserve to be preserved. "If anything tumbles out that shouldn't be disturbed, we want to stop construction," she said. Chan said she was confident the agreement between DES and the state's historical division will adequately maintain the site's history. "I really think in projects like this you always have to balance love for the resources with needs of modern people. . . . The reality is there is not a whole lot of integrity left," she said. As workers struggled to loosen the

rocks yesterday, Don Cleveland and his wife, Kathy Cleveland, walked over from their nearby home to watch the slow process. "It's sad to see change but they talk about history here. . . . That doesn't fit into the decor," Don Cleveland said, pointing to the whitewashed cinderblock gate house. "It's been modified over the years too many times. There's nothing historical here." The Buck Street dams will be the seventeenth and eighteenth ones in New Hampshire to be removed in the last decade. Loiselle said more dam owners are considering removal, with some 20 currently weighing the pros and cons. Levergood yesterday said she was relieved to be wrapping up a process that started in 2009 and in the end will return the river to its natural state. "It's good," she said, looking over the western dam. "I think it's going to be very beautiful here."

(Some dams are just tough!)

Massachusetts Dam Stands up to Tropical Storm Irene

Posted by Jim Lyons, Civil Engineer, NRCS Massachusetts, on October 12, 2011, blogs.usda.gov

Berm to shore up the George H. Nichols Dam as Tropical Storm Irene approaches.

Just before Tropical Storm Irene hit Massachusetts, employees of USDA's Natural Resources Conservation Service (NRCS), including me, were informed of the storm's potential impact on a dam rehabilitation project that was underway in Westborough, Mass., a suburban community west of Boston. At the time, NRCS was working to widen the auxiliary spillway at the George H. Nichols Dam, a flood retention structure owned by the Massachusetts Department of Conservation and Recreation (DCR). This project was made possible with nearly $2 million in American Recovery and Reinvestment Act of 2009 (the Recovery Act) funds. The Recovery Act was created by the Obama Administration to boost the nation's economy, in part by developing and improving infrastructure like dams.

A spillway acts like a safety valve to prevent water from flowing over the top of the dam in a storm, which can damage the dam and compromise its structural integrity. With the new spillway excavated, the dam was in danger of breaching if the eight inches of rain that were forecast for the following 12 hours actually occurred. The potential for major flooding and property damage was significant. I immediately contacted the contractor and asked that they begin preparations for the storm, including the construction of an earthen berm in the new auxiliary spillway to protect the dam from breaching. I also called the city's Conservation Commission for permission to lower the water level in the reservoir to increase its capacity. On Saturday, the day of the storm, my work began at 4 a.m. I coordinated with local emergency management officials and state dam safety personnel, and ensured that the contractor completed the work. The rain started at 1 p.m.; construction continued until 9 p.m. I went home at 11 that night. By 3 a.m. I was back on site to monitor precipitation and the impoundment level. I left to get some sleep but was back again by 6 a.m. By this time, the rain and wind intensity had increased. Throughout the morning, I measured precipitation and reservoir levels and forwarded the data to engineering consultants who were revising various mathematical models of potential flood impact based on the forecasted rainfall. Ultimately, the reservoir crested at 2 inches below the existing auxiliary spillway. By the time Irene was done with us, many trees were down and most of the area was without power, including the construction trailer. The weekend was certainly long and exhausting, but it was rewarding, too: the dam weathered the storm with only minor damage.

(I guess this one was shovel-ready)

Norfork project on schedule

Written by Frank Wallis, Oct. 12, 2011, baxterbulletin.com

Norfork, Ark. — Two construction projects happening simultaneously on Norfork Dam are on track for completion sometime in March or April 2012, barring weather or other natural forces that

could delay the $6.6 million project. Ken French, head of the project for Morrilton-based Mobley Construction, told The Bulletin Tuesday that engineers and laborers are focusing now on installation of a monorail. When complete, the monorail on the lakeside face of the dam will carry a bulkhead from gate-to-gate to give the U.S. Army Corps of Engineers access to floodgates, gear and apparatus that hadn't been easily accessible.

A bore through the dam for a 42-inch siphon for minimum flow to the North Fork of the White River tailwater also is under way. The behemoth bulkhead has been assembled at the construction site staging area on Corps property above Quarry Marina. The bulkhead that weighs more than 150,000 pounds will be held by water pressure against a series of J-seals around each of the 12 floodgates in the dam creating a dry working environment for crews to replace floodgate tracks and seals that have deteriorated since the dams were built, French said. The bulkhead will be moved by truck and placed in the monorail by two 250-ton cranes. Arkansas Highway 177 will be closed for an unknown time while the bulkhead is installed. The 42-inch port in the face of the dam for minimum flow is going in at the 557.5-foot mean sea level mark. Forty-two inch plumbing with three heavy metal valves will give siphon operators three options for water at different depths of the lake, French said. The siphon water will be delivered to the tailwater via 42-inch pipe down the riverside face of the dam to discharge in the river. The project is funded in part by the American Recovery and Reinvestment Act of 2009 in the amount of $3.867 million. The balance of the funding — $2.790 million — comes from normal federal appropriations to the USACE construction line-item.

(One way to cut the dam safety budget, but it still will require in-depth over sight and a good set of rules to set up an effective program)

State proposes shifting dam inspections to owners

By JOHN O'CONNELL, Capital Press, October 13, 2011, capitalpress.com

The Idaho Department of Water Resources is drafting legislation that would remove inspection requirements for the state's small dams and shift the cost of inspecting larger dams to the owners. John Falk, the department's dam safety manager, said the proposal is the result of Gov. C.L. "Butch" Otter's Zero-Base Budget Initiative, which instructed agencies to look for cost savings in their procedures. If the bill passes as currently written, owners of nonfederal large dams would shoulder a new burden and expense of hiring qualified engineers to conduct inspections, a service that's thus far been provided at no cost by the state. Most of the water stored behind Idaho's dams is used for irrigation.

Falk stressed the proposed legislation, which has been sent to the state's Division of Financial Management, is still being revised. "This whole thing is fluid at the moment," Falk said. Idaho dams are classified under a three-tier system: low hazard, significant hazard and high hazard. Under the preliminary draft of the bill, the engineers hired for inspections by owners of high hazard dams -- those that would threaten human life if they were to fail --would send their reports to the state for review and acceptance. The proposal would also raise the size limit of dams that would be regulated by the department from 10 feet tall with a storage capacity of up to 50 acre-feet to 20 feet tall with a capacity of up to 100 acre-feet. Falk said roughly half of the dams that are currently inspected would no longer be inspected by the state under the proposal. "Many of the (dams that are) 20 feet or less are low hazard," Falk said. He said it's too early to determine how much money the proposal could save the state. "Safety is the department's primary concern, and we hope the end result is one that safety isn't put on the back shelf," Falk said. Upon hearing a status update of the proposed legislation during a recent meeting in Idaho Falls, members of

the Idaho Water Resource Board suggested the department consider offering inspection services for a fee to dam owners who would rather not hire private engineers. Falk acknowledged other states have gone that route. Clair Bosen, president of the Twin Lakes Canal Co., supports such an approach. Twin Lakes owns dams on three large reservoirs in Franklin County -- Twin Lakes, Winder and Condie. "We have really enjoyed working with the state because they have the correct equipment," Bosen said. "My thought is I would hope the state would continue to do what they are doing, and if they need to bill us a little bit for it, that would certainly be better than every canal company that has a reservoir having to go out and look for someone." Even with a fee, Bosen is certain state inspections would be much cheaper than hiring engineers. "Farming is tough and we have a lot of expenses maintaining our canals and lakes as it is," Bosen said.

Hydro:

(Sometimes people really love their hydropower)

Some Iowa dams earn their keep through hydroelectric power

Effort to rebuild Lake Delhi dam includes push to restore power generation

by orlanlove:13 October 2011, thegazette.com

Mitchell Dam

Delhi, Iowa — Recreation is an important byproduct of hydroelectric power in Iowa. Plans to include a hydroelectric component in the rebuilding of the failed Lake Delhi dam on the Maquoketa River follow a successful template established at three other Iowa dams whose owners use hydropower revenue to maintain recreational pools. “That’s a big part of the romance of hydropower — that it brings people together in both the production of energy and recreation,” said Pat Colgan, a retired civil engineer and hydropower expert. Coglan is serving as a volunteer coordinator of the effort to rebuild the dam that flooding destroyed in July 2010. Hydroelectric generation, which was discontinued at the Delhi dam in 1973, “is not essential to getting the dam rebuilt and restoring the lake, but we are assessing whether it can be a cost-effective source of funds for dam maintenance,” said Steve Leonard, president of the Lake Delhi Combined Recreation and Water Quality Taxing District.

Pat Colgan

Lake Delhi officials, he said, are working with Dwight Shanak, president of Modern Hydro in Waupaca, Wis., to determine whether the dam’s potential output and current electricity rates justify the cost of refurbishing the long-idle power plant. Colgan, whose family has owned property on Lake Delhi since 1956, said preliminary information from a state-funded $350,000 study by Stanley Engineering of Muscatine indicates that the concrete centerpiece of the dam and its bedrock footings remain sound. The dam’s long-missing turbines would have to be replaced, and the generators would have to be rewound, he said. Modern Hydro also operates a hydroelectric dam on the Shell Rock River at Greene and is refitting a dam on the Cedar at Nashua, which is expected to go on line in April. Nashua Mayor John Phyfe said

the city's share of the hydropower revenue will pay for maintenance of the dam, which forms an impoundment that is a highly used recreational area for boaters, anglers and campers. In a situation similar to the plight of Lake Delhi residents, a dam failure in the 1960s drained the impoundment, causing the value of surrounding property to plummet, Phyfe said. "Now they are at a premium," he said. Butler County's share of the revenue generated by its hydroelectric dam on the Shell Rock River at Greene is used to maintain the dam and the power house, primarily to benefit recreation on the five-mile-long impoundment above the dam, said Steve Brunsma, the county's conservation director. The impoundment, like the former Lake Delhi, is a popular boating area surrounded by permanent and weekend residences, he said The county's partnership with Modern Hydro "has definitely worked out well for Butler County residents," Brunsma said. Likewise, another county-owned hydroelectric dam on the Cedar near the small town of Mitchell has been a boon to Mitchell County residents, said conservation director Milt Owen. The county's share of hydro proceeds, which range from $20,000 to $25,000 a year, pays for upkeep on the dam, he said. The 5.5-mile-long impoundment, surrounded by "high-dollar homes" and frequented by boaters, anglers and water skiers, "is the focal point of recreation in Mitchell County," Owen said.

While environmental concerns have precluded the building of many new dams to harness hydropower, Owen said, "If dams exist for recreational purposes, you ought to look at putting them to work." Colgan agrees: "The power is free, and it doesn't pollute." Hydropower supplies about 1.5 percent of the electricity generated in Iowa — a usage level expected to remain stable in the future. In addition to the dams at Greene and Mitchell, hydropower plants operate at Iowa Falls, Waverly, Keokuk, Ottumwa, Maquoketa, Amana and Anamosa. Ameren Missouri's Keokuk plant, spanning the Mississippi River, produces the bulk of Iowa's hydroelectric power. Depending upon the water supply, this facility can produce 137 megawatts — enough electricity to power more than 54,000 homes.

(Long, but interesting article)

fedgazette October 2011 issue

A new look at hydropower

Thanks to new technology and recent tax incentives, new energy proposals are coming to district rivers

Frank Jossi - Contributing Writer, Published October 14, 2011, minneapolisfed.org

Call it a return to renewable roots. Hydropower has been around long before the words "renewable energy" became a political lightning rod in the energy industry. But over the years, proponents of hydropower have watched it become a stepchild to sun-absorbing solar panels and spinning windmills. But thanks to new technology and new applications of old ideas—and tax incentives for both—hydropower is again being talked about, as proponents argue that thousands of dams could be retrofitted to produce small-batch electricity.

The Mississippi River, for example, has never been much of a hydropower producer, especially compared with the Colorado, Missouri and Columbia rivers. But spurred by aggressive renewable energy tax credits and new hydropower technology, a handful of companies have filed plans to transform the lock-and-dam system on the Upper Mississippi from Minneapolis to Rock Island, Ill., into a small powerhouse of hydro. There are similar plans for several other lock-and-dam rivers throughout the country, including the Fox in eastern Wisconsin. Though traditional dam-and-turbine hydropower has become somewhat passé over the years because of environmental protests, its relative efficiency—especially compared with other forms of renewable energy—is also creating renewed interest in this old-form power source. Montana, for example, has 12 proposed and active projects involving dam-and-turbine hydropower on rivers.

A $35 million project on Lower St. Anthony Lock and Dam in Minneapolis involved installing 16 turbines in an auxiliary lock next to the shipping channel. Power from the project can provide electricity for as many as 7,500 homes.

The Ol' Miss

The main player on the Upper Mississippi, Boston-based Free Flow Power, has several projects at various stages of the approval process with the Federal Energy Regulatory Commission (FERC) to develop hydropower at lock-and-dam systems in the U.S. Army Corps of Engineers St. Paul District. The company has several approaches, but the fundamental idea attaches turbines to existing dam infrastructure to capture water energy at five locks and dams (numbers 3, 4, 6, 7 and 9) between Red Wing, Minn., and Lynxville, Wis., that will generate more than 51 megawatts (MW). And that's not all that's happening on the river. Free Flow has proposed projects using the same technology for dams at Coon Rapids, Minn. (8MW) and at Genoa, Wis. (10 MW). Hydro Green Energy is working on a similar plan at a Red Wing, Minn., lock and dam (4MW). And in downtown Minneapolis, Crown Hydro has proposed to divert part of the river to an underground tunnel to create 1.7 MW of renewable power, but has run into a storm of opposition. The full-scale potential of such projects is modest; the Upper Mississippi proposals alone could add close to 100 MW, give or take, to the energy grid, or a tenth of the power of Xcel's Prairie Island nuclear plant, and enough to power about 75,000 homes for a year. Despite all the FERC filings and grand designs, the only project to reach fruition is Brookfield Renewable Power's 10 MW project near downtown Minneapolis at the Lower St. Anthony Falls Lock and Dam, which recently began producing power. But the new proposals have other advantages. Dams have been heavily criticized for producing environmental debacles, but there seems to be no great opposition to the lock-and-dam proposals at this time. Rupak Thapaliya, national coordinator for the Hydropower Reform Coalition in Washington, D.C., said the proposals he's seen are "relatively benign" since they build off existing infrastructure that has no chance of being removed as long as shipping remains viable on a river. And as energy companies and the public alike seek more renewable energy, the Mississippi and other rivers in the Ninth District not yet tapped for much hydro are likely to see more attention.

"We're seeing hydropower included more and more in both state and federal incentives, whether that be for state renewable energy standards or federal tax incentives like the production tax credit," said Jeff Leahey, the National Hydropower Association (NHA) director of government affairs. "Those are providing incentives for people to look at new developments." Hydropower supplies 7 percent of total annual electricity generation, but two-thirds of the nation's renewable electricity, the result of its efficiency in generating electricity compared with other renewables. Jon Guidroz, Free Flow's director of project development, said water is 800 times more dense and carries 26 times the force of air. In fact, some hydro plants generate electricity more efficiently than even coal, evident in the average cost per kilowatt for each. Reports from the Wisconsin Valley Improvement Co., which helps operate 25 hydro plants on the Wisconsin River for 10 utilities, show that hydropower there is produced for less than one cent per kilowatt hour, half the cost of nuclear and one-third the cost of fossil fuel. Other reports show similar results.

New spin on an old idea

Despite that efficiency advantage, environmental concerns and protests have halted any new large-scale dam projects for decades. Still, many believe there is potential for significantly more hydropower production. A recent NHA study, corroborated by earlier studies by the U.S. Department of Energy, concluded that by 2025, there could be 60,000 MW of additional capacity across the country, enough to power tens of millions of homes. The added capacity comes from a variety of sources, including in-stream hydrokinetics, which features turbines underwater capturing wave energy, according to Leahey. The majority of the additional generation, however, comes from doing more with the infrastructure in place. With many existing dams at the end of their design cycle, it's estimated that the rehabilitation of dams with the latest designs and technology could increase power output at these same dams by 20 percent or more. PPL Montana is spending $230 million to upgrade Rainbow Dam at Great Falls, which will increase its current 36 MW of production by 70 percent. But as much as a third to one-half of that potential new capacity comes simply from adding turbines to dams that currently generate no power, and that's also where new technology comes into play. Most dams in place today do not generate power, and that's because they suffer from "low head"—when the height of a river above and below a dam or lock is less than about 30 feet; the lower the drop, the less energy that can be produced.

The Garrison Dam over the Missouri River—the fifth-largest earthen dam in the world—generates 580 MW of electricity, but is the only source of hydropower in North Dakota. Other rivers in that state simply don't have the flow to produce much energy or do not have a lock-and-dam system that could add hydro, according to Mike Diller, director of economic regulation at the North Dakota Public Service Commission. South Dakota has four major dams on the Missouri River, one reason that hydro generates almost half of the state's electricity. But the state otherwise has few untapped hydro assets. "The flows on our rivers vary dramatically—in spring you have good flows; in summer not much is happening," said Chris Nelson, vice chair of the Public Utilities Commission.

Follow the money

Relatively new federal incentives might change the equation a bit. In 2005 and 2008, production tax credits were extended to hydropower developers to encourage them to improve existing facilities, add hydro to non-powered dams and build hydrokinetic power in rivers and oceans that takes advantage of constantly moving water to spin submerged turbines. Through the energy investment tax credit, hydro and other energy developers write off 30 percent of the cost of a project. And since developers may want that in the form of cash, rather than a write-off, a Treasury Department program allows them to get a direct grant from the federal government, said the NHA's Leahey. That's not all. FERC has been encouraging "small hydro"—defined as less than 5 MW—by streamlining the permitting process and dedicating staff to answer inquiries about it. In a speech last year before the U.S. House of Representatives, FERC's director of energy projects, Jeff Wright, said that "small hydropower is an important part of the nation's energy mix, and offers the potential to add a substantial renewable, flexible capacity." Mark Stover, Hydro Green's vice president of corporate affairs and the architect of many of the tax credits as the former lobbyist for the NHA, said one of the primary challenges for hydro in rivers like the Mississippi is attempting to capture energy in low-head settings. Advocates of evolving low-head technology say the approach allows for energy capture without having to create lakes and change the basic contours of rivers.

The energy created is modest, but could be widely applied; only about 3 percent of the nation's 82,000 dams currently produce any power, and about half of those nonproducing dams are at least 25 feet in height, according to the National Inventory of Dams, compiled by the U.S. Army Corps of Engineers. One of those is Clark Canyon Dam on the Beaverhead River in western Montana, where Riverbank Power is installing 4.7 MW of new generation. Turnbull Hydro recently put a 13 MW plant online in an irrigation canal—a glorified, manmade ditch—in Fairfield, Mont., with the support of a local energy supplier. Hydrodynamics, another small energy provider, has proposed nine small projects on existing dams in that state, the majority under 3 MW, but none

have been built yet, according to Tom Kaiserski, who manages the energy promotion division of the Montana Department of Commerce. Free Flow's Guidroz agrees that low-head technology has come of age. "You've got dams out there with 10, 15, 20 feet of head, with an enormous potential onsite to realize power," he said. "You have to dust off the lenses of hydropower and come at it with a new perspective." Hydro Green used the nation's first hydrokinetic energy pilot project at the lock and dam in Hastings, Minn., to develop a new low-head turbine for in-stream applications. But Stover said the Hastings experiment proved to Hydro Green that the best market for its turbines was in conventional hydropower, and not hydrokinetic, and is now applying that wisdom to lock-and-dam systems. Using the knowledge gained from two years of field tests, the company has created a low-head hydropower turbine "we are confident will work in these [lock-and-dam] settings," he said.

Potential challenges

Still, the reality of widely retrofitting dams, or of new hydrokinetic applications, is a bit more sobering. A 2009 NHA study revealed that the Midwest—from the Dakotas to Michigan and Ohio—have the least hydro potential of any region in the nation. And for all the potential running through these many small-scale projects, there are many roadblocks, including the expense of retrofitting a lock and dam on the Mississippi, and finding the money could pose a problem. Brookfield, which built the only finished project, is a deep-pocketed player in energy. Free Flow and Hydro Green, in contrast, are relatively small companies with aggressive business goals. Hydro Green has a total of 34 low-head dam projects in the pipeline nationwide, totaling 1,000 MW and has raised $5.5 million in corporate financing. The company just moved its corporate offices from Houston to Chicago to be closer to the sites of its proposals. Free Flow brought in $5.7 million this year from investors and claims a staff of more than 30 employees, with offices in Boston and New Orleans. Still, neither company would release even the rough details of the cost of adding hydro to a lock and dam. Brookfield Power's project on the Lower St. Anthony represented a $35 million investment, according to the company's website.

More than a few proposals have come and gone. Nanette Bischoff, FERC coordinator with the U.S. Army Corps of Engineers St. Paul District, said market conditions have doomed proposals over the years. "It comes down to an economic decision, and if energy companies won't pay enough for the power, the energy developer figures it will be a waste of time and money," she said. And if the first few projects on conventional dams or locks and dams have negative environmental consequences, the energy developers on the river may have a harder time moving forward, according to Bob Larson of Nelson Energy, a two-person firm in suburban Minneapolis that develops hydro concepts, including the Brookfield Power operation on Lower St. Anthony Falls. FERC's permitting process requires energy developers to notify all parties impacted by new dam proposals, including environmental groups. Though the Hydropower Reform Coalition and others have not expressed opposition to the lock-and-dam proposals, Larson recalled something he has heard many times. "Hydro is easy to go after for opponents because, compared to other renewals, it has been around the longest and the opponents are so well-educated on the topic." Brookfield Renewable Power's $35 million project on Lower St. Anthony Lock and Dam near downtown Minneapolis involved installing 16 turbines in an auxiliary lock next to the shipping channel. Power from the project can provide electricity for as many as 7,500 homes. With many existing dams at the end of their design cycle, it's estimated that the rehabilitation of dams with the latest designs and technology could increase power output at these same dams by 20 percent or more.

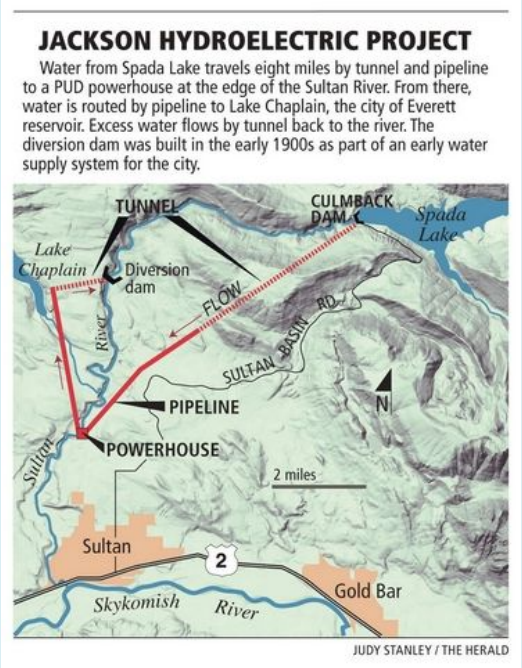
Environment:

(5 years to get a deal! Too longgggggg! This project supplies 80% of the County's drinking water! That's sort of an important environmental benefit – don't you think? I often wonder if there would even be a whitewater rafting area without the dam so why do you have to provide one?)

Environmental plan earns Sultan River dam a new 45-year license

By Bill Sheets, Herald Writer, October 13, 2011, heraldnet.com

The plan by the county utility district and other groups restores fish habitat and recreation areas on the Sultan River.



Sultan, WA -- For the next 45 years, Snohomish County's largest dam is expected to be easier on the environment than it's been for the past 45. The Snohomish County Public Utility District's power-generating system in the Sultan River basin was recently granted a new 45-year license, good until 2056, from the federal government.

The license renewal for Culmback Dam and the Henry M. Jackson Hydroelectric Project was based largely on a plan to make the Sultan River downstream from the dam more friendly for fish and recreation, PUD officials said. The PUD worked on the plan for five years with government agencies, the Tulalip Tribes and environmental and recreation groups. "It's been pretty phenomenal, actually," said Rich Bowers, Northwest coordinator for the Hydropower Reform Coalition, a national environmental group with an office in Bellingham. "They completely opened that process up to public and agency participation," Bowers said of the PUD. The result is a plan to spend $21.4 million on projects to restore fish habitat and whitewater riding opportunities to the Sultan River, and more in upkeep over 45 years for a total of $69.5 million. The cost will be financed with bonds backed by power bills paid for by PUD customers.

Environmental groups, as well as the tribes, have signed off on the plan. It's an example of how hydropower can be environmentally friendly, said Bowers, who added that his group is not opposed to all hydropower projects. Most larger dams were built between 30 and 100 years ago, with no environmental regulations or licensing requirements, Bower said. These include the Elwha dams on the Olympic Peninsula, finished in 1914 and currently being dismantled. "We didn't know what kind of impact dams would have on rivers back then," Bowers said. The new license for Culmback Dam and the Jackson hydro project became official at the end of September, PUD spokesman Neil Neroutsos said.

The previous license, issued in 1961, was for Culmback Dam at Spada Lake alone. The Henry M. Jackson Hydroelectric Project, added in 1984, is made up of several parts. The dam was built in 1965 to expand Spada Lake and increase the county drinking water supply. About 80 percent of the drinking water for Snohomish County comes from Spada Lake, via Lake Chaplain, to the city of Everett. In 1984, the dam was raised, quadrupling the size of the lake, according to the PUD. That same year, a 4-mile tunnel, 10 to 14 feet in diameter, was bored through Blue Mountain and

a smaller, 4-mile pipeline was added to divert water from the lake to a new pumphouse downstream on the Sultan River. There, four turbines generate about 5 percent of the PUD's power, enough for about 35,800 homes. The low water flow caused by the dam and the pipeline made life tough for fish and took away what once was a prime whitewater rafting spot. Side channels to the river, where fingerling salmon often stopped to eat, dried up. Debris that formerly was washed out has accumulated instead. When a big flow comes, it's often a torrent. One project involves adding more dead trees and wood to the river to add more variety to flow conditions, creating pools where fish can rest. Another involves reopening many of the former side channels, either by digging or by placing deadwood where the water will naturally divert into the former streambeds. Work on both of these projects probably will be done in the fall of 2012 or the spring of 2013, Neroutsos said. The water temperature in the river will be raised slightly by releasing water from closer to the surface of Spada Lake through the dam, likely in 2012, he said. For whitewater rafters, an access trail will be built and, starting in about 2013, more water will be released from the dam on several occasions per year to mimic natural high flows, Neroutsos said. The top of Culmback Dam will be opened to hikers, possibly by next spring. Improvements to boat launches in Spada Lake also are planned. Next week, the PUD is planning opening ceremonies for its Youngs Creek Dam, a "micro hydro" project on a creek south of Sultan. The $29 million dam, 12 feet tall and 65 feet across, is the first new dam built in the state in more than 25 years, PUD officials say. It's expected to generate enough power, on average, for 2,000 homes. The PUD also operates an even smaller dam at Woods Hole near Monroe.

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10/28/2011

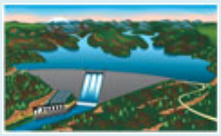
Some Dam – Hydro News™

And Other Stuff

i

Quote of Note: *"The happiest people don't have the best of everything...the happiest are the ones who make the best of everything they have." - - Unknown*

"Good wine is a necessity of life." - -Thomas Jefferson
Ron's wine pick of the week: **Bogle Phantom Red Blend 2008**
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson



Dams:

(The author gets a grade of 10 for the title, at least! But, the article does point out that many State dams need more analysis, especially on the subject of just how much is the maximum rainfall and flood level. It sure is a smaller number than most engineers are using now!)

It's a dam hazard in Augusta County

Area sees funding shortfall

newsleader.com, Oct. 19, 2011, Written by Spencer Dennis

Sherando, VA — More than half of Virginia's high hazard dams — the ones where a major breach would probably result in the loss of life — do not meet the state minimum safety requirements, according to a new report prepared for the Governor by the Virginia Department of Recreation and Conservation. Of the 13 high hazard dams in Augusta County, five don't meet the standard, the report said. That puts the lives of 378 Augusta County residents at risk. "It is a high number," said Gary Waugh, spokesman for the Virginia Department of Conservation and Recreation. "There hasn't been the funding to improve dams." Upgrades to two of those dams are in the design phase and will likely cost county residents millions of dollars. The Augusta County Service Authority is responsible for the costlier of the two projects, an upgrade to Coles Run Dam in Big Levels area of the George Washington National Forest. It is expected to cost about $4.5

million. The service authority hopes to start construction on the projects next summer. "We're basically cleaning out all of our cash reserves to pay for this project," said Executive Director Ken Fanfoni. "The cost of this is going into water bills, so our customers are paying for it."

Augusta County is paying for an upgrade to Mills Creek Dam, also on National Forest land near Sherando. It is expected to cost about $2 million. The county hopes federal funds will cover 65 percent of the cost of the project and state grants will cover a smaller portion, and construction won't begin until the county knows the status of those funds. "It's all still kind of up in the air," said county engineer Todd Flippin. As a utility, however, the service authority was only able to get $12,000 covered by the state. "Unfunded mandates are costing us," said Fanfoni, who believes the standards are too stringent and the state doesn't set the right priorities about what dams need upgrades. "We haven't done much in the last five years that hasn't been mandated by the state." But the safety standards are needed, state regulators said. "A lot of these dams were built with spillways not large enough for Virginia's largest floods," said Robert VanLier, the dam safety engineer for Augusta County's region. "A high hazard dam means that there is at least one house in that flood zone, and that wave of water is going to go downstream and probably take out that house." Some dams may fall below the safety standard because of new development downstream causes the dam to be reclassified as high hazard, which have stricter requirements. Others have fallen behind because of lax state enforcement. Currently, 81 percent of significant hazard dams in Virginia, those that would possibly result in loss of life and significant property damage, also do not meet the state requirements, the report said. "Because these are very expensive (construction projects) and a lot of the dam owners didn't have the funds, for years we were sort of automatically renewing their conditional operation certificates," Waugh said. "About eight to 10 years ago that stopped and we said we want to see progress before we renew these certificates." If dam owners do not get under compliance with the state regulation, the department can take its own action, such as draining a lake, and then charge the dam operator for the cost, Waugh said, adding that the state hasn't had to take those extreme actions with any owners yet. The estimated cost to repair Augusta County's high hazard dams, those that represent the most serious threat to lives and property, is about $7.4 million, the report said. "We will work as best we can with dam owners," Waugh said. "As long as they are making progress."

Hydro:

(They better watch out – someone is watching them closely! Now, how silly is that? You can't do anything without the world knowing it's happening in this day and age!)

PUD harvests power with new hydropower project

The $29 million hydropower project is expected to produce enough electricity for 2,000 homes.

By Bill Sheets, Herald Writer, October 19, 2011, heraldnet.com

Sultan, Wash. -- This winter, a little more of the power flowing into Snohomish County homes will be locally grown. The Snohomish County Public Utility District has officially opened its new mini-dam and powerhouse on Youngs Creek south of Sultan. The $29 million project, south of Sultan, is expected to produce enough electricity on average for about 2,000 homes. The dam, 12 feet tall and 65 feet across, is the first new one in the state in more than a quarter of a century, according to the PUD. The project is easy on the environment and helps the utility's goals of increasing its power independence and diversifying its sources, officials say. "Considering we're a growing utility, this project makes sense in terms of gaining more local control over our energy supply," said Scott Spahr, senior engineer for water resources and generation for the PUD. This could be just the beginning of small hydropower projects for the PUD. The utility has received permits to study placing dams on Hancock and Calligan creeks on the I-90 corridor in King

County. The PUD also has applied to the Federal Energy Regulatory Commission for a permit to study building a small dam near Sunset Falls on the Skykomish River near Index. Environmental groups have concerns about more dams, however small the structures may be, and are watching the PUD closely, said Tom O'Keefe of Seattle, Northwest stewardship director for American Whitewater, a national advocacy group for leaving rivers in their natural state. "We're raising general concerns with the approach the PUD is taking here, of developing new hydropower and building new dams on rivers," he said.

Currently, the utility district buys about 92 percent of its electricity from other agencies, most of it hydroelectric power from the Bonneville Power Administration. The PUD hopes to reduce that percentage and diversify its power sources as much as possible. While the project will serve only about two-thirds of 1 percent of PUD customers, the utility also is studying the other dams, exploring geothermal and tidal power, and offers discounts for people using solar power. The PUD already owns and operates two dams, one large and one small. The 640-foot-long, 263-foot-high Culmback Dam at Spada Lake produces enough energy to serve nearly 36,000 homes. The reservoir also provides much of the county's drinking water. In 2008, the PUD bought a tiny, 6-foot-tall dam and powerhouse on Woods Creek near Monroe from a private utility company for $1.1 million. It was built in 1982. The Youngs Creek project took about three years to build. It consists of two main parts, a dam and a powerhouse. The dam creates a quarter-acre pond. An underground pipeline carries water alongside the creek down to the powerhouse, 3 miles downstream from the dam. There the water pushes a turbine that drives a 7.5-megawatt generator before it returns to the creek.

The 920-foot drop in elevation between the dam and powerhouse helps create the force to spin the turbine, Spahr said. An 8.1-mile-long underground and overhead transmission line connects the powerhouse to the Sultan substation. The turbines will operate at their highest capacity in winter when water flow is heaviest and the power need is greatest. In those rainy months, it will be capable of tripling its average output, creating enough power for 6,000 homes. In the drier months, it will operate at lower capacity or shut off entirely. The powerhouse is located 1½ miles above a steep waterfall that's impassable to salmon, so the project will not affect their ability to spawn, officials say. Trout live in the water around the dam, but many of them already are separated from each other by natural barriers such as small waterfalls. They still thrive, so the dam is not expected to cause a problem, Spahr said. "It's not affecting flow, it's not affecting stream temperature," he said. Still, Rich Bowers of Bellingham, Northwest coordinator for the Hydropower Reform Coalition, says the cumulative effect of small dams is not worth the power they generate. "We don't take issue with Youngs Creek individually," he said. Overall, however, "low power is a more appropriate name for these dams, which provide little generation, have high resource impacts, do little to help the state diversify its energy mix, and lead to additional dams in a state where rivers and streams are already highly stressed." Spahr said the PUD communicated with Bowers' group, among others, during the planning for Youngs Creek. Eight government agencies and the Tulalip Tribes signed off on the project, he said.

Spahr said microdams are more economical than other environmentally friendly sources of energy such as solar or wind power. "The best way to make (small hydro) as low impact as possible is to pick the right site," he said. Because of the effect on fish, "I think the days of building big dams like you see on the Columbia (River) are over," Spahr said. Six dams have been built in the state since the early 1980s, and they're all roughly the size of Youngs Creek or smaller, according to the state Department of Fish and Wildlife. The Youngs Creek project originally was planned and then shelved by Puget Sound Energy in the 1990s. The property was bought by a small private utility, which sold it to the PUD about three years ago for $750,000, Spahr said. The Youngs Creek project is financed with bonds. The project won't have an immediate effect on ratepayers' bills, but officials say in the long run it could help reduce rates by reducing the utility's need to buy power from other sources.

(NHA Press Release re Youngs Creek Project)
For Immediate Release

New small hydropower project commences operations in Washington State

Washington, D.C. (October 21, 2011) – The following is a statement from Linda Church Ciocci, Executive Director of the National Hydropower Association, on the opening of Snohomish County Public Utility District's Youngs Creek Small Hydropower Project in Sultan, Wash.:

"NHA congratulates our member company Snohomish County Public Utility District for beginning generation at the Youngs Creek Small Hydropower Project earlier this week. "This project is a shining example of how hydropower can be developed in the most beneficial way: creating economic investment at a critical time in our nation's history while safeguarding the surrounding environment and community interests. "Developing small hydropower projects brings big benefits to the communities they serve. The designing and building of Youngs Creek created over 100 construction and manufacturing jobs and brought tens of thousands of dollars in economic benefit to the area. Now in operation, approximately 2,000 Washington State homes will have access to the most inexpensive source of renewable electricity in the country. "These projects can also be built to maximize ecosystem protection and community involvement. By building above a natural barrier and away from certain resident species, this project will not impact migrating fish. NHA also applauds the PUD's success in working with all community stakeholders, including state and local governments and native tribes when planning Youngs Creek. "NHA will continue its work with federal policymakers telling the success stories of projects like Snohomish PUD's and advocating for policies that will help us tap the over 60,000 MW of capacity that we could reach by 2025."

LucidPipe™ Power System
August 29, 2011 *by* **Xadmin**
Produce Clean, Low-Cost Energy From Your Pipelines

The LucidPipe™ Power System harnesses the untapped energy potential of moving water to produce clean, low-cost electricity. Driven by the demand for reliable, cost-effective electricity, water- and energy-intensive industries, municipalities and agricultural irrigation districts worldwide can deploy our in-pipe hydropower system to generate millions of megawatt hours of renewable electricity from the water already flowing through their pipelines – without interrupting flow. LucidPipe can operate across a wide range of flow conditions, volumes and velocities. The unique lift-based vertical axis spherical turbine design of LucidPipe generates electricity by extracting excess head pressure from large diameter (24"-96"), gravity-fed water pipelines and effluent streams. To maximize electricity generation, several LucidPipe systems can be rapidly and easily installed into a single pipeline,* enabling operations to continue normally. The amount of electricity generated is a function of the rate of flow and the pressure inside the transmission pipe. For example, in a standard 60-inch-diameter pipeline, with flow velocity of seven feet per second and 12 feet of excess head pressure, a single LucidPipe unit can produce up to 100kW of power while extracting less than 1 PSI from the system. Adding multiple turbines in a pipeline with these characteristics has the potential to generate billions of megawatts of renewable energy without environmental impact. ** LucidPipe systems can be deployed 3-4 turbine diameters apart, so up to four LucidPipe units can be installed in a standard 40-foot section of pipe. One mile of 42" diameter pipeline could produce as much as 3 megawatts or more of electricity.*
Click on this link for more info: http://www.lucidenergy.com/how-it-works/

Southeast Alaska Power Agency eyes new hydropower source

Charlotte Duren, kcaw.org

Wrangell, Alaska (2011-10-17) The Southeast Alaska Power Agency recently filed a preliminary permit application for Sunrise Lake. This permit is one of many that SEAPA is working on as part of a process to begin identifying and developing priority energy projects throughout the region. KSTK's Charlotte Duren has more on what SEAPA is doing to plan for Southeast's future hydroelectric energy needs, as well as some local concerns regarding the potential development

of Sunrise Lake. Southeast Alaska Power Agency serves Wrangell, Petersburg, and Ketchikan, and over the past five-years many households have been converting from diesel heating oil to electric heating, and from that SEAPA has seen a 50% increase in the use of hydropower in the region. This increase has pushed SEAPA to take a serious look at electric and water sources and what can be developed to ensure that power needs continue to be met in the years to come. Recently SEAPA filed a preliminary permit request to the Federal Energy Regulatory Commission for Sunrise Lake located on Woronkofski Island in the Wrangell Borough. Vice Chair of SEAPA and Wrangell Mayor, Jeremy Maxand says the increased use of hydropower is a concern, while the regions not in a serious pinch yet, he says it's time to begin looking at alternative sources of power, such as Sunrise Lake.

"This is a project that is in the City and Borough of Wrangell, and has been on the capital list for development primarily for a domestic water supply. It's a small project, but it's one that may fit into our existing hydro projects on the SEAPA system. It's also close to a transmission line, and it's one that is dual use as it can generate electricity, but it can also provide domestic water to Wrangell," he says.

SEAPA CEO Dave Carlson says if the Federal Energy Regulatory Commission approves the preliminary permit for Sunrise Lake, it will give SEAPA a few years to do environment and feasibility studies to make sure it's the right project for the existing power system. "We'll be putting together a study plan. We have three years and we will be taking a hard look at the economics and engineering first, then starting discussions with agencies. Assuming FERC does grant the preliminary permit there is a process where people can intervene in the process, and we encourage people to do that and get involved, so they understand what the process will be," he says. Mayor Maxand believes if approved the financing of Sunrise Lake as a hydropower project would be best done by SEAPA, while he says Wrangell would still have control of the domestic water supply.

"Hydropower projects are expensive. They take a lot of money and a lot of time, and they have a lot of risk. And I think the trend and the smart move is to go at these efforts collectively, publicly, and to share the risk and share the benefit, and that is how we are going to move together as a borough and as a region," he says. Wrangell resident Ernie Christen recently spoke at a Wrangell Borough Assembly meeting regarding his concern of SEAPA developing Sunrise Lake. Christen says Wrangell should be in total control of Sunrise and its water supply to ensure that Wrangell has enough water and electricity during heavy power use months. "My main issue is that we have another entity involved which is SEAPA that we buy our electric power from. My issue is that we have another governmental entity that we have to deal with as opposed to if Wrangell was able to develop it on our own then we would only have to deal with ourselves. So control of the water source is my main concern," he says. SEAPA's CEO Dave Carlson expects it will be three to four months before the preliminary permit status is determined. For more information on SEAPA Hydropower projects visit www.seapahydro.org.

Argonne awarded $1.9 million for hydropower study

October 17, 2011, By Jared Sagoff, anl.gov

New life has been pumped into the study and modeling of hydropower storage plants, thanks to a new $1.9 million Department of Energy grant awarded to a project led by Argonne National Laboratory. The grant, awarded by the Department of Energy's Office of Energy Efficiency and Renewable Energy, will fund a project to improve the high-resolution computer modeling and simulation of advanced pumped-storage (PS) hydropower facilities, providing a comprehensive study of the technical and market operations, economics, and contribution of pumped-storage

hydropower to power system stability. The study area covers the Western Electricity Coordinating Council (WECC) region, the electricity transmission region for much of the Western United States and portions of Canada. The WECC region is expected to see rapid expansion of variable renewable energy sources in the next two decades, and advanced PS designs have the flexibility and technical capabilities to integrate these clean energy resources into the electric grid.


Kinzua PS Project, PA

Pumped-storage plants are presently the only form of large-scale energy storage that is fully commercially available, as more than 21,000 megawatts-worth of PS hydropower can be found around the country. These existing PS plants were constructed in the 1960s, '70s, and '80s and work somewhat like a large battery. To "charge" the plant, relatively low-cost electricity is used to pump water uphill from a lower reservoir to a higher one, typically at night, and generate power to satisfy peak demand on the grid. However, a new grid—especially one that incorporates a growing share of variable renewables—is forcing scientists to re-examine how PS plants should be operated to provide optimal benefits to the grid. "Defining the role for pumped storage is going to be more important than ever, because it will be called upon to serve a grid that looks radically different than it did when these facilities were built," explained Argonne engineer Vladimir Koritarov. "The reason that PS plants are increasingly important is that they can also help smooth out the variability of the contribution of wind and solar energy to the grid," added Argonne engineer Guenter Conzelmann. "Though PS is best known for load balancing, it also provides a whole host of other services for the grid, and this grant will allow us to model exactly how the puzzle fits together." Both Koritarov and Conzelmann agree that modeling the economic uncertainties of pumped-storage hydropower will pose another challenge. According to Koritarov, PS provides a wide range of additional services to the grid that current models do not completely capture.

"Creating new high-resolution computer models that will be able to simulate the impact of these services builds on the 30 years of hydropower modeling we've already done," he said. "It also presents a better idea of new advanced technologies for PS plants and their economic benefits to potential investors." "Pumped-storage plants are still expensive to build, but they represent the most economically sensible technology for large-scale energy storage that we have right now. To stimulate more investment, we need to improve the models to show the full value of the technology," added Conzelmann. Argonne has four partners on the project: Alstom, a large hydropower plant manufacturer; MWH, a Colorado-based hydro-engineering firm; Siemens, a well-known engineering conglomerate; and the National Renewable Energy Laboratory. Argonne National Laboratory seeks solutions to pressing national problems in science and technology. The nation's first national laboratory, Argonne conducts leading-edge basic and applied scientific research in virtually every scientific discipline. Argonne researchers work closely with researchers from hundreds of companies, universities, and federal, state and municipal agencies to help them solve their specific problems, advance America's scientific leadership and prepare the nation for a better future. With employees from more than 60 nations, Argonne is managed by UChicago Argonne, LLC for the U.S. Department of Energy's Office of Science.

Feds OK company to study hydroelectric project

October 19, 2011, By Dan Catchpole, snovalleystar.com

Federal regulators have given a green light to Tollhouse Energy to begin feasibility studies on the company's proposed hydroelectric project on the North Fork of the Snoqualmie River. The Federal Energy Regulatory Commission approved the preliminary permit Oct. 14 for the Black Canyon hydroelectric project near Ernie's Grove. A subsidiary company, Black Canyon Hydro, that is owned by Tollhouse Energy applied for the permit March 14. Tollhouse Energy is a

hydroelectric development company based in Bellingham. The permit allows the company to begin studying "what can be built and what should be built," said Thom Fischer, president of Tollhouse Energy.

A wide array of conservation groups, American Indian tribes and government entities filed comments against the project. Conservationists and the Snoqualmie Tribe said the project would hurt the local environment, is unnecessary and would be on protected land. The majority of comments filed with the commission opposed the project, according to the commission's order granting the license (he meant Preliminary Permit?). Some comments claimed that the project would take too much water out of the North Fork, which ranges from torrents in the spring to a trickle in late summers. Other comments cited potential damage to wildlife, natural habitat and cultural resources. But these comments jumped the gun, because they are concerned with potential impacts of the project, while the commission was only ruling on a preliminary permit, the commission said. "The purpose of a preliminary permit is to study the feasibility of the project, including studying the potential impacts identified by commenters," the commission said in its order. "Thus, the concerns raised in the comments are premature at the preliminary permit stage…" The issues raised will be addressed if Tollhouse Energy applies for a hydroelectric plant license. In the meantime, the company will begin talking with the groups that weighed in on its preliminary permit application. It will also start conducting a bevy of tests to study the project's feasibility. Fischer said he hopes to have a project proposal available for the public by April 2012. After it is released, Tollhouse Energy will conduct public hearings. Still, he doesn't expect to file a license application for two to three years. During that time, he figures Tollhouse Energy will spend about $2 million to $3 million on studies.

Based on the comments filed against the company's preliminary permit application, Fischer is confident that the company can find middle ground with conservationists, the tribe and other groups that weighed in. "I didn't see anything there that is a fatal flaw or that scared me," he said. Conservationists aren't worried either that they will be able to stop the Black Canyon project. "I find it very hard to believe that FERC would rule that the project is in the public interest," said Thomas O'Keefe, spokesman for American Whitewater, one of the groups that filed against the project. Black Canyon would not include a traditional dam. It would be a run-of-river project, meaning water would be diverted from the main flow, run through turbines to generate energy and then be returned to the stream downriver. The project would require a structure built across the river. The structure would have an inflatable dam for when water levels are low. The project's underground pipe would run for more than a mile to a powerhouse northeast of Ernie's Grove. To access the powerhouse, a logging road would have to be extended by about three-quarters of a mile. To connect to the power grid, a 4.2-mile transmission line would have to be built. Black Canyon would produce about 10.2 megawatts of power annually. The project is necessary to keep up with the area's growing demand, Fischer said. Both North Bend and Snoqualmie filed comments with the commission. North Bend raised concerns that the project could raise water rates for its residents. Snoqualmie expressed concern that the project could add to flooding downstream and could affect Canyon Spring, which provides 10 percent to 20 percent of the city's drinking water.

(The other side to the dam removal nonsense)

Snake River dams far more valuable than Elwha, Condit

By Terry Flores, For the Capital Press, October 20, 2011, capitalpress.com

While some activist groups are trying to rationalize the back-to-back removal of the Elwha and Condit dams in Washington State into an argument for removing the Snake River dams, there simply is no comparison. The public really understands the difference between these small, antiquated dams and the Snake River dams, as evidenced by our public opinion polling that shows opposition to removing the Snake dams is overwhelming. Some 74 percent of the public find it an extreme solution. Furthermore, our polling research shows opposition to removing the Snake River dams has actually increased over past years. The facts show that the outmoded Elwha and Condit dams are simply not in the same league as the Snake River dams:

- Their power output is only 0.5 percent that of the Snake dams.
- They lack fish passages. The Snake River dams have sophisticated technological upgrades that are getting salmon safely upstream and downstream.
- They are economically insignificant, whereas the Snake dams provide a waterborne corridor that moves 10 million tons of cargo worth $19 billion a year and provides thousands of jobs.
- They don't contribute to food production, whereas the Snake dams provide vital irrigation to farmers in Idaho and Eastern Washington and Oregon to grow the crops that feed Northwest residents and are exported to the world.

All the attention focused on these dam removals is an occasion for everyone to reflect upon the extraordinary legacy of hydropower in the Northwest. Hydropower provides upwards of 60 percent of the Northwest's energy, and it is a clean, non-polluting, renewable source of energy that makes us far less dependent than the rest of the country on electricity from coal, natural gas or nuclear plants -- and keeps our carbon footprint about half that of the rest of the nation. In addition, since the wind doesn't always blow, but the rivers always flow, our hydropower system is a consistent energy source to fill in the gap when wind turbines are not spinning.

Terry Flores is executive director of Northwest RiverPartners, an alliance of farmers, ports, utilities and businesses that promote the environmental and economic benefits of the Columbia and Snake River systems and salmon protection policies based on sound science.

(Someone in this country is actually creating jobs – not many, but at least they're jobs.)

Hydropower project gives Washington County hope, officials say

By Sharon Kiley Mack, BDN Staff, Oct. 20, 2011, bangordailynews.com

Eastport, Maine — The water hadn't yet dried on the ribbon-like blades of an experimental hydropower generator as the CEO of Ocean Renewable Power Co. excitedly talked Thursday about where the company is going next. Ocean Renewable Power now has officially retired the cutting-edge Beta TidGen generator it had deployed in Cobscook Bay to research tidal power. But with the infrastructure for fabrication and deployment in place for Cobscook Bay, CEO Chris Sauer said Thursday that Ocean Renewable Power will launch a commercial generator next spring that will feed power directly to Bangor Hydro-Electric Co. "We believe this will be the first permanent project like this in the country," Sauer said. The 180-kilowatt generator is three times the capacity and size of the experimental unit being retired. "And next year, we'll deploy five of them," Sauer said.

Sauer, other company officials, representatives from surrounding communities and businesses gathered Thursday at The Boat School in Eastport to congratulate each other on a job well done and to officially mark the retirement of the Beta TidGen project. "Eastport is now known around the world, in Japan, Chile, Scotland, Europe, as a leader in the area of hydropower generation," Sauer said. "Companies around the world are now asking us questions." Sauer said that when Ocean Renewable Power first began researching hydropower in Cobscook Bay, he thought the company might stay a month or so, not the 2½ years the company has put in. "This project has exceeded all our expectations," he said. The 40-foot-long, 37,000-pound Beta TidGen unit has been removed from the bay and will be replaced in March with RivGen, a tidal river generation unit. Now under fabrication, the RivGen turbine — at 96 feet long and 18 tons — will dwarf the experimental generator. It also will be the first turbine that will be anchored to the sea floor. Sauer said that after performance benchmarks are reached, RivGen will be shipped to Igiugig, Alaska, where it will produce energy for the next 20 years. Ocean Renewable Power also recently partnered with the Canadian province of Nova Scotia for a turbine experiment off Long Island and with a local company, Perry Marine Construction, that will assemble the turbines. Sauer said that except for the engine and turbine blades, every part, including the massive underwater base structures, are made in Maine.

Eastport was the perfect place to begin, Sauer and others said Thursday. Jerry Morrison of Perry Marine Construction said it was a great challenge for his company to create the

generator. "It was the first of its kind and we had to design the specifications for the barge specific to this project," Morrison said. It was accomplished in less than a year through a team effort and Yankee ingenuity, Morrison said. "This area's work force has always been able to adapt." Ocean Renewable Power's contract has allowed Perry Marine Construction to invest $1 million in a new facility and new jobs, he said. Ryan Beaumont, a University of Maine graduate and mechanical engineer for the project, said he had never been to Washington County before he was hired by Ocean Renewable Power. "There is no better place to be," he said. He credited community hospitality with enabling the project to move forward as fast as it did. Dave Turner, project manager for Ocean Renewable Power, said the company borrowed moorings and gear and enlisted the help of The Boat School, the University of Maine, local businesses and governments, the U.S. Coast Guard and the Passamaquoddy Tribe in the process. "This community has the talent to help us get this job done," Turner said. "And there are still a lot more jobs coming." More than two dozen people now work in Eastport and Lubec for Ocean Renewable Power. In a statement read at the event, Lubec Town Manager John Sutherland said two of the positive ripple effects are that the project instilled new interest in local students in science and technology and it also has given area people hope that Eastport and Lubec graduates can have fulfilling jobs in the future without leaving Washington County.

Suzy Kist, Ocean Renewable Power spokeswoman, estimated that the company has pumped more than $3 million into the local economy since it arrived in 2009 and $8 million into the state. "We have outsourced from 13 of Maine's 16 counties and have hired 25 to 30 contractors — many of them local," Kist said. Robert Peacock, chairman of the Eastport City Council, said, "ORPC came to the right place at the right time and jobs have come here."

(Ouch – I guess you could call this a hard smack on the wrist)

FERC nixes hydropower 'claim-jumping' in Hawai'i

Vanessa Van Voorhis – thegardenisland.com, The Garden Island | October 20, 2011

LIHU'E, Hawaii — The Federal Energy Regulatory Commission will no longer issue non-mandatory preliminary permits for hydropower projects in the state of Hawaii. FERC's decision was delivered in its order dismissing two preliminary permit applications from competing energy developers seeking to explore hydropower development utilizing Kekaha Ditch near Waimea. For more than a year, Pacific Light and Power had been pursuing a Kekaha Ditch hydro project through the state of Hawai'i's hydropower authorization process when Free Flow Power, under the name Kahawai Power 4, filed a preliminary permit application with FERC for the same site. "This appears to us to be a type of unwarranted 'claim-jumping,'" the FERC order states. "Moreover, in order to avoid similar situations in the future, we will, as a general matter, decline to issue preliminary permits for projects in Hawaii that would be subject to permissive section 4(e) licensing." Four existing preliminary permits filed by FFP, and later transferred to Kauai Island Utility Cooperative, are not impacted by FERC's ruling; however, FFP's preliminary permit application for the sixth of six projects — Kitano Water Power Project, slated for Kokee Ditch — may now be off the table.

(This should be the one in a "Million" chance project – pun intended. A permit is absolutely no guarantee that a license will ever be issued and that won't happen until the pipe is built, so good luck. This is also nothing new. The California aqueduct has several hydro projects associated with it that the FERC licensed. You could say that the CA Aqueduct was the first conduit hydro project. It is the precedent!)

Federal regulators accept pipeline application

By Ben Neary, businessweek.com

Cheyenne, Wyo. - Federal regulators this week decided to review a Colorado businessman's plans to build a 500-mile water pipeline from Wyoming to Colorado. The Federal Energy Regulatory Commission on Tuesday notified Fort Collins businessman Aaron Million that it had accepted his preliminary permit application -- a decision that opens a 60-day public comment period. Million wants to pipe water from Flaming Gorge Reservoir in western Wyoming to

Colorado's Front Range. The project has sparked opposition from many in western Wyoming, where concern runs high that pumping would draw down the reservoir. If FERC issues Million a preliminary permit, it would allow him to apply to build the hydroelectric facilities for his project. FERC specified in its notice to Million that it only has jurisdiction over the proposed hydroelectric development elements of the pipeline project. It said construction of other substantial portions of the pipeline would require permits from other federal agencies. Million originally had asked the U.S. Army Corps of Engineers to review his plan. After working on the project for two years, the Corps stopped its review this summer after Million began saying the project could generate hydropower. Million filed an application with FERC this summer spelling out plans to construct a system of turbines and reservoirs along the course of the pipeline that could generate electricity. One proposed "pump storage" project associated with the pipeline calls for building a new reservoir on the side of Sheep Mountain, west of Laramie. Million said Thursday that water could drain from the proposed reservoir on Sheep Mountain down to nearby Lake Hattie to generate power while possibly using wind power to pump the water back uphill.

The pipeline would have to move water over the Continental Divide on its way to Colorado. Although Million said the project couldn't produce more energy than it uses, he said the hydropower could provide a valuable offset to its operating costs. "The hydropower has the potential to be a net benefit of the project. Not zeroing out the energy, that's not realistic in any scenario," Million said. But he said the hydropower would be consistent, and could provide a valuable addition to wind energy that's increasingly under development in southeastern Wyoming. Million has filed applications for the water with state and federal officials. He proposes to take a portion of the water that's due to Colorado under agreements that divide water on the Colorado River system. "The real issue is if Wyoming and Colorado want to develop some of their remaining water resources and alleviate pressures in other areas, or do they want to let California, Nevada and Arizona benefit," Million said. "It's one or the other -- that's really the question." Although some entities in eastern Wyoming have expressed interest in getting water from pipeline, the western Wyoming cities of Green River and Rock Springs as well as the Sweetwater County Commission worked together to fight Million's project while the Corps of Engineers was considering it. Green River Mayor Hank Castillon said Thursday the coalition will continue to oppose it under FERC's review.

"He's certainly not giving up on his attempt to divert water, so yes we are still very actively pursuing his attempts to continue on with the project," Castillon said. Several environmental groups have come out against Million's project. Wyoming Gov. Matt Mead also recently said he opposes it. "It makes perfect sense to me that so many people in Wyoming oppose this project," Mead said in a written statement released by his office. "Water is the state's most valuable natural resource and everyone wants to ensure it is used wisely. I generally oppose trans-basin diversion projects and in particular I believe Aaron Million's project is not well thought out." Million said the pipeline would draw about 200,000 acre feet of water a year while inflow into the reservoir was close to 3 million acre feet this year. Million's project is intriguing in Colorado, where water managers face the challenge of supplying water to sprawling development on the Front Range. Colorado water officials recently agreed to spend $72,000 to explore the pipeline proposal and another $100,000 after that if the initial study proves promising.

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