

1/10/2014



Some Dam – Hydro News™ And Other Stuff



Quote of Note: "I have come to the conclusion that politics is too serious a matter to be left to the politicians." - Charles de Gaulle

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"Good wine is a necessity of life." - Thomas Jefferson
Ron's wine pick of the week: 2010 Tintara Syrah "McLaren Vale"
"No nation was ever drunk when wine was cheap." - Thomas Jefferson



Dams:

(A dam good picture!)

Barton Dam at night | Flickr - Photo Sharing! nobody@flickr.com (rexp2)

This is the view up the Huron River at Barton Dam this evening. Photographed using a Sony Alpha A7R using a Nikkor 24mm f/2 lens with a Didymium ...

(How 'bout that title! A little sense of humor.)

Leave the dam thing alone

December 26, 2013 in Letters to the Editor, gazette-tribune.com

Dear Editor,

Leave Enloe Dam alone. Do not put any money into hydro-power, fish ladders or removing the dam. Reclaim the old power house, turn the housing compound into a picnic area, improve access and then quit. Why spend our precious resources on a project that will take years and

millions of dollars. Leave the dam thing alone! Canada doesn't want our fish, trying to rehabilitate the lake is too costly and dangerous to the downstream Similkameen and possibly the Okanogan, and putting in a new powerhouse is not worth the effort for the amount of power it will produce. Just call the whole area a tourist attraction and figure out what will happen to the bats in the old rail road tunnel. The \$'s and effort would be better spent in a fight that's possible to win. Once the trail is extended and the tunnel is graded, lighted, and paved, the bats will be gone. Not just moved, dead! Okay, it's not as big a deal as something the size of a dam or the lake behind it, but it would be a lot cheaper and more popular. **Maybe a project to relocate the bats closer to town so we don't have to spray for mosquitoes every year would make everyone feel good.** - Gai Wisdom

(Hope there are no "windows" in the sheet piling!)

New Moses Lake North Dam construction slated for January

By Tiffany Sukola, Herald staff writer, December 27, 2013, columbiabasinherald.com

Moses Lake - Construction on the new Moses Lake North Dam is expected to begin in early January, according to engineers working on the project. **The project to replace the Moses Lake Irrigation and Rehabilitation District-operated dam is currently in the permitting process, Chris Comstock said, of the Spokane engineering firm STRATA.** The project could end up costing anywhere from \$1.9 million to \$2.9 million. However the cost won't fall on the rate payers since there are federal emergency funds that will pay for the project, he said. Residents will likely see construction traffic in and out of Sand Dunes Road starting next month, he said during a recent public meeting on the project. While construction is projected to take place until late May, Comstock said the dam itself will be finished before then. Engineers set a March 31 deadline to have the facility hydraulically functional. Setting a late March deadline ensures the dam will be up and running in time to safely pass water from the spring runoff to avoid rising lake elevations, he said. **The first priority is to get the dam facility in the ground and operational, Comstock said.** "Second is to get the road open and last is to do some of the recreation and amenities improvements," he said.

The dam and the road across it have been closed since Labor Day weekend, when MLIRD crews discovered a sinkhole near the structure. **Shortly after the sinkhole was discovered, MLIRD crews installed an emergency cut-off wall (cofferdam) to take the hydraulic pressure off the dam.** Since then, the district has been working with engineers to look at rehabilitation and replacement options, as well as with legislators and other agencies to secure funding for those options, according to a previous Columbia Basin Herald article. **Comstock said the dam, which was built in 1928, performed very well until the mid-1980s, when inspectors identified what's known as a piping problem. That meant that water was washing soil below the dam and piping it downstream, he said.** Since about 1985, annual inspections of the dam have taken place. STRATA became involved in 2011, after the district asked the firm to look at some of the ongoing concerns at the dam. **At the time, Comstock said the dam was not in danger of imminent failure.** After inspections of the dam this past September, engineers looked at various options to fix the dam. "We did look at options to rehabilitate the facility and they became very cost-prohibitive by the time you retrofit the facility and upgrade the design," he said. **Comstock said the district also wanted to look at options beyond simply rehabilitating the facility to avoid any future maintenance issues.** "They don't want to have to replace the structure in 10 years, they don't want to put a Band-Aid on a structure that can potentially fail and have to spend even more money 15 years down the road," he said. "They want to fix it once, fix it right and fix it forever essentially." **The dam replacement project STRATA presented to the district has a design life of about 50 years on paper, which usually translates to a life of about 100 to 150 years in real life, said Comstock.** The footprint of the new facility is not going to deviate much from the structure's current footprint, he said. "It will look very similar to what it does today, but it will have a bridge over it with an open channel rather than culverts," he said. The open channel will allow the dam to pass a lot more water, a lot more efficiently, Comstock explained. **To remedy the current piping problem, the new design will use a steel sheet pile system.** **Comstock said the emergency cofferdam MLIRD installed in September is an example of a sheet pile system.** "These piles are continuous and interlocking so they don't

allow water to pass through horizontally," he said. "That prevents water from flowing underneath the dam."

(Major RCC makeover!)

Gilboa Dam rehab ahead of schedule

midhudsonnews.com, 12/29/13

Gilboa, NY – The \$400 million rehabilitation of Gilboa Dam is two years ahead of schedule, the New York City Department of Environmental Protection announced. Originally projected to be completed in 2016, it is now expected to be substantially completed by the end of summer 2014. The dam was built from 1919 to 1927 and impounds Schoharie Reservoir, the northernmost reservoir in New York City's Catskill water supply system. At full capacity it can hold 17.6 billion gallons of water. The original stone face of the dam had been damaged by years of freezing and thawing, which caused some of the stone to weaken and dislodge. The rehab project will reinforce the dam with some 234 million pounds of concrete



that will be molded to look like stone. Water from the Schoharie Reservoir flows to New York City through the 16-mile-long Shandaken Tunnel, and empties into the Esopus Creek at Shandaken. Another 11 miles down the Esopus it empties into the Ashokan Reservoir. From there water enters the 92-mile Catskill Aqueduct to the Kensico Reservoir, and on down to New York City.

(Yikes, what do you expect when you own a dam? Time to look for some free money!)

DNR Notice About Dam Repairs Shocks Homeowners

By: Carson Gerber - Kokomo Tribune, 1/2/2014

Peru, Ind. (AP) Miami County Commissioner Larry West said he was shocked when he received a letter from the Indiana Department of Natural Resources (DNR) saying he owned a portion of a deteriorating dam built near his house and he needed to pay to fix it. West wasn't alone. About 20 homeowners in the Hidden Hills housing addition just north of Peru received the same letter. The addition has six dams. The oldest was built more than 20 years ago. West told the Kokomo Tribune the dams, installed before the housing addition was put in, were built to turn the natural gullies in the area into man-made lakes. The letter said the dams were never permitted or inspected by the DNR and did not receive pre-construction approval. After an initial inspection, officials said, the dams need maintenance and the owners of the dams have to pay for it. "The initial reaction was, 'Oh my gosh, my property isn't going to be worth anything of its original value,'" West said. "This is of terrific concern to the property owners." It's also a major concern for the county, which maintains roads that run over four of the dams. West said the commissioners' attorney and county engineer are currently examining the county's responsibility in maintaining the dams. Phil Bloom, communications director of the DNR, said the non-permitted dams came to the department's attention when DNR officials were in Peru touring a flood-plain site this year.

He said just from a brief visual inspection, officials determined the dams had not been built properly and needed repairs. Bloom said he didn't know the specific repairs needed on the dams, but noted all six are considered high hazard. That means if the dams break, they could pose a serious threat to property owners downstream. It also means property owners must hire an engineer every two years to do a full inspection. Now, landowners and county officials are scrambling to figure out what to do. Whatever path they choose will come with a hefty price tag.

"The property owners can't afford the kinds of costs that are going to be involved with all this," West said, noting there's no official estimate on how much the project will cost. Property owners met to discuss their options, which include lowering the height of the dams so they no longer fall under DNR regulations. Owners also could just remove the dams and the lakes completely, but West said that isn't a popular choice. "None of the residents want to see the dams removed," he said. The only viable option, West said, is to pay to fix them. To do that, he said property owners are considering forming a state conservancy district — a vehicle by which landowners can organize a special taxing district to solve problems related to water management. West said the district could implement a new property tax on district members to help pay for dam maintenance. Landowners are currently looking at hiring an engineer to do an in-depth inspection and report on the dams. West said the report will be sent to the DNR, and officials will come up with a plan for which maintenance issues get addressed first. County officials and landowners will meet again to further discuss their options. West said the DNR hasn't set a timetable on when repairs need to be finished. But, Bloom said, the sooner property owners start repairs, the better. "Not only for the landowners," he said, "but for all those things downstream that could be damaged if the dams were to fail."



Hydro:

(What a debacle!)

YEAR IN REVIEW: Quincy's seven-year hydropower effort ended in 2013

By Doug Wilson, Herald-Whig Senior Writer, Dec 27, 2013, m.whig.com

Quincy got out of the hydropower business in September, when the City Council voted 10-4 not to form a partnership with Coastal Hydropower Corp. It was an abrupt end to a project the city had pursued since 2006 at a cost of about \$5 million. Looking back on that decision, Mayor Kyle Moore said it was best for the city. "Essentially if we had decided to pursue hydropower 60 and 90 miles away, it would have taken a lot of time from this administration," Moore said. "I thought it was best that we focus on things that I had campaigned on, like the Quincy Scorecard and improved infrastructure work, and even such things as managing our trash hauling and the budget." Alderman Steve Duesterhaus, D-2, said the city was not facing any more costs when the partnership was voted down. He and other aldermen who voted for the partnership said the council should allow Coastal to keep working for a chance to share in millions of dollars in annual revenue. The controversy that had surrounded the project for years was evident in debate by city officials. Some wanted the chance to recoup funds through an agreement with a private developer who would bear the costs of building hydroelectric facilities at locks and dams at Clarksville and Winfield, Mo. Others argued the city should end all efforts and allow the federal permit to lapse.

The permit ultimately was not renewed.

The city's hydropower focus started in 2006 with preliminary work to develop a generation facility at Lock and Dam 21 in Quincy. The city got a federal permit that allowed it to pursue a license application. A \$6.6 million bond was approved in 2009 for the licensing work required to get the permits to develop the power plants. That work came to a halt in February 2011, when the Federal Energy Regulatory Commission withdrew the city's permit rights, charging that the city had worked too closely with a power company. In August 2011, the City Council approved paying off the \$7.3 million in outstanding bonds and interest. The preliminary permit for Lock and Dam 21 is now held by Hydro Green Energy of Westmont. Quincy retained the development rights for Lock and Dam 24 at Clarksville, Mo., and Lock and Dam 25 at Winfield, Mo. Coastal Hydropower Corp. sought to work in partnership with the city on those projects, offering to bear all costs.

Coastal officials held an informational meeting with the City Council on July 8, explaining how construction costs of two electrical generation facilities would range between \$250 million and

\$300 million. The company asked to partner with the city, sharing revenue over a 40-year time period. Company officials estimated annual revenues would be between \$11.34 million and \$15.12 million and the cost split would be open for negotiation between Coastal and the city. The promise of annual revenue for the city prompted support from a divided council. Some aldermen said they wanted to hear from development officials and executives about the hydro project's potential benefits and its drawbacks. Alderman Dan Brink, R-6, sought to create the Quincy Community Hydro Advisory Commission that would include some of the region's top business leaders. The commission would have been tasked with reviewing the city's hydropower options and making a recommendation to the City Council. **Aldermen were deadlocked 7-7 on creation of the commission at its Aug. 26 meeting. Moore cast the first tiebreaker of his administration, rejecting creation of the panel.** That paved the way for the 10-4 vote to terminate all hydropower efforts on Sept. 9.

(No rain, no kWh's, but don't worry.)

Drought could cost Palo Alto \$5.46 million

Market-rate power purchases would replace lost hydroelectric power

by Sue Dremann / Palo Alto Weekly, Dec 27, 2013, paloaltoonline.com

If California doesn't get more precipitation, Palo Alto, CA could end up paying at least \$5.46 million more for energy supplies to make up for lost hydroelectric power, a city official told the Weekly.

The state is tracking toward the driest year on record, according to the California Department of Water Resources. The seasonal forecast for the water year sees mostly dry conditions for the state. **After two years of drought, even additional rains are not considered enough to make up for the losses, water officials noted.** The deficit will play out in lower groundwater, river and reservoir levels, the state noted. **Palo Alto gets its hydroelectric power from a number of sources, including the Calaveras and Shasta dams and the Stanislaus River,** said Jane Ratchye, city Utilities Department assistant director for resource management. Hydroelectric power in a normal year accounts for about 50 percent of the city's power supply.

Under its hydroelectric contracts, Palo Alto pays the same amount of money for that power no matter how much the city gets, she said. In 2014, expected hydroelectric would reduce to 40 percent, forcing the city to purchase additional power elsewhere from the market. Additional purchases from other sources would eat about another 4 percent of the city's electrical budget.

The city also plans to spend \$170,000 on renewable-energy certificates, which support renewable-energy sources in other regions and which are part of the city's strategy to have a "carbon neutral" electric portfolio. **In 2013, in addition to the hydroelectric power, 20 percent of the city's power came from landfill gas and wind; the balance was purchased from the open market. In 2014, 40 percent would come from hydroelectric sources, about 22 percent from renewables and the balance, about 37 percent, from the market,** Ratchye said. Palo Alto would purchase the additional power from an existing stable of eight to 10 suppliers, she said. But the cost increase isn't expected to affect customer rates at this time. **"We do have significant reserves in the electric fund," she said. Due to lower costs to the city during wet years, the supply-rate stabilization reserve at the end of fiscal year 2013 was \$65.3 million, she said.** But there was a caveat. **"If we have continuous three years in a row of very critically dry weather, it will be a problem at some point," she said. The city has not heard that its drinking-water supply will be affected, Ratchye said. The drinking water comes from Hetch Hetchy Reservoir and melted snowpacks.** "It's very early in the water year. Supplies in storage are looking OK, and water use has gone down," she said. Water officials are not likely to tell the city if the drought will affect its supplies until March, she said. **If the drought affects the Sierra snowpack or continues for an extended period, water supply could be impacted. But the city has underground emergency-water supplies, she said.**

(We can develop more than the 3 %. That's a low target!)

Start-up business for water-power technology to open in Hamilton

By Chelsey Levingston Staff Writer, Dec. 29, 2013, journal-news.com

Hamilton — A new business start-up that's developed water turbine technology for alternative energy will open in Hamilton at BizTech Center by the end of January.

The company, kW River Hydroelectric, was co-founded in 2013 by Paul Kling, of Colerain Twp., a retired Duke Energy executive; and Fred Williams, retired from the U.S. Air Force in Dayton, the device's inventor. Williams has developed a device that fits on a low-head dam in a river. It captures the power of water flowing over the dam, converting it to electricity. Water goes in the turbine, spins a generator, and comes out the other side. The device's spinning wheels are contained in an enclosure that's safe for canoes and debris to float over, and for fish and other wildlife to pass through without harm. The turbine has an added safety benefit of covering the deadly turbulence at the bottom of the dam for people in the river. Water is a reliable, predictable source of energy, Williams said. "If a person is not completely convinced that global warming is happening, at least this can address the threat by generating more electricity from pollution-free means," Williams said.

"Bottom line, coal is not sustainable into the indefinite future," Williams said. "We need to transition to renewable." A low-head dam has an elevation of less than 15 feet. There are more than 72,000 low-head dams across the United States, including the Great Miami River that winds through this region on its way to the Ohio River, according to Kling's and Williams' research. Many of these dams were built before 1950 for flood control and as a reliable source of water for surrounding industries, according to Kling and Williams. "There's energy there that's being wasted," Kling said. Currently, kW River Hydroelectric is seeking investors and grants to finalize the design and manufacturing of the product. Meanwhile, Central State University has been researching simulated models of the hydroelectric turbines using previously awarded grant funds from the Electric Power Research Institute. A prototype of the turbine will be tested at a low dam in the Great Miami River in Hamilton, one reason for kW River opening at BizTech. BizTech, 20 High Street, offers discounted rent and other services for new business start-ups. "The question always comes up, why didn't somebody come up with this 50 years ago? There's nothing new here," Kling said. "The reason was coal was so cheap and available... but then all of a sudden, coal became un-cheap and people got interested in solar and wind," Kling said. "Solar only works during the day, on a good day, for three or four hours. Wind only works when the wind blows," he said. "The water comes over this dam 24/7." Hydro-power could provide an alternative source of energy for utilities to add to their portfolios. Hamilton city government, for example, which owns its own electricity and water utility services, wants to provide 100 percent renewable power by 2015, said Antony Seppi, business development specialist for the city. The Public Utilities Commission of Ohio currently requires electric distribution utilities and electric services in the state to get 25 percent of power sold from renewable energy sources by 2025. If 3 percent of the dams in the U.S. were each outfitted with three of these turbines, it would produce the power equivalent of a 720 megawatt coal-fired plant, Kling said.

(From the Mississippi to the Indiana back woods!)

Indiana's Williams Dam could power up again

Dec. 29, 2013, archive.indystar.com

Williams, IND. — With its gentle current and miles of shallow water, the White River is no one's idea of a mighty waterway. But in this small Southern Indiana town, the White River just might get a high-powered job. A Boston start-up company wants to harness the power of thousands of gallons of water spilling every minute over a 17-foot-high dam and put that energy to good use. Free Flow Power Corp. plans to spend \$12 million to install four turbines on the



Copy obtained from the National Performance of Dams Program: <http://nmdp.stanford.edu>

Williams Dam, a century-old concrete embankment that straddles the East Fork of the White River. The company says the project could generate enough electricity to power about 2,500 homes. "This isn't the Hoover Dam we're talking about," said Thomas Feldman, vice president of project development for Free Flow Power. "But this is exactly the type and size of project that we target." Even with its modest size, the Williams Dam project represents an ambitious goal, producing renewable energy in this quiet, rough-around-the-edges rural area.

The dam, now used mostly as a public fishing area, is surrounded by neglected buildings, mobile homes and nondescript houses. The nearest city, Bedford, is 20 minutes away, down a winding, hilly country road. But Free Flow Power says it has spent three years exploring small dams all over the country for this kind of project, and has a list of 50 more it wants to develop, including four more around Indiana. In an age of green energy, this project could lead the way for a wave of similar hydroelectric proposals around the country. But whether the company can pull it off is far from clear. It has yet to get an operating license from the Federal Energy Regulatory Commission, although it says it expects to obtain one in early 2014. In addition, Free Flow Power has no track record of completing hydroelectric projects, and says that Williams Dam would be its first. The company, founded in 2007, has had fits and starts over the years. Earlier this year, it abandoned plans for hydropower plants on the Mississippi River, after using a \$1.4 million grant from the U.S. Department of Energy to test a proprietary technology. In a letter to the Federal Energy Regulatory Commission in June, Free Flow Power said that pursuing those projects was not viable. Feldman, the company vice president, said the Mississippi River project ran into a combination of technical and regulatory hurdles that were insurmountable, and made financing difficult. He said Williams Dam is a simpler type of project. It uses a conventional hydropower technology that is used all across the country. The eight-year-old company has raised millions of dollars in venture capital, and has spent more than \$500,000 to do research and engineering studies at Williams Dam. The project has the support of state and local officials here. Several environmental groups are giving the project tentative approval, even though they want to see more details. Gov. Pence's office of energy development said it supports hydroelectric power as a part of Indiana's long-term energy policy. "We need a diverse energy portfolio, which includes coal, gas, methane, wind, solar, nuclear and hydroelectric, in order to power our economy," said Tristan Vance, the office's director, in a statement. Finding Williams Dam is no easy feat for outsiders. It is located in a remote part of Lawrence County, near the Martin State Forest, about 80 miles southwest of Indianapolis/

The structure was originally built as a hydroelectric dam in 1913. It generated power for about four decades before being decommissioned in the 1950s. The powerhouse, which sits on the north side of the dam, is empty. Still, water continues to rush over the 17-foot dam, and thousands of people visit the area every year to boat and fish. A caution sign upstream warns boaters to stay away from the falls. Free Flow Power said it will leave the area surrounding the dam available for fishing and boating. The project does not call for additional flooding or damming. Instead, it will use a "run-of-river" design. River water will be channeled into the powerhouse and through four hydropower turbines, spinning propeller mechanisms to a generator to produce about 4 megawatts of electricity. The water will then leave the power house and connect back with the river. Free Flow Power said it is in discussions with local utilities to purchase the electricity. The dam is just a few hundred feet from a utility connection point.

Some environmental groups say the project sounds interesting, but they want to hear more details. The Hoosier Environmental Council said the area near the dam is a habitat to several endangered species, including the Indiana bat and several varieties of mussels. "We want to be cautious in giving a full-throated endorsement," said Jesse Kharbanda, executive director of the Hoosier Environmental Council. "We want to review the studies and take a close look." Clarke Kahlo, project director of Protect Our Rivers Now, said streams should remain free flowing, and dams often upset aquatic life. But because this dam has been in place for more than a century, he said his group would not oppose the project. "Assuming the environmental impact is negligible, it's probably a viable idea," Kahlo said. Citizens Action Coalition of Indiana, a grassroots group that opposes coal-fired power plants and other fossil fuels, said that "run-of-river" hydroelectric plants are gaining in popularity because

they use flowing water, a renewable resource. "Adding new renewable sources of energy that are carbon- and emission-free is a step in the right direction," said Kerwin Olson, the group's executive director. Free Flow Power said it found Williams Dam on a national inventory. The structure seemed perfect for such a project, with between 10 and 20 feet of height, a decent water flow and a history of producing electricity. "There are 80,000 dams across the United States, and less than 5 percent are producing power," Feldman said. "So there's a massive amount of untapped resources available right in our back yard."

(For a part of the country with high electricity rates, hydropower is a good thing!)

National Grid working with Chafee on hydropower

By Ted Nesi, December 30, 2013, wpri.com

Providence, R.I. (WPRI) - Gov. Lincoln Chafee and Rhode Island's dominant electric utility are collaborating on a new effort to harness hydropower for the state's energy needs. The idea of tapping the electricity potential of the region's water supplies, particularly dams in Canada, has become a high-profile priority for Chafee in recent months. But his proposed legislation died in the General Assembly earlier this year amid opposition from both National Grid and major environmental groups. But Chafee hasn't given up on the idea, and this week Grid spokesman David Graves confirmed the utility is making an effort to find a way to get behind the governor's vision. "National Grid strongly supports renewable energy as part of the mix of energy sources that must be developed to meet the region's needs," Graves told WPRI.com on Monday. "We are currently working with Governor Chafee's staff in drafting new hydropower legislation which will be submitted in the coming session of the legislature and which we hope will be amenable to all interested parties," he said.

Chafee continues to express frequent enthusiasm for importing hydropower from America's northern neighbor. "We have the potential to be the low-cost, green energy capital of America," the governor told The Providence Journal in an interview published Sunday. "That's what the Industrial Revolution really started on — hydropower. Drive around New England and you'll see all those mills on rivers." "It's reliable," he added. "The wind doesn't blow every day. The sun doesn't shine every day. But the rivers flow downhill every day." Hydropower was the focus at this year's annual Conference of New England Governors and Eastern Canadian Premiers, which Chafee attended in September in Quebec. New England's six governors signed a joint statement this month pledging cooperation on a push for developing more clean, renewable energy. Chafee isn't the first governor to see potential in hydropower for Rhode Island. In the late 1970s and early 1980s, former Gov. J. Joseph Garrahy was a vocal supporter of the idea. But it remains unclear just how much electricity it could provide and at what cost, as well as how it would work with existing transmission lines. Rhode Island consumed less energy per resident than any other state in 2011, but its electricity costs are significantly higher than the national average, according to the U.S. Energy Information Administration. The state's primary source of electric power is natural gas.

(As usual, the ratepayers pay the bill!)

NW Energy chased Montana dam purchase from PPL for more than a year

By MIKE DENNISON Gazette State Bureau

Helena, MT – NorthWestern Energy is calling its proposed \$900 million purchase of 11 hydroelectric dams in Montana a "once-in-a-lifetime" chance — but the company worked many months to make it happen, and almost lost the deal. In documents filed with the state Public Service Commission, NorthWestern executives reveal that they had their eyes on buying the dams from PPL Montana since 2009 and began negotiating seriously for the purchase some 18 months ago. Although the deal came together late last summer, negotiations had broken off entirely earlier in the year, after NorthWestern made it clear it did not also want to buy PPL Montana's coal-fired power plants at Colstrip. In fact, NorthWestern attached a negative value to the Colstrip plants, worried that any buyer eventually would have to shut down the plants and

bear the cost of “remediating” the sites. But NorthWestern and PPL resumed talks on the hydro plants last spring and eventually cinched the deal in September at the \$900 million price. NorthWestern is asking the state Public Service Commission to “pre-approve” the deal, calling it a huge benefit for the company and its customers. It also wants an electric rate increase to cover the costs of the purchase. “Commission approval of this application to acquire the hydros represents the necessary ‘green light’ for NorthWestern to consummate a once-in-a-lifetime transaction and continue to evolve as a fully integrated utility, for the long-term benefit of its customers,” the company wrote in its Dec. 20 application to the PSC. The PSC has nine months to examine that application, hold a hearing, examine testimony from other parties in the case, such as the Montana Consumer Counsel, which represents consumers, and make its decision. In nearly 600 pages of documents filed with the application, NorthWestern asks for PSC approval and outlines its rationale for the purchase and the rate increase. Highlights of the application include: Recovering the cost of the purchase means a 4.22 percent increase in electric rates for NorthWestern’s Montana customers. For the average residential customer in Montana, that’s about \$42 a year.

Electricity from the 11 hydroelectric dams will provide 38 percent of the power NorthWestern needs to supply its Montana customers. NorthWestern currently buys that power on the open market, through contracts with suppliers. If the deal is approved, NorthWestern would need to buy on the open market only 10 percent of the electricity it needs to supply Montana customers. NorthWestern says it will cancel the deal if the PSC does not allow the company to recover its full cost of the purchase, leading to any “significant negative impact” on the company. At the \$900 million purchase price, the cost of the power works out to about \$60 per megawatt hour — just slightly less than what most NorthWestern electric customers are paying now for their power. Perhaps the most intriguing part of NorthWestern’s lengthy application is its retelling of how it came to acquire the dams from PPL Montana, which bought all of the old Montana Power Co. power plants in 1999, in the wake of Montana’s utility deregulation law of 1997. NorthWestern, a South Dakota-based firm that bought what was left of MPC’s utility operations in 2001, several years later began rebuilding the Montana electric-and-gas utility into what it had been before deregulation: A traditional utility that owned the power plants and gas production that provided much of the energy it needed for customers. Brian Bird, chief financial officer for NorthWestern, said he, NorthWestern CEO Bob Rowe and another company executive visited PPL officials in Allentown, Pa., in May 2009, saying NorthWestern was interested in buying the 11 dams. But it wasn’t until May 2012 that PPL said it “wanted to get out of Montana entirely,” Bird said, and asked for bids on its coal-fired and hydro plants in the state. NorthWestern, however, wanted only the hydro plants, and offered a “non-conforming bid” of \$740 million for those assets in January 2013. It also offered a bid for the entire package – of \$400 million, or lower than the price for only the hydro plants.

Bird said the company considered the coal-fired plants a liability because of expected future regulation of greenhouse gases. Including the coal-fired plants also would give NorthWestern more power than it needed for its Montana customers, he added. “NorthWestern was concerned that not only would it be required to shut the (coal-fired plants) down, but that it would be responsible for remediating the sites,” he wrote. PPL broke off negotiations last February, but three months later decided to market the coal and hydro plants separately. NorthWestern got back into the talks and eventually reached a deal, agreeing to pay more than its initial offer on the hydro plants because it feared other, nonregulated buyers would snap up the desirable assets and because analysis by its financial advisers showed the \$900 million price was fair. David Hoffman, spokesman for PPL Montana, said Monday the company is not trying to sell the coal plants now, but would consider a sale if the right buyer and price came along. As for the hydro plants, “this (transaction) just seemed to work out well for both of us,” he said. NorthWestern believes the hydro plants are a great asset that will strengthen the company while also benefiting customers, providing clean, stable power and increased financial stability for the company. “Hydro is really the most coveted (power) asset now and they don’t come up for sale very often,” company spokeswoman Claudia Rapkoch said Tuesday. “And if they do, you basically have one shot at it ... and if you don’t buy it, someone else will.”

(Guess if you can't make kWh's, you serve them a burger!)

Restaurant is taking shape in hydro plant

By Felicia Frazar, January 2, 2014, January 2, 2014, seguingazette.com

Seguin, CO — Area residents will soon have a dining experience with a waterfront view. The restaurant planned for the former hydroelectric plant is just a couple months shy from opening their doors. Lake Seguin Hydro-Electric Partners LLC signed an agreement with the city to lease the plant and renovate it to create a dining and entertainment venue along the banks of the Guadalupe River. Principals of Lake Seguin Hydro-Electric Partners are Mike Claypool, Rick Leeper, Sam Panchevre and Marc Baptiste. Claypool said the renovations are moving right along, getting the business ready to open its doors in the early spring. "Things are progressing. The holiday season has slowed us down a little bit, which is usual," he said. "The roofs are going on, the kitchen equipment has already been purchased. We are fixing to get started on finishing off the inside of the building. Just a multitude of construction things and we are looking for things to accelerate construction right after the first of the year. We are hopeful we are open for at least a soft opening around March."

Once the doors open, diners will have optimal viewing of the river, Claypool said. "We tried to design that from any place in the building, whether it be in the turbine room, outside party room, the picnic area outside the front of the building, to get as much view of the waterfall as we possibly can," he said. "And that looks like it worked out really well." Claypool is also anxious to try out the newly installed windows that will help create a different atmosphere during the spring and the fall. "We had to replace the windows because they had environmental problems. With the new windows we wanted them to be able to be opened up and bring in some fresh air, especially in the spring," he said. As all renovation projects go, some unseen challenges came forward, Claypool said. "The tile roof that we wanted to maintain out in the turbine room showed to have some problems," he said. "We essentially had to redo the whole roof in that area. When you go into an older building like this you get a lot of surprises and while some are expected not all are. We literally thought we'd be open a little bit sooner, but there were issues that we had to deal with that pushed us back." After all of the construction kinks are worked out and the partners are ready, the doors will open with a full menu, Claypool said. "I think you can expect to see a little bit of everything," he said. "We'll have one or two Mexican dishes, burgers and hot dogs for the kids, a little bit of everything. We are going to have a great bar and lots of entertainment."

The facility will also have areas that can be rented out for special events, parties, meetings, weddings, Claypool said. "We already have a list of people who have inquired regarding as much," he said. While it may look like parking could be an issue, Claypool said a pair of pavement lots are in the works, he said.

"We have about eight acres altogether, but not all of that is parking, a good percentage of it is," he said. "There will be an area where people can drop off patrons and a few parking spots that are close to the building. If those are taken, then you cross a bridge and there will be more parking. If that is full you cross another bridge and there will be more parking." The bridges are currently in place and crews are working to stabilize them, Claypool said. "The hand rails and pedestrian rails are going in, too," he said. One of the main goals of the group is to make the restaurant appealing to area residents, Claypool said. "Our whole philosophy is to ensure that facility first of all serves the community," he said. "Pricing is going to be right, it is not going to be a fancy, elitist venue. It is going to be a place where people have fun eating with a wide variety of choices, entertainment, just about everything. We are going to try and give the community quite a few things we think they will like."



Water:

(Water, water everywhere! What goes in, must come out but the peak is less. It's only 5 of the 24 gates!)

Heavy rains prompt opening of Sinclair dam

13WMAZ, December 30, 2013, 13wmaz.com



Five of the 24 gates at the Sinclair dam in Milledgeville were opened Sunday due to high rain totals (Photo: Jesse Ethredge for 13WMAZ). Georgia Power officials have opened up five of the 24 gates at the Sinclair Dam Hydroelectric Generating Plant in Milledgeville due to heavy rains over the last few days. Amy Fink, a Georgia Power spokeswoman, said Sunday that opening the dam gates is routine during high flow conditions, "to match the outflow to the inflow," she said. Each gate releases about 10,000 cubic feet of water per second, Fink said.

(Wow, this is getting to the point where low means no water)

Folsom Dam may reduce outflows to conserve dwindling water supply

Jan 3, 2014, By George Warren, news10.net

Folsom, Calif. - In a desperate attempt to avoid a water crisis in the coming months, the operator of Folsom Dam may reduce outflows to the bare minimum necessary to protect spawning steelhead trout in the American River. Bureau of Reclamation Central California area manager Drew Lessard said his staff was in talks with federal and state wildlife officials to determine how much outflows could be cut without harming the winter run of the trout, a federally-protected species. At 363 feet above sea level, Folsom Lake has never been so low in January; the dam is currently releasing four times more water than is flowing into the reservoir. "We're proposing to reduce our flows into the American River so we can maintain water conservation in the dam," Lessard said.



Following the driest calendar year in recorded history, the Bureau of Reclamation has also begun planning for something the dam designers apparently never imagined: the intake that delivers domestic water to hundreds of thousands of people going above the water line. The 7-foot diameter municipal and industrial water intake, which serves Folsom, Roseville and the San Juan Water District, is buried in the dam with the center line 317 feet above sea level. If the level of the lake drops another 43 feet, the intake could see daylight for the first time since the dam was built in 1955. Lessard said in a worst-case scenario, a barge could be floated in one of the pools above the dam to pump water through a flexible line up to the intake. He's still hoping that unprecedented water restrictions being implemented in communities that rely on Folsom Lake water along with reductions in outflows will keep the intake from going dry before storms can replenish the reservoir. "I think right now, avoidance is the key."



Environment:

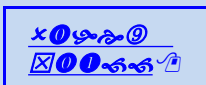
(Another eagle Story, another benefit of dams.)

Bald Eagle Observation Area Open

countytimes.com, January 02, 2014

Southbury, Conn.—Reservation lines are now open for the 2013-14 winter season of the Bald Eagle Observation Area at the Shepaug Hydroelectric Dam. Observation times are Wednesdays, Saturdays, and Sundays between 9 a.m. and 1 p.m., running through Wednesday, March 5, 2014. All are welcome and admission is free of charge, but advance reservations are required. To make reservations for individuals, families, and groups, call toll-free at 1-800-368-8954 between 9 a.m. and 3 p.m. Tuesdays through Fridays or request a reservation on-line at www.gdfsuezna.com/forms/eagleviewreservations This is the 29th season for the Observation Area, which is run by FirstLight Power Resources, a GDF SUEZ Energy North America company. FirstLight owns and operates several hydroelectric facilities, including Shepaug, along the Housatonic River.

"Shepaug Eagle View is one of the true jewels in Connecticut for bird-enthusiasts and those who enjoy nature," said Gary Smolen, FirstLight's longtime coordinator of the eagle observation program. "We've welcomed nearly 140,000 visitors to the site over the years from not only the Connecticut area, but from all over the U.S. and Canada. We hope many more will join us this winter." "Because the viewing season begins during the week of most school vacations, it's a great opportunity for young students as well as their parents, teachers and extended families to visit. It's a fun and educational experience they will not soon forget," added Mr. Smolen. In past years visitors have witnessed 10 or more eagles in a single day, not to mention a variety of other birds, including red-tail hawks, sharp-shinned hawks, goshawks, great blue herons, and various waterfowl. Specialists will be on site with high-powered telescopes to help visitors see the eagles in action and to answer questions about America's national symbol. Visitors are encouraged to dress warmly and to bring binoculars if possible, given the limited number of onsite telescopes. FirstLight Power Resources is a subsidiary of GDF SUEZ Energy North America, which manages a range of energy businesses in the U.S., Mexico, and Canada, including electricity generation and cogeneration, natural gas and liquefied natural gas (LNG) distribution and sales, and retail energy sales and related services to commercial and industrial customers. GDF SUEZ Energy North America is a part of the international energy group GDF SUEZ. For more information, visit www.gdfsuezna.com.



Other Stuff:

(This is downright scary and could be in our near future! Not much publicity on this which makes it even more scary! Go here to see video:

<http://www.theblaze.com/stories/2013/12/28/was-mysterious-attack-on-calif-power-station-a-dress-rehearsal-for-much-larger-assault-on-u-s-electrical-grid/>)

Was Mysterious Attack on Calif. Power Station a 'Dress Rehearsal' for Much Larger Assault on U.S. Electrical Grid?

Dec. 28, 2013, By Dave Urbanski, theblaze.com

Although the fact that the still-unsolved attack on a power station near San Jose occurred just a handful of hours after the Boston Marathon bombing — and apparently raised a few eyebrows initially — its ride in the public eye has been decidedly under the radar to date. But that may be changing. Now that the ranking member of the House of Representatives' Energy and Commerce Committee is decrying the incident as possibly indicative of a wider security issue, the brazen attack is getting a bit more attention, noted Foreign Policy. "It is clear that the electric grid is not adequately protected from physical or cyber attacks," said Rep. Henry Waxman (D-Calif.) at a hearing on regulatory issues earlier this month, Foreign Policy noted. Here's what went down: Around 1 a.m. on April 16, two manholes were entered and fiber cables cut around the PG&E Metcalf substation, which killed some local 911 services, landline service to the substation, and cell phone service in the area, a senior U.S. intelligence official told Foreign Policy.

More from Foreign Policy:

The intruder(s) then fired more than 100 rounds from what two officials described as a high-powered rifle at several transformers in the facility. Ten transformers were damaged in one area of the facility, and three transformer banks — or groups of transformers — were hit in another, according to a PG&E spokesman. Cooling oil then leaked from a transformer bank, causing the transformers to overheat and shut down. State regulators urged customers in the area to conserve energy over the following days, but there was no long-term damage reported at the facility and there were no major power outages. There were no injuries reported. Waxman called the incident "an unprecedented and sophisticated attack on an electric grid substation with military-style weapons" and that "under slightly different conditions, there could have been serious power outages or worse." "Initially, the attack was being treated as vandalism and handled by local law enforcement," the senior intelligence official told Foreign Policy. "However, investigators have been quoted in the press expressing opinions that there are indications that the timing of the attacks and target selection indicate a higher level of planning and sophistication." The FBI is on the case but has no evidence that the attack was related to terrorism and seems to believe at this point that it's an isolated incident, Peter Lee, a spokesman for the FBI field office in San Francisco, which is leading the investigation, told Foreign Policy. The intel official added that there's also no known motive, and no one has claimed credit; the FBI said there have been no tips from the public. "These were not amateurs taking potshots," Mark Johnson, a former vice president for transmission operations at PG&E, said last month at a conference on grid security held in Philadelphia, Foreign Policy noted. "My personal view is that this was a dress rehearsal for future attacks."

More from Foreign Policy:

At least one senior official thinks the government is focusing too heavily on cyber attacks. Jon Wellinghoff, the chairman of the Federal Energy Regulatory Commission, said last month that an attack by intruders with guns and rifles could be just as devastating as a cyber attack. A shooter "could get 200 yards away with a .22 rifle and take the whole thing out," Wellinghoff said last month at a conference sponsored by Bloomberg. His proposed defense: A metal sheet that would block the transformer from view. "If you can't see through the fence, you can't figure out where to shoot anymore," Wellinghoff said. Price tag? A "couple hundred bucks." A lot cheaper than the billions the administration has spent in the past four years beefing up cyber security of critical infrastructure in the United States and on government computer networks.

"There are ways that a very few number of actors with very rudimentary equipment could take down large portions of our grid," Wellinghoff told Foreign Policy. "I don't think we have the level of physical security we need."

(Another benefit of dams)

TVA using Tims dam for solar study

Staff Writer Marian Galbraith, December 26, 2013, tullahomanews.com

TVA officials are currently conducting a study on solar panels at Tims Ford Dam to determine the effectiveness of using river water to cool the panels while still collecting sunlight.

This is in addition to the utility's recent "health checks" at the Franklin County dam and elsewhere. Two large grids with 10 panels each are currently installed side by side, just below the dam. The panels on the left receive no water, while those on the right side receive a constant flow of cool river water across their surface. According to Neil Placer, senior analyst, and Patty West, director of TVA's Renewable Energy Program, one of the drawbacks of solar power is that the panels can get overheated, resulting in reduced output and efficiency.



Tony Thompson of TVA points to two sets of solar panels at the base of Tims Ford Dam which are being used to study the effects and efficiency of cooling them off with river water.—Staff Photo by Marian Galbraith

"On very hot days, the panels can get up to about 175 degrees Fahrenheit," Placer said. "These are like low-cooking temperatures, and they can reduce the panel's performance. "But river water stays about 50 degrees year round, and since it's plentiful at the dam, we felt it was a good place to study it."

According to communications partner Scott Brooks, the study is intended to collect a year's worth of data. "We hope to see a 35 percent energy boost during peak (sunlight) periods in August and September for the water-cooled panels," Placer said, "and we're hoping for an average annual boost of roughly 15 percent." While Tennessee has fewer sunny days than southwestern states like New Mexico and Arizona, where the dry climate results in minimal clouds and rain, West said Tennessee is currently ranked number two in its southeast operational area next to North Carolina for installed solar operations and is on track to receive several more in the future. A recent TVA press release states that the Solar Energy Industries Association ranks Tennessee seventh in the nation for total solar capacity in 2013 and ninth in the nation for non-residential capacity. It also states that, since the year 2000, the number of operating installations in the overall Tennessee Valley area has grown from three to 1,695, including at 91 schools, with more expected next year. "In 2014," West said, "we're offering 126 megawatts of renewable energy through programs for developers and consumers who want to supply their own solar power, as well as programs for larger commercial customers and utilities."

"Local programs for solar installation will be implemented by local power distributors, such as TUB in Tullahoma, so interested parties should call them." West added that she is a former graduate of Tullahoma High School herself who became fascinated with science and now holds a Bachelor of Science in chemistry and a master's degree in civil engineering from Tennessee Tech. "My maiden name is Baird, and Jane Weaver was one of my favorite science teachers," West said, adding that she is now in her "dream job" after many years with TVA. She and Placer added that, with the increasing number of installations as well as increases in efficiency, the price of solar power has dropped dramatically in recent years. "Back in the 1970's, the price of solar was around \$200 per watt," Placer said, "but now it's as low as \$2 – \$4 per watt, depending on the size and scale of the installations and other factors." West added that the price of solar power has

also dropped roughly 40 percent in just the last two years, largely due to the increase in installations, and that total renewable energy sources for TVA stand at 16 percent, including hydroelectric power, which TVA also considers renewable. "One drawback of solar," Placer said, "is that it's an intermittent source, it's not around-the-clock, and it's also less controllable than hydroelectric (power), so if you install your own solar panels, you have to have some type of backup or be connected to the energy grid to maintain your power flow." West then explained that while TVA is expanding its use of solar energy, the best source for the consumer is a diversified mixture of different types of energy, so that if one type experiences a shortage or other problem, other sources can take their place. "You never want to put all your eggs in one basket," West said, "so TVA intends to maintain a diversified mixture of nuclear, coal, gas, hydroelectric and solar to have the most efficient and reliable source of power for the consumer." She added that TVA is currently developing an Integrated Resource Plan (IRP) to determine its mixture of power generation sources in the future and will be soliciting input from the public. According to the IRP page at www.TVA.gov, the purpose of the IRP is to identify the portfolio most likely to help TVA lead the region and the nation toward a cleaner and more secure energy future, relying more on nuclear power and energy efficiency and relying less on coal.



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