

7/7/2017



Some Dam – Hydro News™ And Other Stuff



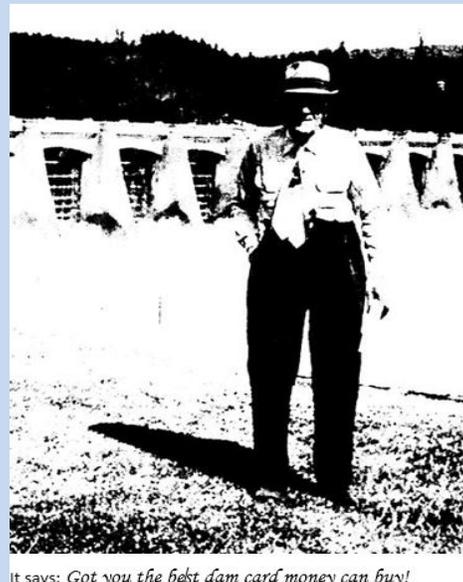
Quote of Note: *“Don’t wait for people to be friendly show them how.” ~Henry James~*

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“Good wine is a necessity of life.” - -Thomas Jefferson
Ron’s wine pick of the week: 2014 Casa Silva Carmenera "Cuvee"
“No nation was ever drunk when wine was cheap.” - - Thomas Jefferson



Dams:
(Someone sent me this Father’s day card.)



It says: Got you the best dam card money can buy!

(They have no secrets. The sacbee has a red face.)

'Nothing secret about the new dam safety legislation,' state says

June 21, 2017, sacbee.com



Dam safety

Re "California Legislature votes to keep dam-safety plans secret" (sacbee.com, June 15): There was nothing secret about the new dam safety legislation. Far from slipping the bill into the public domain as suggested, the language was posted on March 8, shared with Republican and Democratic staff in the Senate and the Assembly on March 10, and raised in budget subcommittee hearings on March 16 and 22. The Bee misinterpreted the intent of the

legislation. It improves public safety by requiring all dam owners to create emergency action plans. It clarifies which information in those plans should not be disclosed, such as home phone numbers. The article claimed the state would be keeping these plans "secret." The Department of Water Resources will release these plans for state owned facilities consistent with this legislation and statewide policy, without the sensitive information. It is unfortunate the Bee declined requests from the state to print a correction. *BILL CROYLE, DEPARTMENT OF WATER RESOURCES ACTING DIRECTOR, SHINGLE SPRINGS, CA*

(They just won't let up. Why is CA the only State that has this problem?)

Editorial: Oroville public safety plans should be, well, public

By East Bay Times editorial | June 24, 2017, eastbaytimes.com

The state agency in charge of Lake Oroville prefers secrecy and Gov. Jerry Brown has become its enabler. Now Democrats in the Legislature are on board, voting to keep the public in the dark. We had hoped elected officials would have kept endangered citizens in mind. Sadly, we were wrong. There's no good reason for what the Assembly approved last week on a straight party-line vote. Senate Bill 92 requires that emergency response plans be developed but kept secret.



The bill is an insult. Emergency safety plans are made for the public, but the public can't see them? The state says the plans are being kept secret because terrorists could use the plans to do harm. It defies common sense. Assemblyman James Gallagher, R-Yuba City, the only person in the 120-member Legislature who had to be evacuated from his home during the Oroville spillway crisis, chastised the deaf ears in the Assembly. He reminded legislators about the evacuation of 188,000 people downstream of the dam four months ago. He called it a "debacle in terms of how emergency action plans were carried out." Gallagher noted that while state officials dithered, Butte County Sheriff Kory Honea stepped in and made the decision to evacuate. The incident proved emergency action plans need to be updated. SB 92 could help, if the public was clued in about it.

"So we're going to improve them but we're just not going to let you see them. And again they're going to say, 'Maybe somebody might be able to use this to commit a terrorist act,'" Gallagher said. "I can tell you my constituents are more scared of the people operating and maintaining that

dam than they are of terrorists right now.” Gallagher went on to criticize fellow legislators for not funding repairs to levees through the general fund. The state seems willing to wait for a disaster to happen, then pay the bill, he said. Gallagher urged a vote against the bill because it only perpetuated the paternalistic culture of secrecy at DWR that has been at the heart of the distrust and anxiety expressed by his constituents. Gallagher was right on both counts. After he spoke, Gallagher’s Assembly colleagues quickly proved him right by passing the bill 55-23, with only Democrats in favor. So the bottom line is that the people who brought you the flying concrete and mass evacuations at Lake Oroville say they will have a swell new emergency public safety plan and that it is a lot better. However, even though you are paying for it, you can’t see it. Too sensitive, you understand. You will just have to trust us. To which we say no thanks. Nearly 200,000 people have seen first-hand where trusting DWR leads. These plans should be open.

(Model studies do good things.)

Engineers Test Oroville Replica for Dam Safety

6.26/17, oleanimesherald.com

California water officials are relying on key hydrology tests being performed in Utah on a replica of the Oroville Dam spillway to pinpoint what repairs will work best at the tallest dam in the U.S for a spillway that was torn apart in February. (June 26)

See video here: http://www.oleanimesherald.com/engineers-test-oroville-replica-for-dam-safety/youtube_9a79d3af-24bd-504a-8bb6-0bc51611b7c9.html

(Get your acts together.)

State, Feds On Different Courses To Upgrade Dams

Upper Mississippi River Lock And Dam System Has \$100B Project Backlog

By John Davis, June 22, 2017, wpr.org

As dam infrastructure continues to age, the state of Wisconsin and federal government seem to be on different paths to a solution. The state of

Wisconsin has made an effort to improve the condition of many of the nearly 4,000 inland dams, some which were built as long ago as the 1840s. But the federal government has been operating a lock and dam system on the upper Mississippi River that was built in the 1930s and should have been upgraded in the '80s. There are 29 locks and dams that help maintain a 9-foot wide navigation channel that helps transport agriculture products and many other products from the upper Midwest between five states: Wisconsin, Minnesota,



Iowa, Illinois and Missouri. The Upper Mississippi River Basin Association (UMRBA) works for the governors of the five states, advocating for commercial navigation and environmental issues with Congress and the federal government. Ecosystem and navigation program director for the association, Kirsten Mickelsen, said the entire lock and dam system has a backlog of operations and maintenance projects worth \$100 billion and is in need of a major overhaul.

"The locks are smaller than what modern tow sizes carry in terms of barges, but also, they're beyond their 50-year design life," she said. "Closures, whether they're scheduled or unscheduled for needed repairs, are escalating, increasing the costs of those goods associated within those barges. And then they're (locks) undersized, so the tows aren't made to break apart, and that adds onto the time and onto the cost that are borne by the producers and consumers of Wisconsin." The current condition of the upper Mississippi River lock and dam system earned a "D" grade from the American Society of Civil Engineers. While there has been a lot of discussion in the last 25 years about improving the locks and dams, Mickelsen said UMRBA believes the Trump administration and Congress will recognize the need to upgrade commercial navigation as it considers an infrastructure improvement plan for the country. "We are hopeful that the locks

and dams on the Mississippi River will be included in that package," Mickelsen said. "We're working with members of Congress, including Wisconsin's delegation, to think through how the locks and dams might be incorporated in that package."

Some of Wisconsin's inland dams were built between 1840 and the 1890s, and many were built for hydropower between 1900 and the 1950s. More than half of the state's dams are privately owned. Municipalities own about 30 percent and the state of Wisconsin's Department of Natural Resources is the largest owner of dams. Private owners include papermakers, utilities and farmers, including cranberry growers. Many dams help create lakes that are used for recreation. State DNR dam safety and floodplain section chief Meg Galloway said the DNR has a program to help governmental bodies repair or replace dams they are responsible for, but beyond that, each dam owner is responsible for the condition of their dam. "It's a very old infrastructure. It's also sort of a forgotten infrastructure in that many people who live on lakes don't even realize the lake is there primarily because of the dam," Galloway said. "Most of the dam owners have tried to keep them up over the years, some of the dams have totally been reconstructed. I can't give you an exact number (of dams in need of repair or replacement). This summer we probably have about 20 to 25 major repair/reconstruction projects going on, on dams around the state."

Galloway said the average cost of a dam repair project ranges from \$250,000 to \$400,000, but can reach a price tag of \$10 million. Dams aren't often thought of unless they fail, as they did in 2008 at Lake Delton or in major flooding in 2007-08 in Vernon County and other parts of southern Wisconsin after torrential rainfall. Galloway said the DNR has been doing more planning to make sure dams have the capacity to handle extreme weather events. "A lot of the dam upgrades that are done are done specifically to improve their ability to handle large rain events," Galloway said. The state of Wisconsin also has a dam inspection program of large dams that has an emphasis on dam failures that could have an impact on people's lives.

(Old design criteria doesn't cut it.)

America's dam crisis—was Oroville just a drop in the bucket?

June 1, 2017, by Lakis Polycarpou, phys.org

Last February, record storms and snowmelt threatened to overwhelm the two spillways of California's Oroville reservoir, the tallest dam in the United States. With less than an hour's notice, nearly 200,000 people were evacuated from downstream towns and cities. In the end, emergency measures prevented a full-scale catastrophe; California officials are now working feverishly to shore up the dam before next year's rainy season. But while the Oroville crisis has been averted for the moment, water experts at the Earth Institute's Columbia Water Center say that the near miss may be a harbinger of things to come—and not just for Oroville. "There's a list of some 15,000 dams that are classified as 'high-hazard' in the U.S.," says Columbia Water Center Director Upmanu Lall. "What that means is that if any one of those dams fails, it could be a very big deal." The



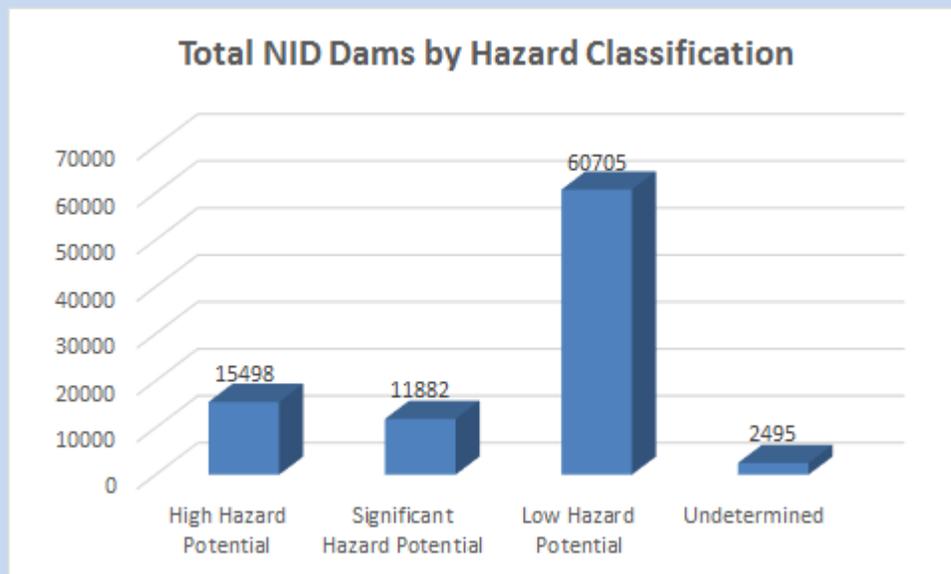
Oroville Dam plays a key role in the California's State Water Project, which collects water from rivers in the wetter, northern part of the state and transfers them south to the heavily populated but dry areas. Built in the mid-60s, it is, in many ways, representative of a different age, when large-scale, heroic infrastructure projects—with all of their risks and controversies—were more the norm than they are today. At the time of its construction, state officials brushed off allegations that it was being built with substandard materials.

But even as recently as 2005, environmental groups were warning that Oroville's emergency spillway was badly designed and could fail in the event of severe flooding. According to Lall, there could be a large number of dams in a similar situation around the country. High-risk dams, he says, "are largely very old. They are prone to failure. There's been very little maintenance on

them." Lall says that while a percentage of these dams were built and are maintained by top-notch Federal agencies such as the Army Corps of Engineers, a much larger number are controlled by states or are under private ownership with little oversight.

Outdated Assumptions, Confused Issues

Part of the problem, Lall says, is that the design specifications that were used to build dams decades ago could be out of date. "Let's say those dams were designed for a 100-year event. That estimate of a 100-year event was typically based on 20 or 30 years of data, maximum. So if that data represented a dry period, that 100-year number could be more like a 10-year event. When you start subjecting these aging dams to climate variability, just like with Oroville, they'll start failing." Lall stresses that the immediate dam crisis is not primarily related to human-caused climate change. He was, in fact, alarmed when the media narrative around the Oroville emergency quickly turned to future climate change risk, rather than focusing on the immediate infrastructure challenge. The current crisis, he says, "has nothing to do with climate change. This is about our total failure at managing risk at a basic level." Michelle Ho, a post-doctoral research scientist at the Columbia Water Center, agrees. "There were a lot of things written about how storms like this will increase in the future. I haven't got a problem with that assessment. But the truth is that the storm that came in to fill up Lake Oroville last February wasn't actually that big. If the spillway had been working properly, there would have been no issue with the reservoir reaching the level it did. It wouldn't have made the news at all, if that spillway were in an adequate condition."



Climate change, she says, is "almost giving managers, decision makers, and policy makers a way out, an excuse for not taking action on things that can actually be fixed." Ho was frustrated by other aspects of media coverage as well. "They would say at end of these stories that there was no structural risk," referring to the dam itself. That was technically correct, Ho says, but reading comments on the articles, she saw that residents were conflating the dam, the spillway and the auxiliary spillway. "The fact that there are three different structures obviously didn't get through to the mass public, because people were asking 'why do we have to evacuate?' That's fine, except if one of those spillways fails, you get a 30-foot wall of water coming at you. A 30-foot wall of water is not something that you want to encounter." Ho recalls watching news accounts of the dam as the water rose. "I looked at the spillway and thought, that's a dead slope—somebody must have done some geotechnical investigation to make sure there's really solid bedrock underneath it. Of course, I found out I was wrong, and the whole thing started eroding."

The Need for a Plan

Lall and Ho agree that ultimately, the dam infrastructure issue must be connected to a broader conversation about America's water resources. After all, if the point of dams is to collect, store, or transfer water for human use, it would seem important to know how much water is actually needed in particular regions over a certain timescale—and how much water is available. To address this challenge, Ho has been working with scientists at Columbia's Lamont-Doherty Earth Observatory to evaluate 500-year-old tree-ring data to reconstruct the history of streamflow across the United States. By understanding how streamflow has changed over the centuries, she hopes to get a better sense of how wet and dry periods have varied over long periods of time, thereby extrapolating a more accurate measure of flood and drought risk. **If anything, she says, her research suggests that a long-term pattern of drought could pose an even greater risk than flooding.** "There are these long droughts that we've seen in the paleoclimate record. So we if we get hit by one of those again, our current dam infrastructure probably won't be capable of tiding us over." But without a better assessment of what we can expect of long-term climate patterns, it may be very difficult to direct investments wisely. "If you take the assumption that it's going to be a very wet period, and you build your dam or your bridge extra high, you might be investing a whole heap of money into something that is not actually needed," she says. Figuring out how climate has varied in the past is only part of the story, however. The other side, say Ho and Lall, is understanding how people use water—and how they are likely to use it in the future.

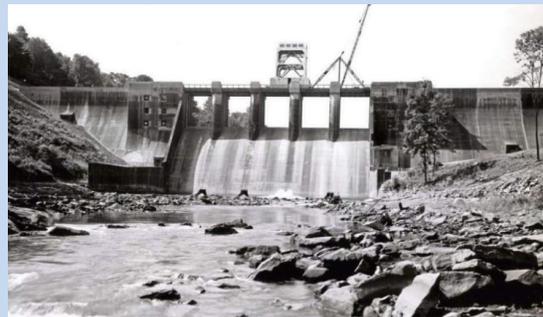
"Just dumping money into every structure across the U.S. is really not the way to go," says Ho. "It would be a huge waste of resources." What we need, she suggests, is a "more considered" approach. "If we're pumping water from Northern California to Southern California over a mountain range to grow something like grass for cattle feed—it probably isn't the best use of that money. If we could have a full-cost accounting of that infrastructure, it would be equivalent to saying, 'well if you want to grow grass, you have to desalinate water.' The amount of energy you're using to grow this produce isn't really worth that much money," says Ho. **What is really needed, she says, is a national assessment of water resources and uses.** "Other countries, like China, are attempting to at least get a gauge of their water resources so they can develop targets for metrics of efficient water use and productivity from water use. Basically, you put goals in place for your resource use. That's not something that America currently has." **If you're going to talk about adapting to climate change or adapting to any change—what you really need to know is what you're currently working with.** What is the current baseline risk of resource availability and resource demand for water in America? That's really not something that we have a good handle of right now."

(75 years young. Flood protection at its best. Westmoreland County is where I come from.)

Loyalhanna Dam's 75th anniversary to be highlighted by tours, activities

By PAUL PEIRCE | June 22, 2017, triblive.com

The U.S. Army Corps of Engineers will offer visitors a trip back to the 1940s at Loyalhanna Dam when it celebrates the 75th anniversary of the completion of a major Western Pennsylvania flood control project along the border of Westmoreland and Indiana counties. Events are planned Saturday between 10 a.m. and 2 p.m. at Loyalhanna Lake near Saltsburg to commemorate the anniversary including tours of the dam that was completed in June 1942, said Jeff Hawk, a corps spokesman with the Pittsburgh District.



The Army Corps will use 1940 as a backdrop with an antique car show, music, informational booths that include construction and historical displays and children's activities, Hawk said. The real story, however, is the dam's part in flood protection for the lower Loyalhanna Creek and Kiskiminetas River valleys as well as the lower Allegheny and upper Ohio Rivers, Corps park

ranger April Richards said. "It's really unfathomable the amount of flood damage reduction to downstream communities it has provided over the years," Richards said. "It is definitely difficult to put it in perspective." The Army Corps estimates the dam has provided more than \$531 million in flood reduction. Loyalhanna Lake is among 16 flood projects in the district authorized by the Flood Control Acts of 1936 and 1938. Not only does it provide a flood control mission, the dam augments river flow, which Hawk said "has a positive effect on water quality, water quantity and aquatic habitat of the Kiskiminetas River." Richards added that about 250,000 visitors annually enjoy the 3,532-acre lake that has camping facilities, boat launches and picnic pavilions. Richards noted that the \$5.5 million it cost to build the dam seems small compared to its flood damage and economic benefits over the years. Dam tours will be held at 11:45 a.m. as well as 12:30 p.m. and 1:15 p.m. The activities will be held at the Corps' facility at 440 Loyalhanna Dam Road.

(Interesting! What's in a name?)

Jolly Giant Dam spillway construction underway

Mad River Union, 6/23/17, madriverunion.com

ARCATA COMMUNITY FOREST, CA – Reconstruction of the spillway for the Jolly Giant Dam in the Arcata Community Forest is proceeding. The project includes a number of improvements to the aging dam, which once held back a reservoir that served as Arcata's water supply.



Not exactly Oroville Dam, but a major project for Arcata nonetheless. Photo courtesy Mark Andre | City of Arcata

(Lots of rain.)

Non-stop rainfall in Central Wisconsin impacting dams

June 25, 2017, waow.com

CENTRAL WISCONSIN (WAOW) - The non-stop rain throughout Central Wisconsin is creating an uncommon situation for this time of year. Dams that feed into the Wisconsin River aren't having to work as hard as they're used to. "By now we're usually getting to the point where we're needing to release water," said Peter Hansen with the Wisconsin Valley Improvement Company. "So yeah this is very unusual that we haven't had to yet." The high water levels are negatively impacting those who live along rivers and other structures that don't have a control dam near them.



But some hobbies are benefiting from all of the rain that Central Wisconsin has recently seen. "This year the water's been up really high obviously," said Ryan Carolfi, of Marshfield. "Because of the rain and that helps with fishing." Officials tells us that this is the complete opposite from what the state saw for many years. "From 2003 to 2012 was a historic drought so the reservoir really played a big part in the Wisconsin River and keeping the river in good shape," said Hansen. "In that 10 year drought time, there were a lot of people that were concerned about low water levels I would say now it's switched over to high water levels." Hansen said that because of all the rain, it has been more challenging to keep up with the safety and health of the dams. The dams

are usually dumping water all throughout summer. Hansen said if the rain keeps up the reservoirs won't need to be used until the end of July, or later.

(A part of history is coming down.)

Historic Hershey's Mill Dam to be breached; park to be created

By Bill Rettew Jr., dailylocal.com, 06/27/17

EAST GOSHEN, PA >> Township supervisors have voted unanimously to breach the historic Hershey's Mill Dam, thus creating a smaller pond and 6-acre park. The new township park will be located on township property, at the former site of a six-acre dammed pond. No water currently flows over the dam, and the pond has been drained.

The park will feature stepping stone stream crossings, a series of small waterfalls, an overlook, fishing area and a four-spot parking area, with Americans with Disabilities Act (ADA)-assessable trails connecting to an existing trail network that will be fully accessible to all residents. The project will also include a riparian buffer along the pond's edge and low meadow plantings, including sedge and milkweed. Phase I of the project will include dam removal, creation of stream step pools, site grading to create an island and embankment and construction of the pond that will measure about one-seventh of an acre, or about the size of a tennis court. The parking lot will be built, trails will be constructed of mulch, meadows established and shrub plantings and forest restoration will be part of Phase II.



Construction is expected to proceed in two phases, but everything might be completed in a single phase.

Consultant Peter Simone, of Simone Collins Landscaping and Architecture, said that the planned park, to be located across Greenhill Road from the main entrance gate at Hershey's Mill, will "look more natural," with meadow plantings attracting pollinators and birds to the site. The park improvements are expected to cost about \$240,000, with an additional cost into the hundreds of thousands of dollars to breach the brown stone dam. The township seeks state and federal grants. Simone said that the waterfalls will be pretty in a storm. In the past, Greenhill Road has been temporarily closed due to flooding. "When we get a storm event we'll determine how that flow might increase so we get the maximum dramatic effect in the waterfall," Simone said. The township was required to either replace the dam or build to new state standards as required by the Department of Environmental Protection in 2006. Supervisors also recently decided to not save the full dam on a larger 19-acre pond in Milltown on Reservoir Road. That structure will become a low hazard dam. Costs for upkeep for both projects will be cheaper, with "insurance issues" eliminated, Supervisor Marty Shane said. "What we have planned is going to be a great opportunity for the township to have two nice parks," Shane said. "I believe that in both cases what we're doing is the right thing for both the long term and short term."

Simone said state regulations call for improving water quality. Every five to seven years the silt would need to be removed from the pond, Simone said. "One of the biggest pollutants is sediment," he said. "We're trying to capture it before it gets to the waterfall." Wayne Hall led a citizen's committee that studied the issue. He said the committee surveyed residents to find out what they wanted. Hall said the new park will become an "attractive" area for children and families to walk through and will become a "quiet place." Resident Neil DeRiemer was opposed to the breach, but regardless he said he didn't lose the fight, because the park will become a nice spot to visit. DeRiemer was concerned about the price tag and said his plan to improve the dam would have cut the cost in half. Resident Erich Meyer said he's been attending township meetings for seven years and the dam has been a regular topic of discussion. "It's a good outcome for all the

residents and they've done a lot of good design work," Meyer said. Tentative Phase I construction is scheduled for spring/summer 2018. Completion of the project is projected for the summer/fall of 2019.

(This is a mouthful.)

Letters to the Editor for June 28, 2017
uniondemocrat.com

Global warming

To the Editor:



Eleven years ago the famous "political" scientist Al Gore made a shocking prediction at the opening of his science fiction film "An Inconvenient Truth." Gore said that the earth would be in "a true planetary emergency" within the next 10 years. That film and the subsequent predictions by other "political" scientists concerned many people and sent countless school children home crying about baby polar bears drowning. Ten years have passed and the earth has not burned to a crisp (as suggested by Gore and other "political scientists"), and the polar bear population is at a record high.

This leads to two conclusions — humans did something and saved the planet as well as the polar bears ... or someone is promoting a huge hoax. Now I cannot think of anything we humans did to change our climate over the past decade, so I suspect a scam. I am a logical person, not a scientist, but I do know what "real" science is. Therefore I can say that as of this very moment there is not one shred of verifiable real science proving that man-made CO2 is the cause of global warming/climate change. I will admit that I was wrong if NASA or a major university or a well-known laboratory announce a scientific "breakthrough" with verifiable reproductive results proving that man's CO2 contribution will produce a "true planetary emergency." Don't give me computer models, graphs or "studies" or horrible predictions based on models, graphs and studies. Just show me a simple high school science fair type of experiment. Likewise, when Al Gore admits that this hoax was for political purposes and goes to jail, I will expect those who supported global warming, climate change, or whatever to admit they were wrong. *JB Dugan, Sonora*

(Back to removal of the Snake River dams.)

The Snake and salmon: People are feeling the pain of a river lost

By David A. Cannamela, GUEST OPINIONS, JUNE 28, 2017, idahostatesman.com

Unless you grew up on or near saltwater, you're probably not so keen to notice the changing of the tides. It's a fairly subtle thing, but the more you've experienced it, the more noticeable, expected and obvious it becomes. You notice the tug on the anchor rope, the fly line or the lobster (or crab) pot buoy begin to weaken. And soon you notice no tug at all. And as sure as the moon rises and sets, the tide will change and the water will soon begin to flow the other way. I sense that is where we are now with the movement to restore the economy, ecology and culture in the Snake River basin. People who never would have considered removal of the four lower Snake River dams (between Pasco, Wash., and Lewiston) are now moving from "never" to "it might not be so bad" to "this could be a really good thing." And the reason is simple: People are feeling the pain of a river lost; they are recognizing what a restored river ecosystem could do for the economy and their quality of life; and they have seen the proof in more than a thousand examples of what river restoration can do — be it by dam removal, pollution abatement or whatever method was required to fix the



problem. And herein lies a very simple and unequivocal truth: Treating the symptoms is not the same as treating the cause, and only treating the cause will bring a lasting solution.

For the past 40 years or so, we, like many others, have treated the symptoms with what seems to be an infinite array of mechanical approaches — fish collection and transportation, spill, hatcheries, captive breeding, research study upon research study. Don't get me wrong, I recognize the need for and value of science, but I also recognize science pushed by politic insanity. Sometimes science is this simple: Dams get built, fish go away; dams go away, fish come back. The Kennebec River in Maine and the Elwha River in Washington state are the most high-profile examples of what happens when we treat the cause and not the symptoms. The Kennebec story is my favorite: no fish migrating past the Edwards Dam for 162 years. Six months after removal, several species of anadromous fish had returned to their home waters. Thankfully, the fish have a long memory and eternal persistence. And people love river restoration — even some skeptics and anti-dam removal folks have come to see it for the success that it is. The people of Riggins, the Lewiston/Clarkston region and many other river communities should be complimented for seeing the facts for what they are and recognizing that a new approach is long overdue. It was false advertising: The four lower Snake River dams have not and will not deliver prosperity. Moreover, the benefits of strong fish runs and healthy rivers have shown people that the real path to prosperity is through removal of those dams. *David Cannamela has been a Boise resident for about 26 years. He loves to fish, hunt and ride bicycles, and is a native-plant enthusiast.*

(Save our dam.)

Friends of Eagle Lake call on town to save dam in disrepair

By The Landmark | on June 28, 2017, by Rebecca Humphrey, thelandmark.com

While the Holden Conservation Commission considers a proposal that would grant owners of Eagle Lake Dam, MA the OK to permanently drawdown the water level, Holden residents against the idea have formed a group called "Friends of Eagle Lake," dedicated to saving the treasured recreational spot. Representatives from the group, which includes 140 area residents, some of whom are lake abutters, believe the lake is at risk of disappearing unless the town steps in to help.

Their worries began after the president of White Oak Land Conservation Society, an organization that is part-owner of the dam, requested to drawdown the dam reducing the level of the water by 6 inches per week and lower the depth of Eagle Lake by 4 ½ feet. In a letter to the Town Manager and the Holden Board of Selectmen, the Friends of Eagle Lake noted that the majority of the lake is less than 4 feet deep and said the drawdown would be a "catastrophic" event that would not only dry out Eagle Lake, but also Mill and Stump Ponds which are connected.



White Oak president Ralph Peck expressed to both the conservation commission and selectmen that the small land trust wishes to divest their ownership of the dam because they can no longer keep up with maintenance costs required by the State Department of Conservation and Recreation (DCR). Additionally, the dam, which has fallen into disrepair, has now been labeled a high hazard dam based on the impacts and worst-case probable scenario of failure or miss-operation. In 2015, White Oak was ordered by the DCR to complete a \$30,000-\$45,000 Phase II inspection, which current owners (White Oak, Mill Pond Real Estate, and a private owner) haven't had the money to complete, said Peck. Phase II would solidify total repair costs which Peck said could be in the \$800,000 range according to a Phase I study done in 2013. In the meantime, White Oak is subject to fines until Phase II is complete. "Because we run all the risk if something happens we cannot delay," Peck said in his request to the conservation commission. "We have to plow ahead. However, it would be probably at least three years maybe more before you could put

together a demolition and get the funding — so here is time for these folks to put together a plan to save the dam. But I will repeat again, that plan cannot assume that white oak owns the dam. The title will have to be transferred elsewhere.”

The Friends of Eagle Lake believe White Oak’s decision and proposal to “doom the dam and lake” is premature. “They have admitted that the proposal is based on rough estimates of repair costs from the Phase I report, and not based on refined cost estimates which will come from the required Phase II assessment,” wrote the Friends. The Friends have already started clearing brush and wooded vegetation as per DCR guidelines and are looking into grant applications which they hope will be able to fund Phase II and provide a better idea of repair estimate costs rather than drawdown and demolish the dam. According to the Friends, this isn’t the first time the town has been called upon to save the dam. In the 1980s, the White Oak Conservation Society acquired the dam from previous dam owners (Jefferson Mill). At the time the dam needed expensive repairs. Through public support and partial grant funding White Oak was able to fundraise enough money to make the repairs. However, the grant money fell through and the Friends say the town (which owns Eagle Lake) financed the necessary restoration of the dam in 1993.

“Eagle Lake is now at risk of disappearing unless the town steps in as it did 24 years ago,” wrote the Friends. While the Conservation Commission is in the process of weighing White Oaks’ request to drawdown the lake in accordance with The Wetlands Protection Act, the town manager and BOS plan to look further into the situation they told the Friends last week. “Eagle Lake and the park have been a valued Holden resource going back seven generations, worth visiting and a continued investment for the future,” the Friends wrote to close their letter to the town manager and BOS. “It is because of the dam at Eagle Lake (not despite it) and the stable bugger of retained water that the area continues to hold so much wildlife, diversity, open space, and recreational benefits. If the dam were to be removed and the retained water drastically reduced, the current inhospitable condition of the inlet brook would extend to the Eagle Lake area and beyond. Please support your fellow residents in saving Eagle Lake now and for future generations.”



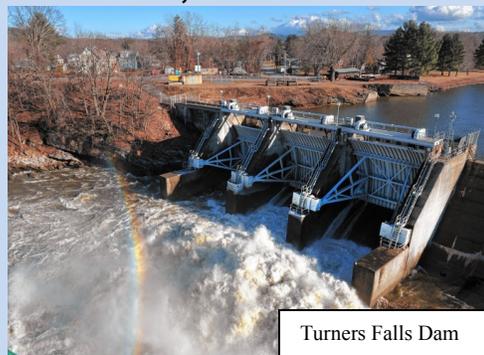
Hydro:

(This will bring them out of the woods.)

Talks under way on FirstLight relicensing for Northfield, Connecticut River dams

By RICHIE DAVIS, Recorder Staff, June 22, 2017, recorder.com

The multiyear federal relicensing of FirstLight Power Co.’s Northfield Mountain and Connecticut River hydroelectric plants is moving toward a flurry of end-of-year filings, with licenses due to expire April 30, 2018. But in the midst of studies and responses about fish passage, recreational facilities and other topics, the operator of the Turners Falls and Northfield plants has been meeting for settlement discussions with Gill, Montague, Northfield and Franklin Regional Council of Governments officials as well as representatives of the Connecticut River Conservancy and other nonprofit organization and government agency “stakeholders” in the relicensing. “We’re working with various stakeholders, trying to come up with solutions” to a variety of differences,” said FirstLight spokesman Len Greene. “It’s a very common practice.” The



Turners Falls Dam

federal government licenses dams to for-profit utilities but in exchange for using the public's rivers to make money, the companies have to agree to provide certain public benefits and meet certain conditions. It's those conditions that the negotiations cover. The "conversations back and forth," which began a month or so ago, Greene said, are a way of avoiding the process getting bogged down with the Federal Energy Regulatory Commission (FERC) "having to make determinations based on contests between parties."

"We're trying to find a middle ground," Greene added. "There have been a lot of conversations back and forth of different issues that are out there." He declined to be more specific. Tom Miner, a Franklin Regional Planning Board member who has been a liaison with the Franklin COG-led Connecticut River Streambank Erosion Committee, said those attending the settlement



discussions have agreed formally to not disclose specifics of the talks. The goal of the overall relicensing process, Miner said, is for all groups to reach agreement on the issues by the end of the year. These include erosion along the Connecticut River's banks in the 20-mile pool between the Vernon, Vt., and Turners Falls dams, fish habitat in the river's Turners Falls "dry stretches" and recreational access to the river. Miner, a former co-director of the Connecticut River Conservancy's predecessor — the Connecticut River Watershed Council — said "behind the curtain" settlement discussions haven't taken place on licensing before for any of the plants along this river, but added,

"There have been so many FERC proceedings, I'm sure it's been utilized before" as a technique to "avoid acrimonious results at the time a license is issued." A collaborative process during relicensing of the dams along the Deerfield River in the 1990s brought together recreational and environmental, government and nonprofit groups in an ongoing "compact" process that was more public and less of a utility-led effort, Miner said. He called it "bizarre" that there are studies that still need to be completed this late in a process that began in early 2013 and needs to be wrapped up by next May. But of the current talks with FirstLight, Miner said, "This has the conceivable benefit of not having to fight over things in court or in FERC's procedural process. If there are key agreements that we can work out among all parties, it's a gain for everyone. And just because we signed on to take part, doesn't necessarily mean we're in agreement to what it will produce."

(More hydro in Alaska.)

King Cove's new hydroelectric plant comes online

RCA advised city it's no longer eligible for power cost equalization subsidy.

By Margaret Bauman, June 22, 2017, thecordovatimes.com

King Cove's new Waterfall Creek hydroelectric facility is now online, producing up to 400 kilowatts of electricity, city officials said.

Waterfall Creek is the Aleutian city's second run-of-the-river hydro facility. The community of 925 people lies 625 air miles southwest of Anchorage at the western end of the Alaska Peninsula.

The first, Delta Creek, came online in 1994, and is about twice the size of Waterfall Creek. Together, these two renewable energy sources are expected to produce about 75 percent of the city's annual power demand of 4.5 megawatts, said city administrator Gary Hennigh. With two hydroelectric facilities in operation, King Cove is claiming the title of being the most prolific, single site, renewable energy community in rural Alaska.



"The community is very excited about Waterfall Creek being completed and does not expect to hear the sound of our diesel support system until winter," said King Cove Mayor Henry Mack. The final project cost is expected to be about \$6.7 million. Funds for the project include \$3.3 million in grants from the Alaska Energy Authority and Aleutians East Borough, \$3 million in long-term debt from the Alaska Municipal Bond Bank, and AEA's Power Project Fund, and \$400,000 in contributions from the city. **It took years, from initial concept, design, permitting, and funding to complete construction.** "The city's perseverance in completing the project has largely been driven by 22 years of success with Delta Creek," Mack said. "This hydro has displaced over 3 million gallons during this time with more than 50 percent of the community's total power production coming from this renewable energy source." **Energy costs in King Cove run at 30 cents per kilowatt hour, compared to average costs in rural Alaska of 45 cents per kilowatt hour.** The average cost of electricity in the Lower 48, by comparison, is 12 cents per kilowatt hour. With Waterfall Creek online, city officials said they are confident that they can maintain or possibly even lower their rate per kilowatt hour. The irony of the situation, said Hennigh, is that while Waterfall Creek has come online, King Cove has been simultaneously informed by the Regulatory Commission of Alaska that the community is no longer eligible for a power cost equalization subsidy. About 185 communities in rural Alaska get the PCE subsidy, including more than 35 communities that have some of their own renewable power generation. A formal dedication of the Waterfall Creek hydro facility is planned for late summer.

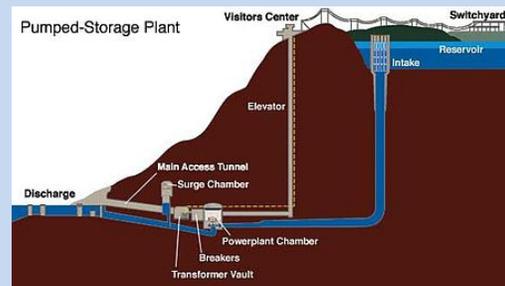
Neither of King Cove's hydroelectric facilities at this time provide any benefits to the Peter Pan Seafoods plant, which is the city's major employer. "We hope that changes, but that likelihood is still at least a year away," Hennigh said. The reason is that city officials don't know how much "surplus" power (hydro power that is generated because of available water) the city has to offer the processor at this point, and how that meshes with Peter Pan Seafoods' needs, he said. According to Hennigh, the processor would be very interested in buying whatever surplus power they can get, presumable at a cost less than they can produce in their diesel plant. Meanwhile, Hennigh said, instead of whining about the unfairness and inequity in the PCE program, King Cove is going to push hard for a final capital appropriation during the next legislative session to lower its debt on Waterfall Creek. Four or five years ago, King Cove was receiving between seven and eight cents in PCE, then about two years ago it went down to about two cents, then a half penny and now zero. Pelican and the North Slope Borough communities are the only other communities receiving no PCE at this time, Hennigh said. **Meanwhile Cordova, with two hydroelectric facilities, Unalaska, Kotzebue, with its wind generation, Dillingham and Nome all get between five and 10 cents PCE, Hennigh said.** King Cove, one of the largest Aleut communities in Alaska, has two harbors supporting a year round fisheries economy. One of the state's largest fish processors, Peter Pan Seafoods, marked its 100th anniversary in King Cove several years ago with a community wide celebration. **King Cove was settled in 1911, incorporated as a city in 1949, and became a first class city in 1974.**

(Backing up those wind power projects. Nothing better than pumped storage hydro.)

Dominion looks to site pumped storage power plant

By JENAY TATE • Editor and Publisher, 6/23/17

NORTON, VA — Dominion Energy public relations staff are working the media circuit to get word out about the company's pumped storage hydroelectric power plant plans in the coalfields and they don't necessarily involve underground mine works. **Any project would most certainly have a surface reservoir, company spokesman Greg Edwards said in a Tuesday interview, but where any of this might be located is unknown now except that it would be in the coalfields region, as set forth in legislation passed in the most recent session of the Virginia General Assembly.** What they do know for sure, Edwards said, is that a pumped storage



hydroelectric power plant would cost more to build and bring even more long-term impact to the economy through tax base than the Virginia City coal-fired power plant outside St. Paul. That project cost \$1.8 billion. "We're talking millions in additional tax revenue," he said, noting Dominion's Virginia City plant increased tax revenue for Wise County like something more than \$6 million per year. "We're talking about revenue way in excess of what Virginia City generates." Edwards said Dominion hopes to have narrowed down potential sites by August. Then they would be notifying landowners who potentially would be affected and setting meetings to gain public input. Edwards described the company's process, including that day's visit and outreach to citizens to keep them informed. An amendment introduced by regional legislators and passed into law this year provides important incentives for locating a pumped storage hydroelectric power plant in the coalfields. Dominion is pursuing the opportunity created by the legislature, he said. Development would be deemed in the public interest, he said, so that would streamline the approval process.

The law also allows a utility to apply to the State Corporation Commission to recover the cost of a project as it is incurred. The ability to recover the cost as you go along minimizes the risk, he said, "and when you're investing money, risk is always an important consideration." The new provision names the coalfields as the location in order to capitalize on the incentives but doesn't mention underground mine works at all, Edwards noted. Dominion might consider some underground component if they find one that is suitable, he said, but "in general, we're not wedded to underground." The new provisions require that the pumps to provide the electricity be powered in total or part by renewable energy. The water would be let out of an upper reservoir and flow through turbines that would generate the energy. This would not be a baseload plant like Virginia City, which runs 24/7. It would be running at times when power is in highest demand, he said, such as the hottest days of the year and the coldest days of the year and generally in the morning when people get up and when they come home from work.

Pumped storage acts like a sort of battery for storing electricity in the form of water, he explained. Storage is important, knowing that renewables are intermittent power producers, Edwards said, noting that solar powers when the sun is shining and wind powers when the wind is blowing. Electricity is consumed as it is produced so pumped storage helps to smooth out the demand. The renewable energy doesn't have to be sited right next to a pumped storage project, he pointed out. Renewable energy is traded just like the pool of electricity coming in off the grid and you buy renewable credits, he said. The pumped storage power station could potentially generate 1,000 megawatts as compared to 610 megawatts at Virginia City. One megawatt would power about 250 homes, he said. Dominion has not put people on the ground yet looking at sites, he said, with most of the work being done remotely through maps and satellite imagery. They have looked at literally hundreds of sites in the coalfield counties, he noted. They hope to be at a point to select a final site by this fall, he said. Edwards said they want to keep people informed, noting this is a long-term process. It could be seven to 10 years from the start of the project until it is in operation. Construction time is estimated at four years. Hundreds of jobs would be created during the construction period then there would be operational staff once it is completed and probably some spin-off jobs, he said. "It will be a big economic impact to the area," he said.

(Hydro owners are the only people that smile when it rains.)

Revenues soar at Watertown hydro plant

By CRAIG FOX, CFOX@WDT.NET, JUNE 24, 2017, watertowndailytimes.com

WATERTOWN, NY — Watertown Superintendent Vicky Murphy doesn't mind all the rain we've gotten this spring. That's because the city's hydroelectric plant had its best April and May in the past 15 years. Ms. Murphy said the 92-year-old Marble Avenue hydro plant along the Black River produced 3,559,728 kilowatt hours of electricity in April and 3,606,300 in May. The June figure is not available yet. Producing 5,408 kilowatts per hour, the city earned about \$27,000 from its sale of electricity to power giant National Grid on Friday. "Some people don't like all of this rain, but it's

good for the city," she said. The record for April — usually the most productive month every year — is 3.7 million kilowatt hours.

It has been a particularly rainy spring for Watertown. According to the Northeast Climate Center, nearly 15 inches of rain fell in Watertown this spring, compared to an average of about 9.5 inches. The amount includes 1.82 inches of rain that Watertown received over a 24-hour period from Thursday to Friday. The hydro plant typically is a big moneymaker for the city. Before December, hydroelectricity production was down a bit for the fiscal year, but that changed when precipitation increased that month. Hydroelectricity has done well ever since, Ms. Murphy said.



In comparison to last May, the sale of surplus hydroelectric power was up \$435,527, or nearly 158 percent, City Comptroller James E. Mills said. Comparing to the original budget projection for May, revenue went up \$231,392, or more than 48 percent. The year-to-date actual revenue is up \$244,060, or 6.37 percent, while it's increased \$490,897, or 13.7 percent, on a budget basis. For the first 11 months of the fiscal year, the plant produced \$4,075,389 in revenues. During May, all three turbines ran every day, while they were at full capacity for all but five days in June, Ms. Murphy said. Too much rain can slow the use of the turbines. "You can't rely on Mother Nature," she said. "She does what she wants to do." The plant supplies electricity to more than 20 city buildings and properties. After using the energy from the hydroelectric plant for city buildings, the city sells its excess power to National Grid for nearly 22 cents per kilowatt-hour, Mr. Mills said. The city is in the middle of a franchise agreement to sell electricity to National Grid that began in 1991 and expires in 2029, when the company will pay the city 34.7 cents per kWh. The arrangement to sell the city's excess power to National Grid came about after the city decided against municipal power.

(Watch the video, kinda neat.)

Flying at a hydroelectric power station Drone Video

<https://www.airvuz.com/video/Flying-at-a-hydroelectric-power-station?id=594fcff1b9bcc44d7e7adbda>

(Can't do it without hydro.)

Huge Milestone: Renewables Now Provide More Electricity Than Nuclear Power

ecowatch.com, 6/27/17

The latest issue of the U.S. Energy Information's "Electric Power Monthly" (with data through April 30) reveals that—for the first time since the beginning of the nuclear era—renewable energy sources (i.e., biomass, geothermal, hydropower, solar—inc. small-scale PV, wind) are now providing a greater share of the nation's electrical generation than nuclear power. For the first third of this year, renewables and nuclear power have been running neck-in-neck with renewables providing 20.20 percent of U.S. net electrical generation during the four-month period (January to April) compared to 20.75 percent for nuclear power. But in March and April, renewables surpassed nuclear power and have taken a growing lead: 21.60 percent (renewables) vs. 20.34 percent (nuclear) in March, and 22.98 percent (renewables) vs. 19.19 percent (nuclear) in April.



While renewables and nuclear are each likely to continue to provide roughly one-fifth of the nation's electricity generation in the near-term, the trend line clearly favors a rapidly expanding



Nuclear power limps toward extinction

market share by renewables. Electrical output by renewables during the first third of 2017 compared to the same period in 2016 has increased by 12.1 percent whereas nuclear output has dropped by 2.9 percent. In fact, nuclear capacity has declined over the last four years, a trend which is projected to continue, regardless of planned new reactor startups. From 2013-16, six reactors permanently ceased operation (Crystal River, Kewaunee, San Onofre-2, San Onofre-3, Vermont Yankee, Fort Calhoun), totaling 4,862 MW of generation

capacity. Last year, one new reactor (Watts Bar-2) was connected to the grid (after a 43-year construction period), adding 1,150 MW, for a net decline of 3,712 MW since 2013. Six more reactors are scheduled to close by 2021, totaling 5,234 MW (5.2 percent of nuclear capacity). Two more reactors totaling 2,240 MW are scheduled to close by 2025. In addition, nuclear generators are discussing the potential retirements of several more. Against the planned retirement of 7,274 MW of capacity, four new reactors are in construction, totaling 4,468 MW. The completion of these reactors is in doubt, however, due to billions of dollars in cost overruns and the bankruptcy of designer-builder Westinghouse. If all reactors being built are ultimately completed, total nuclear generating capacity will decline by at least 2,806 MW (three percent) by 2025, planned additions against planned retirements. If these projects are cancelled, nuclear capacity will decline by at least 7,274 MW (7.2 percent) from 2017, accounting for roughly 57,000 TWh/year of generation.

On the other hand, almost all renewable energy sources are experiencing strong growth rates. Comparing the first four months of 2017 to the same period in 2016, solar has grown by 37.9 percent, wind by 14.2 percent, hydropower by 9.5 percent, and geothermal by 5.3 percent. Biomass (inc. wood and wood-derived fuels) has remained essentially unchanged—slipping by just 0.3 percent. In recent years, the strong growth rates of both solar and wind have resulted in new records being set virtually every month. For the second month in a row, solar and wind combined provided more than 10 percent of the nation's electrical generation. In March 2017, those sources provided 10.04 percent of the nation's electrical generation. That record was eclipsed in April when solar and wind reached nearly 11 percent (10.92 percent) of total generation. And, for the first time, wind and solar combined have provided more electricity year-to-date (113,971 thousand megawatt-hours (TMWh)) than has hydropower (111,750 TMWh). In April, solar alone reached another milestone, providing more than two percent (2.33 percent) of the nation's electrical supply. Consequently, solar has now moved into third place among renewable sources—behind hydropower and wind but ahead of biomass and geothermal. In April, utility-scale plus small-scale solar provided 20,928 TMWh compared to 20,509 TMWh from biomass and 5,945 TMWh from geothermal.

And not coincidentally, as renewables' share of electrical generation has grown, that of fossil fuels has declined. Electrical generation by fossil fuels (i.e., coal, natural gas, petroleum liquids + petroleum coke) dropped by 5.2 percent during the first third of 2017 compared to 2016. "In light of their growth rates in recent years, it was inevitable that renewable sources would eventually overtake nuclear power," noted Ken Bossong, executive director of the SUN DAY Campaign. "The only real surprise is how soon that has happened—years before most analysts ever expected." "Renewable energy is now surpassing nuclear power, a major milestone in the transformation of the U.S. energy sector," said Tim Judson, executive director of the Nuclear Information and Resource Service. "This gulf will only widen over the next several years, with continued strong growth of renewables and the planned retirement of at least seven percent of nuclear capacity by 2025. The possible completion of four new reactors will not be enough to reverse this trend, with total nuclear capacity falling by 2,806 MW (three percent) through 2025."

(Idiots!)

Vandalism, safety concerns prompt restricted access to Swan Falls Dam

By Stephanie Hale-Lopez, Jun 26, 2017, kivitv.com

Swan Falls, Idaho - Beginning Monday, June 26, public access across Swan Falls Dam just south of Kuna will be limited, as safety guidelines have prompted the installation of gates at both ends of the dam.

Public access across Idaho Power's Swan Falls Dam will be restricted to 6 a.m. to 9 p.m. for visitors. "While we would prefer to leave the access the way it has been, the

increase in vandalism and unsafe behavior, which mostly occurs after dark, has forced us to make a change," Fred Noland, Environmental Supervisor for Idaho Power, said in a news release.

Anyone who finds themselves on the south side of the river at 9 p.m. will still be able to return through the gate, which will only open in one direction between 9 p.m. and 6 a.m. Propping or holding the gate open will set off an alarm. Gates at each end of the dam will be monitored by video camera. Prior to the installation of the gates, visitors had 24-hour access to the foot path across Swan Falls Dam.



(Being first with hydro is good. Hope this contraption works.)

Hydropower turbine in South Boulder canal first of its kind

By Christine Lambert, KUSA, June 27, 2017, 9news.com

KUDS, CO - Denver Water's new hydropower turbine is being called an energy game-changer.

Back in May, 9NEWS brought you a story about the first-ever piece of technology to generate energy from shallow, slow-moving city water. Researchers and project managers gathered around to watch the 10-foot by 16-foot concrete box be placed in the South Boulder canal on Tuesday. This was just the first of 10 hydrokinetic generators to be placed along the canal. The other nine are projected to span the 9-mile stretch between Gross Dam and the Ralston Reservoir.



Denver Water's new hydropower turbine is being called an energy game-changer.

"It's priceless," said founder and CEO of Emrgy Inc.

Denver Water is working with Emrgy Inc. to create this innovative technology that may eventually be able to provide energy to the Ralston Reservoir or a nearby electric grid. Researchers from across the nation, including local Colorado School of Mines, will monitor the turbine to ensure flow rates and energy generation are as effective as possible. "We are looking to the future to be able to expand our hydroelectric capabilities, and this is really the forefront of that effort," said Ian Oliver from Denver Water. When research is complete, companies like Emrgy Inc. may be looking to expand not only across the nation, also to the rest of the world

(Always changing hands. Excerpts. There must be a profit in it.)

Hull Street Energy Completes Acquisition Of Hydroelectric Assets From Carlyle

NEWS PROVIDED BY Hull Street Energy, 28 Jun, 2017, prnewswire.com

BETHESDA, Md., June 28, 2017 /PRNewswire/ -- A recently formed affiliate of Hull Street Energy ("Hull Street Energy"), has completed the acquisition of 100% of the ownership interests in Nautilus Hydro, LLC ("Nautilus Hydro") from funds managed by affiliates of The Carlyle Group ("Carlyle"). Nautilus Hydro, owns five hydroelectric generation facilities located in Massachusetts on the Chicopee and Deerfield Rivers. As a result of this transaction, Hull Street Energy has

added approximately 18 MW of long-lived, renewable generation assets to its New England portfolio.

Carlyle acquired the Nautilus Hydro facilities in June 2016 with its acquisition of the Nautilus Power portfolio (formerly Essential Power) and its subsidiaries. Since Carlyle's acquisition, Cogentrix Energy Power Management, LLC ("Cogentrix"), Carlyle's affiliated independent power producer, has overseen the plants' management, operations and maintenance. Cogentrix has agreed to support a transition to Hull Street Energy's asset management group over the next several months. Hull Street Energy acquired Nautilus Hydro as part of its strategy to build and grow a significant presence in the rapidly evolving North American power sector. Collectively, Hull Street portfolio companies now own and operate approximately 465 MW of strategically positioned generation assets located in Massachusetts, Connecticut, Rhode Island, New Jersey and Montana. The fleet provides critical reliability and low-carbon energy services to the regional power grid. Manatt, Phelps & Phillips, LLP acted as legal counsel to Hull Street Energy and Chadbourne & Parke LLP acted as legal counsel to Carlyle and Cogentrix on the transaction.===.



Other Stuff:

(Glad I'm not one of the 18 %.)

10 US Cities With the Most Smokers

In some cities, smoking rate tops 28%

By Arden Dier, Newser Staff, Jun 23, 2017, newser.com

(NEWSER) – In the past 50 years, the US smoking rate has fallen from 40% to about 18%. That suggests the habit and the health problems associated with it are easing, yet more than a quarter of residents still smoke in some US cities. The US metropolitan areas (none of them major ones) with the highest smoking rates, per 24/7 Wall St.:

1. Fort Smith, Ark.-Okla.: 28.3%
2. Lafayette, La.: 28.3%
3. Erie, Pa.: 28.2%
4. Kingsport-Bristol-Bristol, Tenn.-Va.: 28%
5. Fayetteville, NC: 27.8%
6. Spartanburg, SC: 27.6%
7. Canton-Massillon, Ohio: 27.5%
8. Huntington-Ashland, W. Va.-Ky.-Ohio: 27.2%
9. Hickory-Lenoir-Morganton, NC: 25.4%
10. Winston-Salem, NC: 25%

Click for the full list: <http://247wallst.com/special-report/2017/06/22/cities-with-the-highest-smoking-rates/2/>



(Pumped storage works best.)

Utilities Need Storage to Keep Renewable Energy Growing

By Iulia Gheorghiu | June 26, 2017 | morningconsult.com

State standards are driving electric utilities' of renewable energy — but without battery storage capacity, electricity generated from wind, water or the sun may soon saturate market in certain regions. Ten years ago, utilities underestimated how much



use

the

renewable energy they would use due to states' regulations and the falling cost of wind and solar power. But without large-scale battery storage, the increases observed so far could be at risk of plateauing. The growth and breakthroughs in renewable energy contributed to lowering the country's carbon footprint since renewable and nuclear energies do not create carbon dioxide; a saturation in the renewable energy market could also hurt some states' ambitious climate goals. The Energy Information Administration estimates carbon dioxide emissions from the electric power sector fell about 5 percent last year and the year before, the largest-ever decline for two years in a row since 1973. A study out this month funded by the Energy Department looked at the relationship between planning and electricity procurement for 12 utilities in 10 Western states through 2015. The study showed Western utilities bought three times more wind energy more than regulators expected based on the utilities' resource plans. This uptick may not be surprising due to newer laws in 29 states and the District of Columbia that require utilities to get a set amount of renewable energy. In addition, eight other states have renewable energy goals (as opposed to enforced standards). Montana, for instance, had set a renewable portfolio standard in 2005 to use 15 percent renewable energy by 2015. NorthWestern Energy, a Montana utility, currently surpasses the standard, with 60 percent of its electricity coming from hydropower and wind generation. But the company says renewables aren't as reliable as other sources of power. "Along with price, [there is] the fact that the energy that is produced by these wind and solar projects is intermittent and doesn't help us meet our need for 24/7 generation capacity and address our need for electricity in periods of high demand," the firm's spokesman, Butch Larcombe, said in an email Monday.

NorthWestern Energy's investment in a hydropower plant in 2014 was made to diversify their energy portfolio, which also includes coal, some natural gas and wind energy. But whether companies continue to invest in renewables depends on energy storage and grid efficiency. A lack of large storage options means renewable energy could hit a roadblock when energy output reaches peak demand during certain times of day. For example, a state like California already has enough panels to reach capacity during the height of a spring day. But it doesn't have large-scale capabilities to store energy and therefore can't benefit from adding more solar panels, said Chris Namovicz, a team lead for renewable electricity analysis at the Energy Information Administration. "It's the fact that renewables only generate at certain times of the day; especially solar has a very definite daily pattern, and electricity demand is only so high during the day," Namovicz said in an interview on Monday. "Without storage, there's no point to adding more solar because you don't need any more energy during those hours." But several companies are exploring options for energy storage, and production ramp-up at firms such as Tesla could lead to competitive costs, said Scott Clausen, policy and research manager at the advocacy group American Council On Renewable Energy. "It's a market that's poised to grow quite rapidly. The rate at which it's gonna grow over the next few years is yet to be determined," Clausen said in an interview Monday.



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