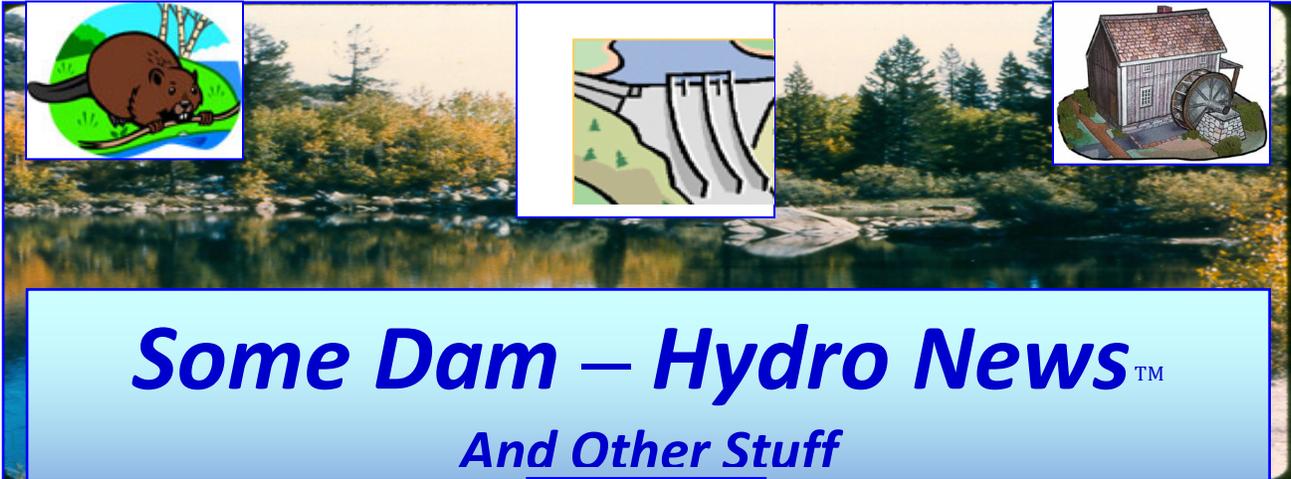


2/14/2020



Some Dam – Hydro News™ And Other Stuff



Quote of Note: *“The longer you can look back, the farther you can look forward.” - Winston Churchill*

Dams:

(Just in case a whole of shakin' goes on.)

Some Dam - Hydro News → Newsletter Archive for Current and Back Issues and Search:
(Hold down Ctrl key when clicking on this link) <http://npdp.stanford.edu/>. After clicking on link, scroll down under Partners/Newsletters on left, click one of the links (Current issue or View Back Issues).

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

Ron’s wine pick of the week: 2016 Three Wine US Red Blend “Old Vine Field Blend”

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



Dam seismic retrofit project moving forward

Jan 30, 2020, westsideconnect.com

SANTA NELLA, CA - A multi-year seismic retrofit project of B.F. Sisk Dam is moving forward, the federal Bureau of Reclamation and state Department of Water Resources recently announced. The preferred alternative to address seismic safety concerns at the structure, commonly known as San Luis Dam, involves raising the crest of the dam by 12 feet, adding shear keys to prevent slippage and construction of downstream berms to strengthen the structure, bureau spokesperson Christie Kalkowski told Mattos Newspapers. Work on the project is expected to begin in August 2021, she said. That alternative, Kalkowski reported, will involve an eight- to 10-year construction duration with work seven days a week, 12 months a year. Funding availability could extend the project duration. On any given day,



the Reclamation spokesperson said, approximately 76 on-site construction shift workers are expected to be on the job. In addition to the direct construction related activities, an EIR states, the project would generate administrative, design, environmental compliance and oversight jobs, as well as need for truck drivers and equipment haulers.

The dam was built more than 50 years ago to create the San Luis Reservoir, which provides more than two million acre-feet of storage capacity for the Central Valley Project and State Water Project. The Department of Water Resources operates the Reclamation-owned dam and reservoir and is a cost share partner. A 2006 seismic study raised concerns, project officials told Mattos Newspapers in 2017. Mynul Chowdhury, project manager for the Bureau of Reclamation, said the study determined that the soil in the earthen dam could undergo liquefaction during an earthquake, potentially causing the dam to slump below the water line and lead to failure through over-topping. The higher crest will safeguard against over-topping by increasing the freeboard, according to environmental documents on the project. The project will not increase reservoir capacity, as the maximum fill level will remain unchanged, the documents indicate.

A second scenario was the potential for an earthquake to cause cracks in the dam, leading to failure. Chowdhury stressed that the probability of a dam failure is very low - but said the planned retrofit is needed to bring the structure up to current seismic safety standards. "The chances (of a dam failure) are very remote, less than 1 percent in any given year. However, if the dam fails the consequences would be severe," Chowdhury told Mattos Newspapers at the time. One alternative considered was a reduction in reservoir capacity, which would have reduced maximum storage from just over two million acre-feet of water to just under 1.4 million acre-feet. That option, however, would have adversely impacted water supplies to the Central Valley Project and State Water Project. Agency officials said the crest raise alternative meets all project objectives. "This seismic upgrade project is part of our commitment to reduce the risk to downstream communities while protecting our valuable water supply," said Ernest Conant, regional director for Reclamation's California - Great Basin. "The strong partnership we share with the state allows us to leverage the expertise, resources and funding to ensure a safe and successful project." Ted Craddock, acting state water project deputy director, echoed that sentiment.

"We will continue to move forward with the important work to modernize infrastructure to protect California's water supply and enhance public safety," he commented in a recent news release. "This project represents a significant investment to address seismic risk to our water infrastructure." The bureau has implemented additional risk reduction measures as it works to put a more permanent dam safety project in place, according to the press release. Those measures include heightened earthquake monitoring, real-time seismic monitoring, dam safety tabletop exercises with local responders, increased seismic inspection criteria and an updated dam emergency management plan. Reclamation and the Department of Water Resources plan public meetings in the spring to further inform the public of the dam safety project. Exploratory blasting on bureau property to identify suitable material for construction of dam stability berms and other dam safety features will occur in the next few months, according to the news release. The public will be informed of the blasting, officials said. Blasting may be heard, the press release stated, but the work is not anticipated to impact the public or the environment. The public will also be notified of any impact to recreational uses.

(Some more work to do on this 88 year old dam.)

Initial repairs complete at high-hazard eastern Nevada dam

BY SCOTT SONNER, ASSOCIATED PRESS, JANUARY 30, 2020, tri-cityherald.com

RENO, NEV. - State officials have completed the first phase of a rehabilitation project at a nearly 90-year-old dam in eastern Nevada



where they had found “unstable and potentially dangerous” conditions. The Nevada Department of Wildlife closed the reservoir temporarily at Cave Lake State Park in October to drain down the water level and better assess safety concerns at its 83-foot-tall (25-meter-tall) dam. **State engineers say they completed initial repairs earlier this month** after identifying sources of concerns about the aging structure’s ability to handle a big storm event. **They also discovered a small whirlpool that creates a vortex under current flows** that could be unsafe to swimmers and boaters.

(All it takes is money! Better late than never.)

Funding in sight for Lake Bronson Dam?

By Editor | January 29, 2020 | kittsonarea.com, by Anna Jauhola

Gov. Tim Waiz, MN has recommended \$20 million toward dam safety repair, reconstruction and removal for the state’s 2020 budget. Top of the Minnesota Department of Natural Resources’ priority list for this funding is the dam at Lake Bronson State Park. The governor’s budget was released late last week with funding recommendations for hundreds of projects across the state. The dam project would use general obligation bonds. While those who have fought to thoroughly inform the governor and legislators of the significance of replacing the dam at Lake Bronson State Park, the decision now lies with the Minnesota Legislature. **“The governor’s budget would fully fund the Lake Bronson dam,”** said Jason Boyle, state dam safety engineer. “That budget basically is in the hands of the Legislature to appropriate funds.” The Legislature reconvenes at the capitol in St. Paul on Feb. 11.



Should the state’s government heed the governor’s proposal to fully fund the removal and reconstruction of the Lake Bronson dam, Kittson County Engineer Kelly Bengtson said construction still wouldn’t begin until 2021. **“If the legislators approve it as part of the bonding bill I would speculate that the DNR would hire an engineering consulting firm to design the project,” Bengtson said.** This project has been a long time in the making. The Lake Bronson dam was built under the Works Progress Administration in the 1930s. Its configuration was cleverly created by its designers as it was constructed on quicksand. Although the dam has withstood the test of time thus far, engineers and other officials have questioned its stability for decades. **A look back in the Enterprise archives revealed officials asking for money, sometimes receiving money and doing repairs on the dam as far back as the late 1960s.** As early as the 1980s, local officials have been asking for money to either partially or fully replace the dam. It has presented with cracks in its base and other structural issues, **which has led to draining the lake to make the repairs.**

In September, Boyle and Bengtson, along with Lance Crandall of DNR Parks and Trails, spoke with the Senate Bonding Committee when they stopped on a tour at Thief River Falls. At that time, Boyle said the dam has terrible seepage problems, which have been temporarily fixed using relief wells, but “if seepage is not controlled it can lead to failure.” He also said the dam’s “spillway is too small to safely pass a large flood.” **Officials are cautiously optimistic** about the possibility of the funding passing the Legislature’s approval. However, they are adamant they will keep fighting. **“If need be, we will go down and testify because they need to understand the urgency,”** said Theresia Gillie, chairperson for the Kittson County Board of Commissioners. “It can’t be kicked down the road again.”

(Read somewhere that there are 50,000 dams that serve no useful purpose. Dam removal is sometimes a good thing.)

'Unbuilding': What might happen if dams are removed in the Ohio River watershed

By JULIE GRANT • Jan 31, 2020, wyso.org

The dam in Leavittsburg, Ohio, is one of nine in a regional plan to be removed along the Mahoning River, once heavily polluted from steel mills and other industries.



The Ohio River watershed is dotted with thousands of small dams. Many are remnants of bygone days of grain mills and the steel industry, which used dams to pool water needed during production. The dams are no longer needed. And, because they can be a safety hazard to boats and a barrier to fish, there are efforts to remove them and restore free-flowing rivers. But not everyone is ready for it.

(Not sure this article is accurate. This is just one of the many articles on the same issue. Guess that they didn't factor in that the Corps of Engineers, U.S. Bureau of Recl., and FERC licensed dams DO HAVE Federally approved EAPs.)

OROVILLE DAM'S SAFETY PLANS DELAYED

By: Elita Goyer. February 1, 2020, agenda21radio.news

A new state audit released Thursday, Jan. 30 reveals dozens of dam owners failed to submit flood maps to the state. Posted: Jan 31, 2020 1:01 PM SHOCKING!!!! The original article and the video that went with it have been taken down by the publisher. The article was brought to my attention after dozens of people had read the article and watched the video! They were concerned. Apparently there was a clarification. Now the reality....no



one in the inundation zone is aware of the plan or what role the OES plays in making sure the plan is followed. In fact there was no link to any plan. Of course if you live above the inundation zone YOU have nothing to worry about. It's nice to have a plan but if the public is unaware of the plan then the plan useless. Evidence mounts that the OES refuses to even let the public know what the plan is because when the public inquire in the OES offices they're told they're terrorist! So the public the OES serves and who pays their salary with tax dollars are now called terrorist and we still don't know what the plan is! By the way in Hawaii and the south where there are tsunamies, hurricanes and storms their emergency plans are well known by the public! They even have SIRENS, and LARGE EVACUATION ROUTE SIGNS. It seems the only terrorist Californians need to be concerned about is the Office of Emergency Services.

OROVILLE, Calif. – A new report from the California State Auditor shows that the Oroville Dam is one of more than 600 high-risk dams in the state that do not have approved emergency plans. The report criticizes two state agencies – The Department of Water Resources and the Office of Emergency Services – for not doing enough to ensure public safety. When the Oroville Dam's spillway nearly failed three years ago, it created massive traffic jams as 180,000 people tried to flee from the Feather River and today some who experienced that incident wonder if an emergency evacuation plan even exists. "I'm not aware of a plan. I have my own plan," said Yuba City resident, Sharon Smith. "My own plan is this time I'll stay home. Last time I was stuck in traffic. It should have taken me two and a half hours to travel to Orland to my brother-in-law's house and I was in traffic for six hours." A new state audit released Thursday, Jan. 30 reveals dozens of dam owners failed to submit flood maps to the state. The audit also finds only 22 of 400 emergency plans submitted have actually been approved by the office of emergency services.

OES disputes that, staying under statute, Cal OES has 60-days to review a completed emergency action plan with approved inundation maps and return it for revisions to approve. There are currently no EAPS under review at Cal OES that have failed to meet that 60-day deadline. The Department of Water Resources is responsible for approving flood maps. In a statement, the DWR said its division of safety of dams "is updating its inspection protocols to identify previously unknown safety risks and work with owners to mitigate those risks."

(They only get involved so the dam gets removed.)

Dam breach partially drains Stonington pond

By Sten Spinella, Day staff writer, theday.com

Stonington, CT — With the recent breach of its more than 100-year-old dam, the drain plug has been pulled on Whitford Pond. Located along Wolf Neck Road, with sections spreading into Ledyard, Whitford Pond's water levels have decreased precipitously since August, when part of Bjorn Olson's dam, on the property his family has owned since 1938, ruptured. What was once a spillway, which allows for the controlled release of water, now allows water to freely flow into Whitford Brook from the pond. In other words, after the almost 8-foot-wide gap



opened, the pond's water level was lowered to a point shallower than Olson ever remembers. Olson, an artist and retired engineer who wants to restore the pond, has been working with Save the Sound, a nonprofit organization that seeks solutions to environmental issues along Long Island Sound. A report prepared by Save the Sound notes the breach is a "not-uncommon occurrence" for century-old dams.

"Following the breach, Save the Sound has been working with the dam owner and engineering consultants to assess site conditions and evaluate potential alternatives," the report reads. "It is also our understanding that the owner would like to repair the dam, and condition assessments currently taking place will hopefully help inform that decision." Olson said he expects Save the Sound to finalize its assessments in the next couple of weeks, at which point he will discuss how to move forward. The report explains that Whitford Pond's water level dropped due to the dam breach, allowing the brook to return to its natural course and exposing areas of mud along the riverbanks not seen in the past. "There is a degree of natural variability in wetlands, as when rivers flood or change their course, and when beaver activity raises and lowers water levels in ponds," the report states. "We do not believe the habitat at Whitford Pond is permanently harmed by the breach."

Save the Sound called Whitford Pond a "valuable habitat for wildlife, a scenic resource and cultural feature of the landscape, and as a regionally important fish migration corridor." It said it is working with Olson "to find a solution that encompasses all of those values." Environmental groups are working to install fish ladders throughout the region, such as one at Alewife Cove in Waterford, where the Alewife Cove Conservancy is removing a dam to help alewife herring access historic spawning waters. Dam safety and removal has become an issue across the country in connection with fish populations. Last month, The New York Times reported that "some people find the vestiges of that industrial past attractive. Dams can resemble waterfalls, and small ponds are formed by the water that is held back. Real estate developers have capitalized on the artificial ponds by building housing developments along their banks." Still, the Times continued, "From Maine to California, environmental groups are making the case to dismantle dams as a way to improve the ecology of river systems. Allowing fish to spawn is a chief goal," and it's something Save the Sound has been trying to do at Whitford Pond since 2012.

"Fishways (sometimes called 'fish ladders') are essentially ramps that allow migratory fish to climb up and over dams, and are installed to restore passage to a limited number of species while maintaining the pond or lake behind the dam," according to the Save the Sound report. "Save the Sound has been working since 2012 to restore migratory fish passage to Whitford Brook." Two nearby projects to restore migratory fish passage occurred upstream of the Whitford Pond Dam at Lantern Hill Pond installed by the Mashantucket Pequot Tribe, as well as a dam removal project downstream at the former Hyde Pond Dam, done by Save the Sound. "Fish passage is vital for species like Alewife that need access to both freshwater and saltwater habitats to breed," the report reads. Although Olson has been cooperating with Save the Sound, he said installing a fishway isn't necessarily his chief concern. **The property has been in his family since his parents decided they needed somewhere to escape to from their New York apartment in 1938**, and the pond has never been this dry or dealt with a dam breach before.

Olson's sprawling, 26-acre property, which contains meadows and forest in addition to the pond and brook, stands as a testament to Olson family's past. It's also a place where Olson's daughters, who live in California and Paris, can come back to, and a space for Olson to create his abstract sculptures.

"This became a retirement home for my parents, and now it's a retirement home for me," Olson said. Starting with his parents, the Olson family has maintained a tradition of keeping the area friendly for wildlife. **"We have not developed** — we could've broken it up into lots and made money on it that way, but we decided that was not what we wanted to do," Olson said. Olson is patiently waiting for the Save the Sound assessment to decide which course of action to take. During a meeting with state Department of Energy and Environmental Protection fisheries biologist Steve Gephard this past summer, Olson said Gephard told him that if there is any repair to the dam, it would not take place before this upcoming summer. **"So right now things are on hold, and I don't like to look out the window to see what I see,"** Olson said. "It looks desolate. Perhaps three feet of water level's been lost. There are large areas, which are now exposed. There's still areas where there's water and quite a bit of duck activity, I'm happy to say, but it's not the way I want to leave it."

(This is unusual. Money to FIX a dam, not tear it down.)

FEMA awards \$10 million grant for Breckenridge dam improvements

By Sawyer D'Argonne | February 3, 2020, summitdaily.com

BRECKENRIDGE, Col. — **The Federal Emergency Management Agency awarded a \$10 million grant to the state of Colorado last week to help fund modifications to the Goose Pasture Tarn Dam.** The funds come as part of FEMA's Pre-Disaster Mitigation Grant Program, which is meant to help minimize the risks of possible dam failures.

"The thing with any dam emergency is that the likelihood of anything happening is low, but the potential impacts are so high," said Brian Bovaird, the county's director of emergency management, who lauded the town of Breckenridge and other stakeholders for pushing for upgrades. "The fact that Breckenridge and the state dam engineers were so proactive is huge, because the worst-case scenarios are catastrophic. ... They're leaving no stone unturned. If something happened, the impacts would be countywide. Once those repairs are done, we'll be in a great place."



The dam — south of Breckenridge proper and north of Blue River — is classified as "high hazard" by the state, a categorization that has little to do with its condition but rather the potential loss of human life and property in the event of any type of failure. According to FEMA, **a failure likely**

would impact more than 2,000 residences and businesses in the Breckenridge area below the dam, along with major damage to roadways and the community's existing water supply. The dam does need some work to help put the minds of Breckenridge residents at ease. The need for upgrades began to emerge in 2015, during a high moisture year when town-run monitoring stations started to see significant rising water levels, according to Steve Boand, a state hazard mitigation officer with the Colorado Division of Homeland Security and Emergency Management. As a result, stakeholders decided to implement reservoir storage restrictions in 2016. Breckenridge also moved forward in seeking federal funding to address concerns. The \$10 million from FEMA will cover more than half the costs of the project. The rest already has been budgeted as capital improvements by Breckenridge, Boand said. The work on the dam is scheduled to begin later this year and will lower the spillway by 4 feet to help protect the dam and everyone in its path. "It takes the pressure off the dam itself, and the really important aspect is it will pass a greater flood flow through the dam downstream, which protects the embankment and everyone who lives downstream," said Boand, who noted that the change also would bring the dam up to meet new state standards put in place after widespread flooding in 2013. "The dam will always be on the state's high hazard dam list. ... But this will reduce the likelihood of anything actually occurring. In addition to protecting residents and their property, officials also noted that being proactive in hazard mitigation makes sense financially.

"This comes from a pre-disaster mitigation grant," said Mike Slater with FEMA External Affairs. "That looks at projects that might not yet be affected by a disaster, but where some investment and work could help to prevent what could become a larger disaster. For every dollar of pre-disaster mitigation that gets spent, it saves an average of \$6 in disaster recovery costs. It's definitely money well spent." Construction on the project will begin later this year and is scheduled to be completed sometime in 2022, though Boand said it could take until 2023. Breckenridge will lower water levels in the reservoir during construction seasons to facilitate the work. Boand also praised Breckenridge officials and staff for their work getting the project in motion, and he said he'd point to their efforts as a paradigm for the state's other dam and reservoir partners in the future. "The town has shown a great capacity for planning and engineering," Boand said. "They've been great partners because they have done all the engineering work to move this project forward along with the environmental compliance work needed for FEMA review. I really commend Breckenridge for their foresight. ... We're going to use them as a model project to help other dam and reservoir owners succeed."

(Fixin' stuff in case you get the big one.)

State of the Infrastructure A Joint Report by the Bureau of Reclamation and the U.S. Army Corps of Engineers

Full report here:

https://www.usbr.gov/infrastructure/docs/joint_infrastructurereport.pdf

The U.S. Army Corps of Engineers (Army Corps) and the Bureau of Reclamation (Reclamation) collaborated on a critical infrastructure project to construct the Folsom Dam auxiliary spillway, also known as the Joint Federal Project. Reclamation and the Army Corps, along with other cooperating agencies, formed an unprecedented partnership to address dam safety issues associated with extreme floods and to provide enhanced flood risk reduction for the Sacramento area – one of the most at-risk communities in the Nation. The auxiliary spillway was constructed adjacent to Folsom's main concrete dam, 23 miles northeast of Sacramento. It includes a 1,100-foot-long approach channel beginning in Folsom Reservoir, a concrete control structure with six bulkheads and six radial gates, a 3,100-foot-long auxiliary spillway chute, and a stilling basin that acts as an energy dissipation structure as water discharges and enters the American River. With the ability to operate the new spillway, large



floods can be better managed by safely releasing more water from Folsom Reservoir earlier in a storm through both the spillway gates on Folsom Dam and the new control structure's radial gates, thereby reducing hydrologic risk and leaving more storage capacity in the reservoir

(There's more than one way to do anything.)

Maybe the old Lake Wohlford Dam isn't so bad after all?

Lake Wohlford just east of Escondido. In 2007 the water level at Lake Wohlford was lowered when the top part of the dam was deemed by state inspectors to be unsafe in the event of a major earthquake.

By J. HARRY JONES, FEB. 4, 2020, sandiegouniontribune.com

Plans to replace the Lake Wohlford dam are now on hold as Escondido investigates other, less expensive options because the projected cost of the project has escalated to more than \$50 million. It was nearly 13 years ago when state inspectors determined that the top quarter of the dam might liquefy in the event of a major earthquake and potentially flood eastern Escondido. Right away, Escondido utility workers lowered the water level of the lake so that only the bottom three-quarters of the dam would be needed to hold back water. The amount of water stored in the lake was reduced by about half. The original dam was constructed with earth and rock in 1895 as part of Escondido's local water system. In 1925, the dam was raised to its current height using a slurry process. But during a routine inspection in 2007, state officials determined the newer section of the dam could fail in the event of an earthquake with a magnitude greater than 7.5.



Five years later, the city began the design process for a new dam which, once built just downstream from the existing dam, would allow restoration of the lake to its pre-2007 capacity of 6,200 acre-feet. The advantages of having additional storage space is twofold, officials say. The larger the reservoir, the better because it provides an emergency water supply during times of drought. Also, the more local water stored in the lake means customer savings because less water would have to be purchased from outside sources. Original cost estimates of the project hovered around \$30 million but it took five more years as the designs were reviewed by state, federal and dam experts. By that point, the cost of the project had gone up to more than \$50 million. Adding insult to injury, federal and state wildlife agencies also got involved and said millions dollars more would be needed to protect wildlife that was now living in areas around the lake that dried up when the water levels were lowered. As of December, the city has so far spent more than \$4.5 million on a consulting agreement with Black and Veatch, an international engineering firm, to design the new dam. On Dec. 18, the City Council upped that figure by another \$362,530 to have the firm now explore alternatives for a more cost-effective and safe solution to the problem.

Rather than build a new dam, the study will examine ways to address dam safety by rehabilitating the existing dam, which means the lake will never contain as much water as it once did, Escondido Director of Utilities Chris McKinney told the council in December. He said \$15 million in state grant loans earmarked for the replacement project can be used for a rehabilitation project, as well, but an extension of the availability of that money needs to be secured. "The cost of the replacement dam is, in the opinion of city staff, more than the Water Fund can reasonably bear given other critical capital improvement plan commitments," McKinney wrote in a report to the council. "...The proposed work will examine options that will allow for continued operation of Wohlford Dam as it has been operated for the last decade."

On Friday, McKinney said the cost of replacing the dam could easily increase even further as construction gets underway. He said it's common during dam construction to run into problems

with the bedrock that can add tens of millions of dollars to building costs. McKinney said the optimal solution, if cost was no factor, would be to restore the lake to its original capacity. But rehabilitating the existing dam “at the current operating level may provide a pathway to retaining storage that allows for continued use as a local water reservoir and recreational asset, but at a reasonable cost.” The results of the latest study should be known by April, McKinney said, at which time he will come back to the council to see how they want to proceed.



Hydro:

(A bit of history.)

Mining City History: Butte's Hebgen had electricity in his blood

By RICHARD I. GIBSON, The Montana Standard, Jan 20, 2020, mtstandard.com

When Hebgen Dam was completed in 1915, the reservoir it created on the Madison River just west of Yellowstone Park was the seventh largest in the world. The dam, the lake, and the 1959 earthquake that the dam survived all recall Max Hebgen of Butte. Maximillian Hebgen was born in Wisconsin in 1869 and came to Butte in 1889. Electricity seem to have always been in his blood, and he rose from a lineman to become the General Manager and Vice President of the Montana Power Company, a post he held when he died of pneumonia and heart disease in 1915 at age 45. He didn't live to see the completion of the Hebgen Dam. Even as a teenager in Pittsburgh, Pa., Hebgen worked for

Westinghouse Electric. In Butte, 22-year-old Hebgen worked for and partnered with W.A. Clark, Patrick Largey, and Harry D'Acheul in the Butte Electric Light & Power Company in 1891, when he lived at the Lizzie Block at the northwest corner of Park and Main Streets. That company evolved into the Butte General Electric Company. In 1898 Hebgen was

involved in the construction of the power plant and pump house on the Big Hole River that supplied Butte with both electricity and water. All told, Hebgen was instrumental in the development of at least 15 hydroelectric projects in western Montana from 1898 to 1915, including those at Canyon Ferry and Hauser Lakes. By 1910, Hebgen was General Superintendent of both the Butte Electric & Power Company and the Great Falls Power Company. He designed the electric transmission line from the Rainbow Falls Dam at Great Falls to Butte. The towers and insulators of the 1910 Rainbow Transmission Line, which crosses part of the Helena Valley and Elk Park, are still in use 119 years after their installation. Historian Jon Axline said this may be the oldest transmission line still in use in the United States. The electricity generated in Great Falls powered not only the smelters and mining operations in Great Falls, Butte, and Anaconda, it also provided the power for the Milwaukee Road, BA&P railroad, and the electric trolleys of Butte.

The transmission line was the second of its type in the United States; the first carried power from Niagara Falls. It cost about \$270,000 at the time, which Jon Axline calculates is more than \$7,000,000 today. Electricity on the Rainbow Transmission Line first came into Butte and Anaconda in the summer of 1910. Butte Electric & Power Co. combined in 1912 with three other regional electric companies to form the Montana Power Company. Hebgen was with Montana Power until he died in Wisconsin, where he was seeking treatment in 1915. In Butte he lived in various boarding houses, at 209 North Idaho, 14 West Quartz, and 304 North Main. After he



Max Hebgen circa 1900

married Carabel Lucas in 1902 and they had a son in 1904, they lived in a large flat at 500 West Broadway, a house that is still standing.

(Maybe Congress isn't asleep at the switch.)

House Energy and Commerce Committee's Draft "CLEAN Future Act" Includes Hydropower Provisions

Troutman Sanders LLP, by Elizabeth J. McCormick and Chuck Sensiba, Jan 29, 2020, lexology.com

On Tuesday, January 28, Democratic leadership from the House Energy and Commerce Committee, and Environment and Climate Change and Energy Subcommittees released legislative text of the draft "Climate Leadership and Environmental Action for our Nation's ("CLEAN") Future Act, which aims for the United States to achieve a "100 percent clean economy" no later than 2050. Among other things, the draft legislative text—which exceeds 600 pages—includes a number of provisions pertaining to hydropower. These include:

- The reauthorization of sections 242 and 243 of the Energy Policy Act of 2005 ("EPAAct 2005") to provide incentives for owners and operators of hydroelectric projects to make production and efficiency improvements between 2021 and 2036 and to expand eligibility for the program to hydropower facilities at existing dams or conduits with generating capacities of 10 megawatts or less;
- The amendment of the definition of "renewable energy" in section 203 of EPAAct 2005 to include all hydropower production;
- The addition of a new Federal Power Act ("FPA") section to improve the hydropower licensing process through a negotiated rulemaking between FERC, the Secretaries of Agriculture and the Interior, and the Administrator of the National Oceanic and Atmospheric Administration, to develop a process to coordinate all necessary federal authorizations and allow FERC to make a final licensing decision no later than three years after receiving a completed application;
- The provision of delegated authority to Native American Tribes to exercise mandatory conditioning authority under section 4(e) of the FPA to certain hydropower licenses and the requirement for FERC and the Secretary of the Interior to issue guidance on best practices for engagement with Tribes during the licensing process;
- The inclusion of greenhouse gas emissions reductions attributable to a resources;
- An amendment to section 111(d) of the Public Utility Regulatory Policies Act of 1978 to include a provision requiring states to consider energy storage systems as part of their supply-side resource planning; and
- The potential for hydropower resources to be integrated into a hybrid microgrid system.

The Energy and Commerce Committee states that it is soliciting recommendations and feedback from all stakeholders as it works continue to expand and refine the CLEAN Act through hearings and stakeholder meetings throughout 2020. A section-by-section summary of the draft is available here and the draft legislative text is available here. The draft comes on the heels of a spending bill signed by the President in December that extended the production tax credit (PTC) and investment tax credit (ITC) for certain hydroelectric facilities both retroactively for 2018 and 2019 and prospectively through 2020 at current levels for projects that commence construction by the end of 2020. The spending bill is available here.

(Gotta fix it. A learning experience.)

Potsdam East Dam teams meet Thursday for renovation kick-off

By W.T. ECKERT, nny360.com, Jan 29, 2020

POTSDAM, NY — Village officials Thursday are meeting with members of the New York Power Authority and design and construction firms to kick off the East Dam Hydro-Renovation Project with pre-construction plans. The Village Board during its Jan. 20 meeting approved a \$2.9 million contract with the Wisconsin-based Eaton Corp. as part of the \$4 million renovation of the East Power Dam. The overall project cost is roughly \$4 million with a payment plan that will span 180

months. Eaton Corp. is expected to begin work on the dam within a month and is expected to conclude work by July, when the grant money sunsets.

Thursday's meeting will include the design team from Hatch Associates Consulting Inc., NYPA, and representatives of Eaton Corp., Hydrotech, and Bancroft Construction. Village Planning and Development Director Frederick J. Hanss said the morning of the meeting will involve a tour of the plant for the crew to get another view of the site, take photos and interview hydroelectric plant operators.



The afternoon will entail a pre-construction conference, reviewing the logistics of the project. "Where will they be able to set up job trailers? What's going to be the schedule for inspection? How frequently will we have job meetings? How will we handle requisitions for payment during construction? Those kinds of nuts-and-bolts issues," Mr. Hanss said. "Once that happens, then I think we'll be in a position to sign the final construction contracts and issue the notice to proceed and they can begin the project." That should be within a week or two, he said, including bringing a crane through the village and down Raymond Street to pull the turbines out, something the village has done before, Mr. Hanss said. "It's in a confined space and the roof at the hydroplant is actually a giant bilco door, so we can open it up, bring a crane in and take the turbines and generators out for renovation," Mr. Hanss said. "That's something you only really want to do once. It's very expensive and you want to make sure you get it right, so there may be a little bit of an interruption in traffic flow. We'll know a little bit more on Thursday about the size of the crane and how long it will be here."

(A new hydro actor.)

Hull Street Energy Acquires Thirty One Hydroelectric Plants From EGPNA Renewable Energy Partners

By Matthew Willis, streetinsider.com, Jan 31, 2020

BETHESDA, Md., Jan. 31, 2020 /PRNewswire/ -- Hull Street Energy has signed an agreement to acquire thirty-one hydroelectric facilities with 255 MW of capacity from EGPNA Renewable Energy Partners (EGPNA REP), a joint venture between Enel Green Power North America and GE Energy Financial Services. The transaction will close in two phases. The first phase, which closed this week, includes thirty hydro projects totaling 175 MW. The second phase, which includes the remaining 80 MW of capacity, is expected to close during the first quarter of 2020, pending regulatory approval. The plants supply reliable, low-carbon energy to regional electricity customers in Vermont, Washington, Massachusetts, New York, Virginia, South Carolina, Idaho, California, North Carolina, West Virginia and Pennsylvania.

Hull Street Energy affiliates own fifty-one power generation stations providing more than 815 MW of renewable, gas-fired, and dual-fueled generation capacity to support grid operations throughout the United States. BNP Paribas Securities Corp. served as sole placement agent and ancillary facility provider on a private placement financing for the transaction, and Baker Botts LLP acted as legal counsel to Hull Street Energy. Hull Street Energy is a private equity firm that specializes in deploying capital into the power sector as it transitions to a more sustainable future. Headquartered in Bethesda, Maryland, the team leverages its decades of experience and unique knowledge of North American electricity infrastructure, fundamentals and grid operations, including fuel inputs, commodity contract structuring, renewable and fossil powered generation assets, energy storage, transmission and distribution systems, and electricity demand-side businesses to build value for stakeholders. For further information about Hull Street Energy please see www.hullstreetenergy.com.

(Wants a new decision.)

Voith Hydro, Inc.--Costs--Reconsideration

B-416243.5: Jan 31, 2020, gao.gov

Office of Public Affairs

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youngc1@gao.gov



Voith Hydro, Inc. (Voith), of York, Pennsylvania, requests that our Office reconsider our decision in Voith Hydro, Inc.--Costs, B-416243.4, Jul. 30, 2019, 2019 CPD ¶ 272, in which we recommended that Voith be partially reimbursed for its claimed costs in filing and pursuing its protest challenging request for proposals No. W912EF-17-R-0004, issued by the Department of the Army, Corps of Engineers (Corps), for the design, supply, and installation of turbines in several hydroelectric generator units at the McNary Lock and Dam Powerhouse located near Umatilla, Oregon. Voith argues that our decision erred by denying its request related to certain protest costs, as well as denying the protester's costs for filing a request for reimbursement of protest costs. **We grant the request for reconsideration.**



Environment

(A plea for the orcas.)

Saving The Orcas Of Puget Sound

By Sam Heller February 4, 2020, emagazine.com

In the Puget Sound, a once healthy population of orcas is currently facing extinction. **Though nearly 100 of these whales lived in the region during the mid-1990s, this number has fallen to just 73.** If the downward trend continues for much longer, their survival into the future will cease to be possible. Orca whales in the San Juans are often hounded by whale watching cruises which venture too close.



There are several reasons for this sharp decline. One is boat noise. Since orcas use echolocation to detect their prey, any excess sound traveling through the water inhibits their hunting ability. Unfortunately, the amount of excess sound they have to deal with has become very high. In addition to the growing amount of private boat traffic present in the Sound, commercial whale watching boats frequently track and follow the orcas. **Unfortunately, whale watching activity is highest in the summer, which is also the period during which salmon are at their peak levels in the Sound.**

Another huge threat is pollution. Since orcas are at the top of the food chain, they quickly accumulate toxins that are present in their environment. This issue has become massive. Sadly, it is now possible to identify the region dead orca spent most of its time in, simply by determining what types of toxins are present in its body. **The biggest problem for these whales though, is the lack of available food.** Local chinook salmon populations (the orcas' primary prey) are a fraction of what they used to be. This dearth has largely been a product of overfishing, and the damming of spawning rivers. While government restrictions can easily reduce fishing activity, the latter of these two issues is very difficult to address.

The dams causing most of the controversy are located on the Snake river. The fact that they add value to the lives of many is indisputable. In addition to generating hydroelectricity, these dams facilitate the movement of boats carrying cargo. Unfortunately however, they also impede salmon as they attempt to swim up and down the river. Though fish ladders are installed in an effort to help the salmon make their journey, these technologies are only partially effective. They help, but are not entirely effective at ferrying all the salmon that attempt to make the long swim upriver. The lack of food caused by the dams and overfishing is wreaking havoc on the orcas' health. Most of their pregnancies now end in miscarriage, and several members of the pods have died quite recently. One of these was a young calf, whose mother spent 17 days pushing her lifeless body to the surface before finally letting her go. Another was a juvenile whale who scientists attempted to help with dart-delivered medicine. These efforts ultimately proved in vain.

Part of the issue is believed to stem from the fact that orcas are now metabolizing excessive amounts of their fat, due to the lack of immediately available calories. This fat contains the toxins that have worked their way up the food chain. Once metabolized, these toxins leach into the whales' bloodstreams. This phenomenon, coupled with the other issues associated with caloric restriction, are stripping the whales of their energy and immunity. It is generally agreed that removing the dams would be the best way of providing the orcas with a chance of survival. One study predicted that the salmon population in the Snake river would increase two to three fold if the removal of four dams took place. Bolstering the case for removal is the fact that freight volume on the river has declined by over 50%, and container shipments have fallen to zero. These declines have largely resulted from the fact that grain and other products originating from the region are increasingly being transported by rail and trucks. Dam removal is also starting to make sense from an energetic perspective, as the Northwest region increasingly derives its energy from renewables such as wind and solar.

If you would like to help the orcas of Puget Sound, there are many ways in which you can do so. Those living in the Northwest region can help by capturing rainwater off their roofs, and thereby preventing it from picking up pollution on the streets and flowing into the ocean. Another good measure is taking cars to car washes instead of washing them by hand. This helps because the law requires car washes to capture and filter the waste water they produce before releasing it back into the environment. Minimizing the use of lawn care products is another good measure. If you'd like to see the dams come down, you can write to elected officials. In particular, consider writing a letter to Washington's governor and or senators, Jay Inslee, and Patty Murray and Maria Cantwell, respectively. If you'd rather not write a whole letter, a fast and easy way of showing your support for the removal of the dams is by signing this petition. Finally, if you would like to see these orcas in person, please watch them from the shore. Though the challenge is large, we still have time to save these beautiful creatures from extinction. By raising public awareness and practicing activism, we can give the orcas a fighting chance to survive into the future, and continue to grace the Northwest with their mystical presence.



Other Stuff:

(Renewables moving up the supply chain.)

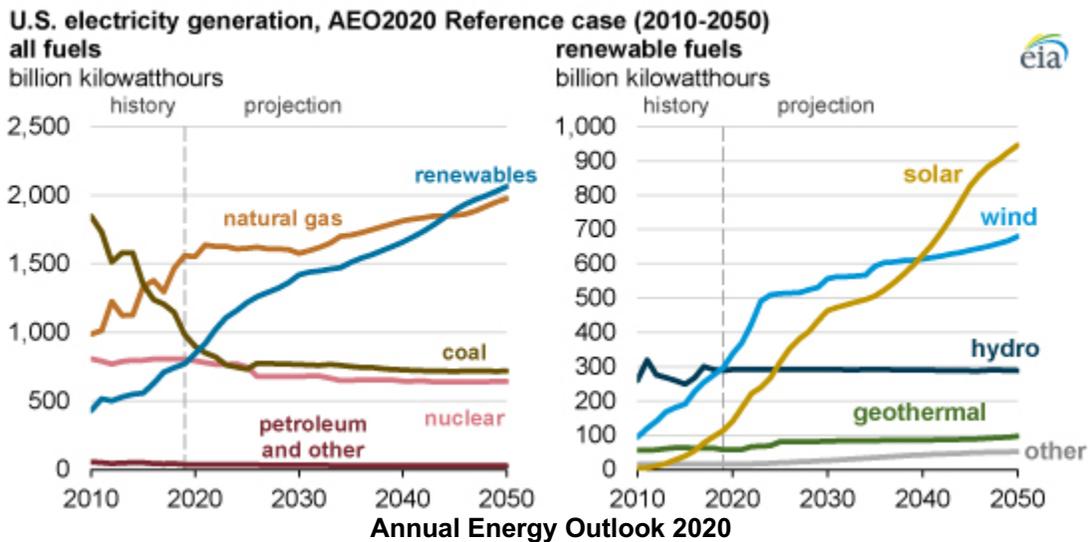
EIA predicts future renewables increase

By Sarah Smith, Digital Editorial Assistant, 31 January 2020, energyglobal.com

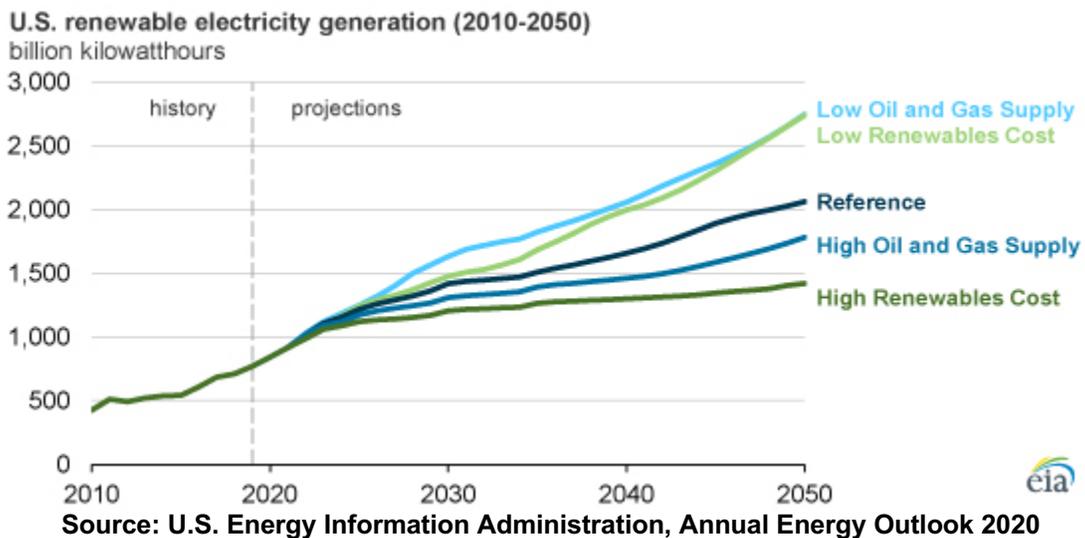
The US Energy Information Administration (EIA) projects electricity generation from renewable sources such as wind and solar will surpass nuclear and coal by 2021 and to surpass natural gas in 2045. In their 'Annual Energy Outlook 2020' (AEO2020 Reference case), the EIA states that the share of renewables in the US electricity generation mix will increase from 19% in 2019 to 38% in 2050. Most of the growth in renewable electricity generation is attributed to wind and

solar, which accounts for about half of renewable generation today. In EIA's AEO2020 Reference case, these technologies account for nearly 80% of the renewable total in 2050. New wind capacity additions will continue at much lower levels after production tax credits expire in the early 2020s.

In AEO2020, EIA predicts that the growth in solar photovoltaic (PV) capacity will continue throughout 2050 for both utility-scale and small-scale applications because of declining PV costs throughout the projection period. Conventional hydroelectric generation remains relatively unchanged in absolute terms and becomes a smaller portion of the generation mix as other sources of electricity generation increase.



Alternative scenarios in AEO2020 examine the sensitivity of results to changes in the costs of renewables and the availability of oil and natural gas resources. Even in the High Oil and Gas Supply (where natural gas prices remain lower than in the Reference case) and High Renewables Cost cases, renewable generation nearly doubles from current levels by 2050. The High and Low Renewables Cost cases evaluate the effects of changing cost assumptions for constructing and operating renewable energy power plants. In all AEO2020 scenarios, experience-based factors (such as learning-by-doing) contribute to lower capital costs over time.



For the Low Renewables Cost case, EIA assumed learning rates for renewable technologies that result in overnight capital costs will be 40% lower than the Reference case assumptions for each renewable technology (including those in the end-use sectors, such as small-scale solar PV) by 2050. For the High Renewables Cost case, EIA assumed the overnight capital cost for all renewable technologies are held constant at the 2019 level throughout 2050. **Renewable generation grows in all regions of the US in all AEO2020 scenarios**, but the preferred technology type depends on the availability of renewable energy resources. Wind-powered generation grows the most in the West and Mid-Continent regions, and solar-powered generation grows the most in the Southeast. Offshore wind is only built off the coast of the Northeast and the PJM Interconnection. **The full EIA report can be accessed here:** <https://www.eia.gov/outlooks/aeo/>

(This letter is a little tongue, and a bit funny, but good questions, nevertheless.)

LETTER: Where will our electricity come from in the future?

ricentral.com, 2/1/2020

To the Editor:



Is anyone else incredulous that a seventeen year-old school dropout from Sweden who has been diagnosed with Asperger's syndrome is allowed to scold world and business leaders at the United Nations in New York and the G8 Summit in Switzerland about "climate change"? Asperger's is a developmental disorder characterized by significant difficulties in social interaction and nonverbal communication, along with restricted and repetitive patterns of behavior and interests. **Nevertheless, thanks to social**

media and the gullibility of the millennial generation and elementary and high school students, Greta Thunberg is a celebrity

Those of us old fossils remember there were dire predictions before of impending environmental disaster. In 1968 a book titled "The Population Bomb" by doomsayer Paul Ehrlich and his wife was a best seller. They predicted worldwide famine in the 1970s and 1980s due to the Earth's population, growing by 95 million people a year, thereby rapidly depleting the planet's resources, resulting in famine, global warming, acid rain, and other major problems. On June 29, 1989 a United Nations "senior environmental expert", Peter James Spielman, predicted "entire nations could be wiped off the face of the Earth by rising sea levels if the global warming trend is not reversed by the year 2000". **Now the name of the tune has changed to "climate change" but the lyrics are pretty much the same.** We who choose not to dance to the music are called "deniers" of "scientific fact". The only fact is that computer models are not science; they are mathematical exercises. But, isn't it scientific consensus that climate change is real and those who chose to ignore it are "flat-earthers"? **Ironically, at one time the scientific consensus was that the Earth was indeed flat. It was also "fact" that the universe revolved around planet Earth.** Until, that is, Polish mathematician Nicolaus Copernicus dared to suggest that our planet revolved around the sun. The Church banned his book in 1616 because he dared challenge "scientific fact".

Here in Rhode Island Governor Raimondo in her annual state of the state address said that she would issue an executive order requiring 100% of electric power be supplied by "renewable sources" by 2030. I suppose she means wind and solar. Hydroelectric is apparently off the table because it may harm fish. She wants to eliminate fossil fuel energy by decree. **Of course, Raimondo did not address how those of us who rely on natural gas or number 2 heating oil are supposed to heat or homes and cook our food.** Is she going to ban wood stoves and fireplaces, too? How are all those neat, environmentally friendly electric cars and trucks to be powered when all the fossil-fueled and nuclear energy plants are shut down? **I guess the governor's plan is to dot the state's landscape with giant windmills and acre upon acre of solar panels.** Land which would be needed to reach her goal of "more affordable housing" I am waiting to find out where our electricity is coming from **when "the sun don't shine and the wind don't blow".** *Richard J. August. North Kingstown, R.I.*



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