Some Dam – Hydro News

And Other Stuff

Quote of Note: “Don’t be careful. You could hurt yourself.” - Byron Katie

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“Good wine is a necessity of life.” - -Thomas Jefferson
Ron’s wine pick of the week: 2015 Chateau Ste Michelle Cabernet Sauvignon "50th Anniversary"
“No nation was ever drunk when wine was cheap.” - - Thomas Jefferson

Dams:
(Cost is getting ridiculous. $1.1 Billion is a big number, that’s 4 times the original cost estimate.)

Oroville Dam repair costs surpass $1 billion
By Mindy Schack, September 5th 2018, krcrtv.com

OROVILLE, Calif. — As work on the Oroville spillways continues in order to meet the November 1, 2018 public safety construction milestone to fully reconstruct the main spillway, Department of Water Resources has released a substantial update to cost estimates. The DWR now estimates it will cost $1.1 billion to reconstruct the main and emergency spillways. Cost estimates are based on actual and projected work and research.
could change as the work continues throughout 2019. To date, FEMA has approved reimbursement of $87.4 million of the $116.5 million submitted by DWR. The DWR says it will continue to submit expenditures to FEMA for reimbursement.

Cost Breakdown
The current estimated cost of the Oroville Spillways Emergency Recovery Project through 2019 is $940 million, with major components including:

- $630 million for main and emergency spillways work through the contract with Kiewit Infrastructure West. The updated estimate reflects additional excavation on the emergency spillway hillside to reach competent rock, additional material for construction of the splashpad, and additional crews and equipment necessary to meet the November 1 public safety construction milestone.
- $310 million for related recovery work including debris and sediment removal, powerline replacement, permitting and development of access roads, DWR staff time, technical consultants and inter-agency support.

The updated estimate reflects additional staff time, technical consultants and inter-agency support to meet the November 1 public safety construction milestone, and an estimate for site restoration that will occur after construction of the spillways is complete.

DWR awarded an initial $275 million contract in April 2017 to Kiewit to immediately plan and mobilize crews and equipment to begin construction in May 2017. This budget allowed Kiewit to begin necessary work while the project design was completed, and was not an estimate of the total project cost. Final plans for the main spillway were completed in July 2017 and final design plans for the emergency spillway were completed and approved in August 2018. As with any project of considerable magnitude, cost estimates are affected by conditions onsite and direction from regulatory bodies throughout design and construction.

(Don’t remove those dams.)

Tri-City economy would crumble without Snake River dams
BY CARL ADRIAN AND DAVID REEPLOEG, Tri-City Development Councilman, September 05, 2018, tri-cityherald.com

You may have noticed a series of guest opinions over the last few weeks written by Tri-City community leaders highlighting the importance of our working river system. This letter is to add TRIDEC’s voice to the chorus of messages from utility managers, the agricultural industry, tourism and conservation officials. Although these organizations have different interests, we are all united on one key issue: the importance of the four lower Snake River dams. TRIDEC’s focus is on economic development for the Tri-City region, and as such it is clear to us that the dams are a vital component to the continued growth and development of our community. They provide affordable carbon-free electricity that powers our industry, irrigation that turns the desert into an agricultural oasis, and navigation that allows millions of tons of agricultural commodities and other products to be shipped on our rivers every year. All of this sounds great, but what does it really mean?

The four lower Snake River Dams generate over 1,000 average megawatts of energy every year, enough to power more than 800,000 homes. The affordable and carbon-free nature of this energy...
is particularly important because it allows us to recruit and retain companies which provide family wage jobs to thousands of people throughout our region. TRIDEC and our partners are also very excited about leveraging the capabilities of the Pacific Northwest National Laboratory (PNNL) and local businesses to grow the Tri-Cities’ presence as the ‘Energy Hub of the Pacific Northwest’. We hope to bring new jobs in energy research and development, manufacturing, and generation to the Tri-Cities in the very near future.

In order for substantial new renewable energy generation to work on our electric grid, however, we simply must have the baseload power that the dams provide when the sun isn’t shining, or the wind isn’t blowing. Our region is also blessed with thriving agricultural, food processing and wine industries. These industries are the backbone of our region’s economy and are responsible for nearly 15,000 jobs in the Tri-City area alone. Our community wouldn’t have any of these industries without irrigation, and the four lower Snake River Dams provide water to over 60,000 acres of farmland in Central and Southeastern Washington. Another important benefit the dams provide is the ability to efficiently move tremendous volumes of cargo by barge rather than on our roads and railways. In 2014 alone, over 4.4 million tons of cargo passed through the Snake River Dams. It would take nearly 175,000 trucks (over 475 per day) to move that amount of freight, and most of them would likely travel through the Tri-City area on their way to the ports. Imagine the impact to our community if we had that many additional trucks on our roads.

In summary, the four lower Snake River dams represent a major investment that our country made decades ago. One that is still paying tremendous dividends today. The Tri-Cities simply wouldn’t be the dynamic, economically diversified, and growing community it is without them. We hope you will join us at RiverFest on Saturday, Sept. 8th, beginning at 11 a.m. in Kennewick’s Columbia Park. It will be a family-friendly event with lots of fun activities for kids, and where we can celebrate our hydropower system, our rivers, and our way of life. Carl Adrian is president and CEO of TRIDEC and David Reeploeg is vice-president for federal programs.

(There are those that still want the dams removed.)

Event calls for removal of the Lower Snake River dams

Nez Perce tribe, environmental activists hold fourth annual Free the Snake Flotilla protest

By IAN SMAY, Evergreen reporter, September 6, 2018, dailyevergreen.com

Environmental activists hope to raise support for the removal of dams on the Lower Snake River at the fourth annual Free the Snake Flotilla that will take place this Friday and Saturday at Chief Timothy Park in Clarkston. The two-day event brings together environmental activists and members of the public to raise awareness of decreasing wild salmon population and threats of extinction to various salmon species, said Jacob Schmidt, event organizer and outreach coordinator with Save Our Wild Salmon, one of the group’s in charge of the event. “The eventual goal is to have the Lower Snake River dams removed,” Schmidt said. “That’s going to take a lot of political will in that direction.” Schmidt also said they expect anywhere between 600 to 1,000 people to attend this year’s flotilla. The event website lists last year’s attendance as “over 400 people.” This year, the organizers hope to attract more people by hosting renowned environmental activists such as Winona LaDuke and musician Nahko among others, according to a press release.

The festivities begin on Friday at 4 p.m. with a welcoming ceremony, musical performance and guest speakers, according to the event’s website. Schmidt said attendees are asked to arrive an hour or two early on Saturday for the 10 a.m. boat launch. “It’s a pretty diverse group age-wise,” he said. “There’s a solid group of the folks that are really active in the salmon conservation world. Then there’s also new faces every year.” The event will not provide any boats or kayaks for
people to paddle, but Schmidt said attendees usually bring large boats with extra seats for those who cannot afford or transport their own equipment. Members of local Native American tribes will paddle down from the Clearwater River to meet people at the event, Schmidt said. The in-water portion of the weekend will end at 2 p.m., according to the website. After dispersing for a lunch break, the event will pick back up at 4 p.m. to hear LaDuke speak, followed by a performance by Nahko at 5 p.m., according to the website. Schmidt said anyone is invited to camp over the weekend at the park, and the website states there are more than 60 campsites available on a first come first serve basis. Those camping will be charged $10 per tent and $20 per RV in order to cover park reservation costs. Various groups, including the Sierra Club, Patagonia, Save Our Wild Salmon and Friends of the Clearwater are sponsoring the event, according to the website. Two counter protests are planned, one in the Tri-Cities and one in downtown Lewiston, Idaho, Schmidt said. This is not the first year there have been counter-demonstrations, but he said they have always remained civil. “I’m fairly certain [the counter protests] will be separate,” Schmidt said. “It’s all been pretty civil in the past.”

(A dam removal.)

Maryland dam to be removed after more than a century
By The Associated Press, September 5, 2018, wtop.com

BALTIMORE, MD (AP) — A Maryland dam that blocked wildlife habitats and created unsafe swimming conditions for more than a century will be removed. News outlets reported Wednesday that an initial blast of explosives will be used to breach the Bloede Dam. Planning for its removal began in 2011, but Patapsco River advocates have been pushing for it since as early as 2006. The former hydroelectric station that straddles Baltimore and Howard counties was on the cutting edge of electricity production when it open in 1907. But its technology became obsolete and it went out of service. It has become a public safety hazard, with at least nine people dying there in recent decades. Ecologists hope its removal will open miles of the river and its tributaries for species to escape predators and find more food sources.

(Who do you believe? The Klamath River battle.)

Letter to the Editor: Dam myths
By John Jaques / Hornbrook, Sep 7, 2018, siskiyoudaily.com

Several recent Letters to the Editor written by anti dam removal proponents have again raised several myths associated with dam removal.

Several recent Letters to the Editor written by anti-dam removal proponents have again raised several myths associated with dam removal. While changing the minds of ardent anti-dam removal supporters is probably not going to happen, it is important facts be considered when looking at dam removal, rather than unsupported myths and non-science, non-professional opinions.

Myth 1: “Removing the dams will not help salmon and steelhead populations recover since historically no salmon existed above the dams anyway.” This is a 100 percent false claim with no academic, field study or creditable historical record supporting facts or studies to back it. Folks truly interested in the documented history of salmon populations well above the Iron Gate, Copco and J.C. Boyle dams should spend some time reading an excellent research article, with supported reference documents and photos, published by The Oregon Historical Society. The research paper, done by multiple authors from the U.S. Fish & Wildlife Office; USGS Western Fisheries Research Center; Oregon Department of Fish and Wildlife; and,
NOAA Fisheries West Coast Region, fully details the historic range of salmon in the Upper Klamath Basin. (Fun fact: salmon were first reported in the Klamath Falls area in 1846 by the western explorer John C. Fremont). The research paper can be accessed by doing a quick internet search: “The Persistence and Characteristics of Chinook Salmon Migrations to the Upper Klamath River Prior to Exclusion by Dams.”

**Myth 2:** “Removing the dams will greatly increase flooding in the rainy season and the river will dry to a trickle in the summer.” Again, if folks would just read the factual record, instead of making unsubstantiated and unprofessional opinions, this myth would not exist. None of the four dams to be removed were ever meant to be, have never been and do not help in any meaningful way with either flood control in the winter or maintaining minimum flows in the summer. These are simply hydroelectric dams, they are not flood/water control dams. The total river storage capacity behind the four dams is just 12,244 acre feet of water, and the reservoirs are essentially maintained at full pool at all times in order to provide electric generation. The river storage behind Link dam near Klamath Falls is 597,817 acre feet. All water releases down the Klamath River, during the rain season and the dry season, are controlled at Link Dam from Upper Klamath Lake. What flows out of Link dam/Upper Klamath Lake flows into the four lower dams, and the same amount of water flows out of the four dams. The 12,244 acre feet of water behind the four dams is constant, amounts to just 2 percent of the Klamath River storage (and even less than 2 percent when considering the 108,000 acre feet of storage that naturally occurs from overflow into the Klamath Flood Plain during the rainy season). The removal of the four dams will have no impact on rain season flooding or dry season river flows, as all river flows will still be controlled at Link dam.

Whether folks support or oppose dam removal, the reality is the dams are scheduled to be removed and the Klamath River from J.C. Boyle dam downstream is intended to be renewed. The key now is for Siskiyou County to make sure the removal is accomplished to the maximum benefit of the citizens of Siskiyou County.

(Dam safety in court.)

**Ventura County board disputes findings on dam safety, cites local inspections**

By Kathleen Wilson, Ventura County Star Published Sept. 12, 2018, vcstar.com

Matilija Dam, once capable of holding 7,000 acre-feet of water, is now mostly filled with sediment. Ventura County Watershed officials may have a new plan to remove the obsolete structure, if funding can be found for the $80 million project.

County supervisors are disputing some key findings in a Ventura County Grand Jury report on the safety of dams in the area, saying they “wholly disagreed” with a conclusion that no local monitoring is done. In its response approved Tuesday, the Ventura County Board of Supervisors said local inspections are conducted for all dams owned by the Ventura County Watershed Protection District before winter and during and after each storm. The district owns 56 dams, including Matilija Dam, a 71-year-old structure northwest of Ojai. That total probably constitutes most of the publicly owned dams in Ventura County, district Director Glenn Shephard said. Matilija Dam received a “poor” rating for seismic reasons in a state review of California dams that was spawned by the failure of the Oroville Dam spillway last year. District officials are seeking to remove Matilija Dam and have applied for a $2 million federal grant to help stabilize it in the meantime. Dams are also inspected if sizable earthquakes strike within a certain distance of the structures, Shephard said. Jurors also recommended the Ventura County Sheriff’s Office of Emergency Services track the progress of remedial actions taken at the Matilija Dam and three others that received “fair” ratings in the state evaluation: Santa Felicia Dam on
Lake Piru and Castaic and Bouquet Canyon dams in Los Angeles County. Progress reports should be made annually to the Board of Supervisors, jurors said.

Although the Castaic and Bouquet Canyon dams lie outside the county, a hazard map shows Ventura County areas would be subject to flooding if the structures failed. Supervisors, though, said the operators of the dams along with state and federal agencies bear the responsibility for monitoring progress of remedial actions. Supervisors did concur with a recommendation that they direct public works officials to provide technical assistance as appropriate to the Sheriff’s Office of Emergency Services. That is “already taking place,” the response said. Supervisors approved responses the grand jury asked of them as well as the watershed district. They reviewed a response from the emergency services office for information, but their approval was not required because Sheriff Geoff Dean is an elected official.

Dean agreed with a recommendation to distribute inundation maps and other information to help prepare residents for dam failures but said posting of warning signs and use of sirens would need to be studied. Under questioning from Supervisor Linda Parks, Assistant Emergency Services Director Kevin McGowan said information on inundation areas is available primarily on a county website. The information is shown at https://www.readyventuracounty.org/stay-informed.

Under questioning from Supervisor John Zaragoza, McGowan said warning signs similar to those for tsunami areas are not posted on land. But the information is available on the website, he said. The grand jury required separate responses from the United Water Conservation District, which owns the Santa Felicia Dam.

The district agreed to provide information to the county emergency services agency to track progress on Santa Felicia Dam if the agency takes on that responsibility. District officials disagreed partially with the finding that there was no apparent effort to educate the public on potential inundation areas, evacuation routes and what to do in case of a dam failure. While outreach efforts have been directed mainly toward governmental emergency management agencies, the district has also been working with the Piru Neighborhood Council, the Red Cross and local school districts, the response said. District officials agreed the signs and sirens would be useful during an emergency if cell towers were unavailable. Two warning sirens have been installed in Piru, the response said. But the district called for more review of how those methods would be used along with community training to boost effectiveness.

“From a practical perspective, it has been very difficult to generate and maintain interest in these activities,” the response said. “Once a disaster, such as Oroville, has passed, ‘normal life’ resumes.”

(Flood control works.)

Army: Dams, reservoirs kept flood damage from being much worse

By PATRICK VARINE | Sept. 12, 2018, triblive.com

According to an Army Corps of Engineers hydraulic engineer, the storm water collected in the Conemaugh Lake Dam in the past few days would have been enough to cover the entire City of Pittsburgh in five feet of water. Instead, the Corps’ recent operations at Conemaugh and the Loyalhanna Lake dams, east of Pittsburgh, cut down the crest of the Kiskiminetas River by 17 feet, preventing what would have been the second highest flood on record. Without the reservoirs, the Kiski’s crest would have risen five feet over flood stage to 30 feet instead of cresting at 13 feet, corps officials said.

The Kiski River as viewed from the Apollo Bridge looking south. Army Corps of Engineers reservoirs and dams helped keep the river’s crest 17 feet lower than it would have been otherwise.
At that level, the Vandergrift area would have realized its largest flood event since 1936, before the region’s system of federal flood risk management reservoirs were built. "Conemaugh saw the most dramatic spike, rising more than 65 feet in three days," said Charles Kottler, hydraulic engineer for the Pittsburgh District. The operation of the district’s 16 dams in the headwaters of the Upper Ohio River Basin also reduced the flood risk along other waterways as remnants of Tropical Storm Gordon dropped nearly five inches of rain in some areas over the weekend. “Our water management team and dam operators continue to work around the clock to manage our reservoirs,” said Col. Andrew Short, commander for the Pittsburgh District. “These storms can change course quickly or intensify unexpectedly so we’ll continue to monitor and adjust as the forecast develops and the potential for additional rainfall exists.” The district’s Youghiogheny Dam reduced the severity of flooding along the Youghiogheny River — which reached 16.3 feet — sparing communities such as Connellsville and Suterville an additional two feet of flood water. Reservoir operations of Berlin Lake, Mahoning River and Michael J. Kirwan Dam and Reservoir cut the crest by seven feet at Leavittsburg along the Mahoning River in eastern Ohio. Currently, the district is releasing water to create flood storage space in the dams to capture potential runoff from incoming storms. Corps officials cautioned residents that rivers will remain artificially elevated and fast as the district discharges from its dams.

Know what’s around you.

As Hurricane Florence aims at Southeast, states worry about dam failures
By Gregory Korte, USA TODAY, Sept. 13, 2018, usatoday.com

Dam safety officials in the Southeast are inspecting dams, reservoirs and levees as Hurricane Florence barrels toward the region in the hope of preventing a repeat of the widespread dam failures that have followed heavy rains in recent years. South Carolina officials have inspected 181 of the highest-risk dams and have alerted dam owners to put their emergency plans into action. In North Carolina, the state dam safety engineer recommended Tuesday that reservoir owners lower their water levels by a foot per day as the hurricane approaches. Both Carolinas – and Maryland – recalled dam inspectors from a five-day national conference in Seattle this week to prepare for the first major hurricane of the season. The storm could drop three feet of rain on the East Coast beginning this weekend. Along the shoreline, the biggest concerns are high winds and rising sea levels, which could cause dangerous storm surges in coastal areas.

But further inland – in the Midland and Piedmont regions – heavy rains could inundate streams and rivers and overwhelm the delicate system of dams that hold the water back. That’s what happened three years ago, when heavy rains caused 51 dams in South Carolina to fail, leading to
flash floods and contributing to the death toll of 19 people. The next year, Hurricane Matthew brought more than a foot of rain and 25 more dam failures.

While larger dam failures are more catastrophic, they’re also inspected and regulated more carefully. It’s the smaller, privately owned and unregulated dams are most likely to fail, and the Southeast has the highest percentage of privately owned dams in the country, according to a USA TODAY analysis of data from the U.S. Army Corps of Engineers.

Virginia and South Carolina lead the nation with 86 percent of dams under private ownership. Georgia ranks fourth at 84 percent, and North Carolina is seventh at 80 percent. Forty-nine states – all except Alabama – have agencies responsible for regulating and inspecting dams. But it's up to the dam owners to decide how to operate them, based on loosely coordinated emergency plans. "We are asking dam owners to look at their water levels and lower them accordingly – and to coordinate with other dam owners, especially downstream," said Tommy Crosby, a spokesman for the South Carolina Department of Health & Environmental Control. But those decisions are made on a case-by-case basis. Lake Hartwell, a man-made reservoir on the South Carolina-Georgia border, is holding water this week even though it's already above its normal level.

That's because a release now would saturate the ground for hundreds of miles, leaving areas more prone to flooding, said Billy Birdwell, spokesman for the U.S. Army Corps of Engineers Savannah District.

Many property owners don’t know they’re downstream from a high-risk dam, said Lori Spragens, executive director of the Association of State Dam Safety Officials. Only California requires that disclosure in real estate transactions. And communication between dam owners, inspectors and emergency management officials is often limited, she said. "So many people had no clue there was a dam that could affect them," Spragens said. "There really is a gap and a challenge that needs to be addressed. It’s never perfect.

(Getting ready for the hurricane.)

TRACKING FLORENCE: What is the status of South Carolina's dams as Florence approaches?

By Judi Gatson, Anchor, September 14th 2018, wistv.com

COLUMBIA, SC (WIS) - As Hurricane Florence approaches, we've received a lot of calls from our viewers with questions and concerns about how dams might hold up around South Carolina. Many dams suffered major damage during the historic flood in October 2015. Since then, DHEC tells us engineers and staff have been working diligently to assess the structure and integrity of dams around the state and help dam owners come up with a plan to make necessary repairs.

Once forecasts determined that Hurricane Florence could impact South Carolina, DHEC starting utilizing its CodeRED emergency notification tool to send pre-programmed voice calls, text messages, and e-mails to owners and operators of regulated dams in areas forecast to receive the heaviest precipitation and winds advising them to take necessary precautions, including evaluating water levels and coordinating lowering those levels with other dam owners downstream, to avoid flooding.

DHEC teams have also been mobilized to assess dams that face the biggest threat from the storm. They identified dams most at risk based on several factors, including:

- Location: Dams along the coast, in evacuation zones and along evacuation routes
- Dams that are in the process of being repaired
- Dams that have known problems

As Hurricane Florence approaches, we're receiving a lot of calls from our viewers with questions and concerns about how dams might hold up around the state. (Source: SC DHEC)
DHEC says now that the storm is moving in, the assessments are complete but the agency is continuing to encourage dam owners to take all necessary safety precautions. If dam failure appears imminent, DHEC is urging dam owners and operators to implement an Emergency Action Plan immediately and alert/call local emergency officials. You may find the officials for your county by clicking here. Concerns or damage can also be reported to DHEC Dam Safety Program staff 24-7 at 803-898-1939 or by emailing damsafety@dhec.sc.gov.

(The big guy getting ready.)

**Santee Cooper’s lakes and dams could pose a risk during Hurricane Florence**

*By Gregory Yee, postandcourier.com, Sep 14, 2018*

With Hurricane Florence bearing down on South Carolina, the state’s public electric and water utility is taking steps to lower water levels on two major lakes and get resources in place for repairs after the storm. Santee Cooper has been running as much water as possible through their hydroelectric generating systems in an effort to lower water levels on Lake Marion and Lake Moultrie, said Mollie Gore, a spokeswoman for the utility. Thus far, water levels have dropped by 3 inches on the lakes, Gore said. While that doesn’t sound like much, the lakes cover 160,000 acres on their surface, and that translates to more than 8 billion gallons of water released. If water levels start climbing too high, the utility will open up spillways to release more water downstream in order to avoid damage to their network of dams and dikes, Gore said. Santee Cooper also opens up its spillways as a normal part of hydroelectric generation anytime water levels climb too high. In the Midlands, South Carolina Electric & Gas announced it was lowering water levels on Lake Murray ahead of Florence’s impact.

The storm, meanwhile, is expected to bring significant rainfall, especially to inland areas of South Carolina. According to the National Weather Service’s Charleston office, rain in Moncks Corner, which sits on the south end of Lake Moultrie, could be as much as 6 inches. Areas farther north could see as much as 8 inches. Gore said Santee Cooper is prepared to respond as needed. “It’s something we’ll be monitoring proactively,” she said. And local officials are also working to ensure the public is safe and that first responders and rescue workers know how to respond to flooding. “We work very closely with (Santee Cooper),” said Hannah Moldenhauer, a Berkeley County spokeswoman. “We have an incident accident plan. We train for flooding with them regularly.” Once the storm passes, the utility will also be working to restore electrical power to areas under blackout conditions. Santee Cooper has additional personnel on hand in addition to utility workers who’ve come in from out of state to help with recovery efforts, Gore said. Specialized equipment to allow repairs in flooded areas has also been brought in and is standing by if needed.
**Hydro:**
(Fixin’ it so it can provide hydro for a long time into the future.)

**Bagnell Dam to receive over $50 million in upgrades**

Construction crews have poured the final yards of concrete and are completing finishing touches on Ameren Missouri’s $53 million reliability upgrade to the historic Bagnell Dam.

fox5krbk.com, September 4th 2018, by Assignment Desk

LAKE OZARK, Mo.— Construction crews have poured the final yards of concrete and are completing finishing touches on Ameren Missouri’s $53 million reliability upgrade to the historic Bagnell Dam, a major source of clean energy for the state. The project includes installation of a series of new anchors and concrete on the downstream side of the dam, which improves overall safety, efficiency and reliability of the 85-year-old structure. “For nearly a century, the Bagnell Dam has reliably powered homes and businesses across the region,” said Warren Witt, director of hydro operations at Ameren Missouri. “These upgrades ensure the dam will continue to be a top producer of clean, renewable energy for Missouri’s communities for the next 100 years.” The project is finishing ahead of schedule. Initial work began March 2017 and included the removal of timeworn concrete from the surface of the dam. Crews then installed 67 post-tensioned anchors, strengthening the connection to bedrock. More than 66 million pounds of new concrete was poured to further weigh down the dam. This is the first major structural update in more than 30 years and builds on Ameren’s expertise in enhancing dam safety.

“The work our engineers perform to enhance the structural integrity of the Bagnell Dam continues to be viewed as a best practice and has been implemented on dams across the globe,” said Witt. “Closer to home, we know these recent improvements help drive local economic development. For example, during the first 16 months of the project more than 220 construction jobs were created for the local trades and vendors to the Osage area, translating to an estimated $40 million impact on the area through additional spending.” Ameren Missouri hired Missouri-based MC Industrial, a McCarthy Holdings company, as the project’s on-site general contractor. Before starting the project, the construction plan was reviewed and certified by independent engineers as well as the federal government. Throughout the project, Ameren and MC Industrial worked closely to carefully plan the construction schedule and avoid major disruptions to local residents and tourists. “The Lake of the Ozarks is beloved by residents and tourists alike – and we wanted to be sure our project wouldn’t impede enjoyment of the lake or surrounding areas,” said Witt. “We are grateful to the Lake community and its visitors for their flexibility and patience as we complete this significant project to continue to ensure clean, reliable energy to our customers.” Bagnell Dam houses Ameren Missouri’s Osage Energy Center. In 2017 it produced more than 624,000 megawatt-hours of energy, supplying approximately 52,000 homes with renewable energy for the entire year.

(Sinkholes means something is wrong. Bad geology can bring down the best built projects.)

**Changes to sinkholes in EWEB’s Carmen reservoir raise concerns**

With federal regulators citing “significant dam safety concerns,” the utility has voluntarily drawn down the water body as it investigates the craters on the reservoir’s bottom

By Christian Hill, Sep 9, 2018, registerguard.com

The Eugene Water & Electric Board has voluntarily drawn down its Carmen Diversion Reservoir as a precaution after learning of changes to the sinkholes at the bottom of the artificial lake located more than 70 miles east of Springfield. In July, the utility reported to federal regulators that a survey that month using high-tech sonar found a new sinkhole and that three of 13
previously identified craters had gotten larger since the last study two years ago. EWEB officials said they are taking steps to try to learn more about what's causing the changes to the sinkholes, but they added there's no imminent sign of a breach of the dam that would cause the uncontrolled release of up to 85 million gallons of water down the McKenzie River. “Right now, based on the information we’ve gathered, we’re seeing no cause for concern,” said Mark Zinniker, the utility’s generation engineering supervisor. “Everything that we’re seeing is familiar from our past, and there are no immediate risks associated with it.”

The Federal Energy Regulatory Commission has indicated that the changes to the sinkholes could be a sign of a potential dam failure and that it has “significant dam safety concerns.” It has directed EWEB to take immediate steps to address the issue, including not allowing it to increase the reservoir’s water level without federal authorization. "The licensee (EWEB) is monitoring the sinkhole situation daily and providing updates to us daily," a FERC spokeswoman wrote in an email. "We have asked EWEB to develop a work plan for assessing the site conditions, complete site investigations, and design of any needed repairs concerning this situation and submit that to FERC" by late September. EWEB said it's scheduled a couple of investigations, including sending divers into the sinkholes, over the next two weeks to get to the bottom of what’s going on at Carmen reservoir.

Zinniker will make a presentation about the reservoir to EWEB commissioners during their annual upriver meeting at the McKenzie Fire & Rescue Training Center on Sept. 18. The Carmen reservoir is identified as a “low downstream hazard” because it's relatively small, shallow and isolated. The closest residents are the on-site EWEB employees who operate the Carmen-Smith Hydroelectric Project and live about six miles downstream from the water body. The upper McKenzie River is a popular destination for hikers, anglers and boaters. The reservoir plays a vital role for EWEB's largest power-generating facility. It basically captures the McKenzie River near its headwaters and diverts it into a long tunnel to the larger Smith Reservoir for the production of huge quantities of carbon-free electricity. Geologists identified the sinkholes when they were scouting the site for the reservoir, which was first filled in 1963, the year EWEB opened the hydroelectric project, Zinniker said. There are no sinkholes at the bottom of the Smith and Trail Bridge reservoirs, Zinniker said. Trail Bridge, the third water body that makes up the hydroelectric project, can hold eight times more water than Carmen, and Smith can hold 56 times more water than its smallest sibling. As a precaution during construction, crews dug out a deep layer of sand and gravel and built the earthen dam that contains Carmen reservoir atop a layer of silt that water can't easily permeate to reduce the risk of a sinkhole developing underneath, Zinniker said. But they didn’t take that measure when digging out and filling the reservoir. One theory Zinniker offered to explain the changes to the sinkholes is that the constant, massive load of the reservoir over the decades has allowed water to seep 40 feet deep through gravel, sand and silt into either porous rock or lava tubes etched in the bedrock during the area’s prehistoric volcanic activity.

EWEB is in the midst of a five-year, $116 million project to modernize the aging hydroelectric project. Crews shut down the project’s main powerhouse, fed by Smith Reservoir, so the Carmen reservoir was holding more water than usual while diverting it from the tunnel and spilling it in the McKenzie River’s historic channel. Zinniker said that may be a factor in the changes to the sinkholes. Early records didn’t specify the number and composition of the Carmen sinkholes, and it wasn’t until 2016 when high-tech sonar provided the most detailed picture of the makeup of the...
The largest sinkhole is 30 feet wide and about 13 feet deep. EWEB has been monitoring the sinkholes as best it could with spotters in boats using long rods, divers and even a small submersible mounted with a camera for about the last two decades. Federal law requires the utility to assess dozens of scenarios that could result in a breach of the dam, including an earthquake and major floods, that could kill people and damage property, and take steps to prevent them, Zinniker said. If the theory about reservoir water passing through porous rock or lava tubes is correct, and it’s left unchecked, the sinkholes could get big enough to drain the reservoir into the underground aquifer, leaving the hydroelectric project without water to generate electricity. Zinniker said. A similar phenomenon can happen at Lost Lake, located just off U.S. Highway 20 near Hoodoo Ski Area, during the summer.

A worst-case disaster scenario is that a sinkhole gets so big it undermines the dam’s structural integrity and the water pressure blows it out. Or the dam could collapse into an enlarging sinkhole, releasing the huge quantity of water behind it. “As far as where we’re at on that string of dominoes that ultimately lands you in an uncontrolled release of water, we’re way upstream with lots of mitigation potential to intervene and stop that from happening,” Zinniker said. This week, crews will jam steel rods into the ground and pass electricity between them in an effort to detect any underground movement of water. The week following, divers will visit the sinkholes and use dye to determine if water is passing through them. Zinniker said previous investigations of the sinkholes have shown no significant water flow, but those studies weren’t as sophisticated and didn’t include all the craters at once. If there’s a “worrisome amount of flow” into the sinkholes, EWEB may have to lower the reservoir’s water level even further. In that scenario, which Zinniker said is unlikely, EWEB would produce less power at Carmen-Smith, which is slated to go back online in November, and force the utility to purchase more expensive power on the wholesale market to make up the difference. More likely is that EWEB will need to fill in the sinkholes with material to address the concerns, Zinniker said. The scheduled outage of Carmen-Smith’s powerhouse to continue the massive rebuild project will allow such a project to move forward without significant disruption, he noted.

Other Stuff:

(Excerpts. It’s not a fist fight!)

Sununu poised for veto override fight

By RICK GREEN, THE LACONIA DAILY SUN, Sep 4, 2018, laconiadailysun.com

LACONIA, NH — Gov. Chris Sununu, facing a coordinated effort to overturn his vetoes of two energy-related bills, says both pieces of legislation would drive up power costs at a time when the state needs to reduce electrical rates to attract new business. One of those measures, Senate Bill 365, would require utilities to pay above-market rates to the state’s six biomass, or wood-burning, power plants. Backers of the veto override say jobs are at stake.

A Plymouth State University study found 120 people employed directly by the plants, with 583 commercial loggers supplying them. It found another 228 employed in service and support positions. Taken together, they amount to a total payroll of $50.9 million and contribute $254.5 million in economic activity in the state. In an interview at The Laconia Daily Sun on Wednesday, Sununu said the plants are generally foreign owned, they are aging and some have deferred maintenance issues and are losing money. Even if the bill were to pass, there is no guarantee they could stay open. High energy costs can lead to overall
reductions in manufacturing sector employment, and the bill would drive up those costs by $25 million a year over the next three years, the governor said. He acknowledged about 1,000 people depend on these plants for jobs. “That’s a lot of people,” he said. “That is not an easy decision to make. “But then compare it to the 150,000 manufacturing employees we have in the state. You lose just 1 percent of that and it drastically outweighs the employee retention benefit you would get with the biomass plants.” He also said the state has a 2.7 percent unemployment rate, so workers should have the ability to transition to new jobs. “If you ever have the courage to say we need to go in different direction, now is the time,” he said. “So we have other job opportunities there. It’s not like we’re just letting the employees go and we’re wishing them well. We have an opportunity to move them into other areas. “That’s a big leap. That’s asking a lot of a family. I get it. But to ask the state to keep taxing everybody 25 million a year in perpetuity for an industry that has no financial stability model whatsoever, is just ‘Give us more. Give us more.’”

When the Legislature returns on Sept. 13, they will also consider an override of the governor’s veto of Senate Bill 446, which would require utilities to buy electricity from solar energy generators at above-wholesale rates. It would raise qualifying solar projects from 1 megawatt to 5 megawatts. Mayors from all of New Hampshire’s cities, except Concord, are signing on to a letter asking Legislative leaders to override the two vetoes. “We believe strongly that clean and local renewable energy and greater efficiency in how we use all energy will be vitally important to our cities’ future economic vitality and environmental quality,” the letter states. “As such, we favor policies enacted at the state level that reinforce existing renewable electric generation, foster expansion of new renewable energy technologies through net metering, and greater investments in efficiency.” “Hundreds of millions of dollars in solar and hydropower projects are now at risk of not being realized because of this situation. This is an error which can still be corrected.”

Sununu’s opposition to the renewable energy bill also derives from his concerns about the state’s power costs, which are about 50 percent above the national average. He said this bill would cost ratepayers $5 million to $10 million annually, which he terms "a handout to large scale energy developers."

Critics of Sununu’s vetoes say the state needs to bring more power online, and these bills will do that. Sununu, who favored the Northern Pass project to bring Canadian hydropower to New England, said that proposal appears to be dead, but there is still potential for tapping this power source in the future. He also favors improving natural gas infrastructure in the state and says solar power can be helpful in some applications. “Diversified power sources are great, but you have to weigh the social, environmental and economic effects,” he said. “I want to do more solar power for low-income families. “I don’t believe in these massive solar arrays that only put money in the pocket of solar array generators. I want to help people living in apartment buildings or the elderly on fixed incomes who have to pay for this. Those are the ones we need to be subsidizing. They need the financial flexibility.”

(Renewables update.)

**Hydroelectricity is most prevalent renewable source in 19 US states, wind in 16**

renewablesnow.com, Sep 11, 2018

September 11 (Renewables Now) - Hydroelectricity represented the largest share of electricity generation among renewable sources in 28 states in 2007 but retained that status in only 19 states in 2017 as wind and solar became more common, the US Energy Information Administration (EIA) says in an article today. Wind was the most prevalent renewable electricity generation source in 16 states in 2017, and solar was the most
The shares in the article reflect the portions of the total utility-scale electricity and small-scale solar photovoltaic (PV) electricity generated in each state. Because the electric system in the Lower 48 states essentially operates as three large interconnections, the electricity generated in one state may be consumed in another.

Hydroelectricity was the most prevalent electricity generation source in six states, based on annual data for 2017. In 2017, Washington had the largest hydroelectricity share at 72% of the state’s total electricity generation. Hydroelectricity is the only renewable source to be the most common electricity generation source among all sources in any state. For the US as a whole, hydroelectricity was the highest renewable electricity generation source in 2017, providing 7% of the national total. By 2019, wind generation is expected to surpass hydro, based on the latest forecasts in EIA’s Short-Term Energy Outlook.

Wind power is currently the second-largest electricity generation source in six states. In particular, wind has increased its generation share at the expense of coal’s generation share in states such as Kansas, Iowa, and North Dakota. As more wind turbines are constructed and come online, Kansas and Iowa may become the first states to have a renewable source other than hydroelectricity provide the largest share of their electricity generation. In Kansas, 36% of the state’s electricity generation in 2017 came from wind, just behind coal at 38%. So far in 2018, based on monthly data through June, Kansas has generated 42% from wind and 35% from coal. Similarly, 37% of Iowa’s electricity generation in 2017 came from wind—the largest share in the nation that year—but coal remained the most common generation source in the state, at 45%. So far in 2018, those shares have been 37% and 41%, respectively.

Electricity generated from biomass—which includes wood, wood waste, landfill gas, and other biogenic material—had the second-largest generation share in three states in 2017: Maine (26%), Vermont (21%), and Rhode Island (4%). In Maine and Vermont, the share of electricity generated by biomass trails only hydroelectricity, making them two of only three states where renewable fuels provided both of the top two generation shares. South Dakota, where hydroelectricity and wind were the most prevalent sources, is the third state.

Solar electricity was the second-largest generation source in only one state: Nevada. In 2017, solar accounted for 11% of the state’s generation, behind natural gas at 69%. Solar generation’s share is highest in California, where it provided 16% of the state’s 2017 total, behind natural gas (41%) and hydroelectricity (20%). Solar briefly surpassed hydroelectricity as California’s most common renewable electricity generation source in 2015, when drought conditions resulted in a particularly low year for hydroelectricity in the state. This article was published by EIA on September 11 and republished with minor changes by Renewables Now. Principal contributor: Owen Comstock
"America's Best College" Is Named
Harvard tops list in 'Wall Street Journal' rankings
By Arden Dier, Newser Staff, Sep 7, 2018, newser.com

(NEWSER) – "Hidden gems" emerge in an annual ranking of US colleges, a collaboration between the Wall Street Journal and Times Higher Education, though the school taking the top spot for a second year in a row is far from hidden—it's called Harvard. Factoring in resources, engagement, environment, and outcomes— with an emphasis on how well schools prepare students for post-graduation life—the list of 50 schools showcases members of the Ivy League as well as liberal-arts institutions.

The top 10:
1. Harvard University
2. Massachusetts Institute of Technology
3. Yale University
4. Columbia University
5. California Institute of Technology
6. Stanford University
7. Brown University (tie)
8. Duke University (tie)
9. Princeton University
10. University of Pennsylvania

Check out the full list here: https://www.wsj.com/articles/explore-the-full-wsj-the-college-rankings-1536187754?mod=ig_collegerankings2019

or see a ranking of America's best college towns here: http://www.newser.com/story/252757/this-is-the-best-college-town-in-america.html

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