



6/26/2015



Some Dam – Hydro News™ And Other Stuff



Quote of Note: *“Those Who Do – Build, Those Who Don’t – Criticize” - -Robert Moses*

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“Good wine is a necessity of life.” - -Thomas Jefferson
Ron’s wine pick of the week: 2013 Josep Grau Spanish Red “Volador”
“No nation was ever drunk when wine was cheap.” - - Thomas Jefferson



Dams:

(Good info.)

Officials report Grand Lake dams pose no immediate risk

By Shelley Grieshop, June 12th, 2015, dailystandard.com

CELINA, Ohio - Grand Lake’s east and west embankments are old but sturdy and no immediate risks exist, according to local and state officials. Although results of an October state inspection have yet to be released, no hazardous conditions were found, Ohio Southwest District Park Manager Brian Miller said. “There was nothing alarming,” he said. “If there had been, they would have told us right away.” Miller admitted the 174-year-old earthen dams that border the lake could develop serious issues at any time. “All dams have the potential to have problems,” he said, adding unusually heavy rains and other factors could cause minor issues to escalate. “But for now, everything appears to be in good shape.” Miller added that his staff performs monthly inspections on both state-owned dams. John Wisse, spokesman for the Ohio Department of Natural Resources, said the final report from the October inspection by dam safety engineers with the Division of Soil and Water Resources “is yet to be written.”

When asked why it’s taken more than seven months to complete, Wisse said engineers annually inspect 300 of the 1,500 dams regulated through the dam safety program. The final report for

Grand Lake will be provided to ODNR's Division of Parks and Recreation, he added. "When it is produced, it's anticipated that it will show no significant change in dam conditions and will likely read very similar to the 2009 inspection report," he said. Miller said more emphasis has been placed on dam safety in Ohio after the Army Corps of Engineers announced in April the earthen dam at Buckeye Lake near Columbus was in danger of collapse.

"I guess they know our situation is similar," Miller said. Although the two lakes have similarities such as their usage and problems with blue-green algae, there are differences, state officials have told The Daily Standard. Numerous homes are built into and have weakened the earthen dam at Buckeye Lake, while roadways and a seawall separate buildings along Grand Lake, they said. The most recently released report in 2009 shows the local dams were inspected that year on Dec. 1. The only required action not yet completed by ODNR is the removal of trees and brush on upstream and downstream slopes of both banks. "No, that wasn't done. It's a capital project ... things are done incrementally," Miller said, explaining that spending is prioritized when funds are tight. The nearly 6-year-old report ordered ODNR to "remove trees and brush from the downstream slope of the west embankment and from the upstream and downstream slopes of the east embankment." Trees and brush are not permitted on embankment surfaces because uprooting can cause structural damage "and provide seepage paths for water." Engineers also recommended ODNR monitor but take no other action regarding cracks - "hairline to 1/2-inch" - in pavement in several locations from upstream to downstream along West Bank. The concrete spillway, however, was tagged "in good condition." To fulfill another requirement to secure spillway valve controls at West Bank to prevent vandalism and unauthorized use, ODNR built a structure around the equipment, Miller said. Several of the engineers' recommended or required actions for West Bank also were ordered for sections of East Bank.

Mort Pugh, supervisor at the fish hatchery along East Bank in St. Marys, accompanied engineers for a small portion of the 2009 inspection but said he remembers little about it. Through his work in and around the lake he also is confident there are no major problems with the local dams. "We have no leaks," he said. "If there was, we'd be seeing signs."

Grand Lake's earthen dams:

West Bank: 4,800 feet long; 19.5 feet high; 22 feet top width

East Bank: 7,980 feet long; 17.9 feet high; 23 feet top width

- Categorized: Class 1, high-risk with a probable loss of human life in a collapse
- Potential downstream hazard: fatalities, flooding of structure or high-value property, damage to major road, disruption of only access to residential or critical facility area and damage to railroad or public utility, rural buildings and local road
- Drainage area for both: 110.3 square miles or 70,592 acres
- Total water surface elevation above mean sea level: 876.6 feet

History

- 1841: Grand Lake dams constructed by designer Walter H. Weyrich
- 2000, 2005, 2009, 2014: official state dam safety inspections

U.S. most notable dam failures

- Deadliest: 1889, South Fork Dam, Pa., 2,209 dead, \$17 million damage
- Costliest: 1972, Buffalo Creek Dam, W.Va., 125 dead, \$400 million; and 1976, Teton Dam, Idaho, 11 dead, \$400 million

- Information provided by Ohio Department of Natural Resources, Division of Soil & Water Resources.

(Everybody has an opinion until it rains, then the dams catch the water. This guy is dreaming.)

Jack Sanchez: We don't need any more dams

theunion.com, 6/13/15

Marc Reisner's *Cadillac Desert* (1986) chronicles the stupidity of building dams on almost every river in the U.S., killing or severely impeding anadromous fish runs everywhere. California is in the grips of a severe drought as we all know in spite of having almost all of its rivers dammed,

none of which have helped to avert this drought nor create more water. The San Joaquin, one of California's two great rivers, was killed by dams with all its fish in it. Now efforts are underway to attempt a restoration, so far not very successful efforts. **We have two needless dams locally, the North Fork Dam on the American River and the Englebright Dam on the South Yuba River.** I say needless because they were both built to restraint any possible mercury and other poisonous chemicals used during the Gold Rush. Now they are pointless, but many folks will fight to the death to keep the North Fork Dam because it creates ... Lake Clementine. Others argue removing these needless dams would be too dangerous and expensive. Whatever the arguments, a dam is a dam, an artificial construct that hurts aquatic life. Dam were sold to the public by promising fish hatcheries which are currently found to hurt fish and maybe ultimately kill them by weakening the species by nonselective bucket breeding of eggs and milt.

Dams have done little to provide water for the people. Beavers left to their own would have restrained the water and provided rich agricultural land, great animal habitat and fish pools, shade and food. But beavers were vilified to build pointless dams, which have been built by the hundreds nationwide.

Today, however, we have a most pressing dam issue that all Californians should focus on. Nevada Irrigation District (NID) is trying to build the Parker Reservoir (they don't dare call it a dam because the public wants no more dams) on the Bear River, the most impacted river in California. NID is a very bad steward on his Auburn Ravine dams and deserved to be stopped dead on the Parker Reservoir.

The meeting I am asking you to attend and speak against the Parker Reservoir is from 10 a.m. to noon on Thursday in the Gene Albaugh Community Room at the Madelyn Helling Library, 980 Helling Way, Nevada City.

NID is mistreating the fish in the Auburn Ravine, with two dams, Hemphill and Gold Hill, blocking anadromous fish runs. Blocking anadromous fish runs is against the law. The Auburn Ravine has fall run chinook, winter and spring run salmon, either endangered or threatened runs, and NID is ignoring them, delaying, doing nothing to save the salmon and steelhead in Auburn Ravine. Why would any rational department of government allow NID to be permitted to build another needless dam when it is currently breaking the law on Auburn Ravine? The National Oceanic and Atmospheric (NOAA) agency is charged with overseeing inland anadromous fishes; I cannot believe NOAA will allow NID to build Parker Dam, but what our federal government will do is not always predictable. **The prime motive of NID, if one were to guess, is probably for profit, bottom line, money.** California as we all know is in a recurring drought so NID is using the drought to attempt building this needless dam. Dams do not create more water. California is an arid state with seven-year cycles of dry and wet historically. This cycle may have existed for ions, but this cycle existed in the absence of dams. Many people are encouraged to show up for the Thursday meeting in which NID Board Member Nick Wilcox tries to convince the public NID needs this unneeded dam. The meeting I am asking you to attend and speak against the Parker Reservoir is from 10 a.m. to noon on Thursday in the Gene Albaugh Community Room at the Madelyn Helling Library, 980 Helling Way, Nevada City. Please attend, voice your opposition to Parker Reservoir and the neglect NID has showered on the fishes in Auburn Ravine. Stop NID from building a needless dam under the guise of creating more water for its customers while imperiling more threatened and endangered anadromous fish while ignoring its responsibility to the fishes in Auburn Ravine, a waterway it usurps to deliver water to its customer hurting its fishes. Stop Parker Dam and direct NID to create fish passage on Gold Hill and Hemphill Dams currently blocking anadromous fish runs. *Jack L. Sanchez lives in Auburn, CA.*

(Excerpts – As the article points out this not a good dam photo, in spite of the title!)

A dam beautiful sight

By Rych Mills, therecord.com, 6/13/15

Conestogo Dam

Postcard published by Hunsberger Photography, St. Jacobs. Courtesy rych mills. *Beyond Conestogo dam's concrete structure lie 13 billion gallons of water. The political waters had been constantly stirred through the 1950s delaying actual construction by several years. The dam is maintained and operated by the Grand River Conservation Authority.*



Waterloo Region Record
By [rych mills](#)

"Take a dam picture," the photographer was instructed, "we need to make a postcard." The result might have shown sunlight glinting off gentle waves with happy boaters and water skiers, the top of the dam peeking above the new lake — or it could have shown a huge wall of concrete, nice blue but boring sky and a few miniscule figures probably fishing. This 1960s' postcard is obviously the latter but one suspects there was a reason. That recently-completed Conestogo dam southwest of Drayton needed tangible verification. So many years of indecision, delays, bickering and jurisdictional disputes had preceded construction that it seemed impossible the project could actually be completed and in place. The acrimony lingered and there was no ceremony organized for October 1958's opening, just a public declaration. ----- Full article at: <http://www.therecord.com/living-story/5674050-a-dam-beautiful-sight/>

(You take your chances with cofferdams, but this one makes one wonder.)

Temporary dam partially fails at Lake Delhi construction site

By Lissandra Villa, The Gazette, JUNE 15, 2015 | thegazette.com

Work on a new dam at Lake Delhi might be delayed after the failure Sunday of a temporary steel wall in place for construction purposes. Heavy rains last week, which led to flash flooding in Cedar Rapids and other parts of Eastern Iowa, created what one official called a "high water flow" on the Maquoketa River, causing the steel construction wall to break away from the concrete wall behind it.

"This is a construction failure while trying to build a dam," said Pat Colgan, a retired civil engineer who volunteers at Lake Delhi. He called the incident bad luck. The failure was about 10 feet wide in a 350-foot-long wall, said Steve Leonard, Lake Delhi Board president.

"It's too premature to know any major impact from this," Leonard said, but he expected any delay in construction would be "minor." The next couple of days will reveal more as the site dries up, he said.



The temporary dam was in place to dry up the area behind it, which would allow for a permanent spillway to be built. The new dam will be able to handle much more rainfall, Leonard said.

Beyond construction and recreational use of the area, Leonard said he was not aware of anyone being affected by the incident. "I doubt if (the water) rose even a foot downstream," Colgan said.

The National Weather Service estimated the Maquoketa River would rise only 2 to 5 inches for a few hours. In summer 2010, the dam at Lake Delhi failed, and the lake was drained. Colgan said the floodwater that caused the dam to fail that year ran between 25,000 and 30,000 cubic feet per second. When the new dam and spillway are in place, they will be able to handle water at 69,000 cubic feet per second. The failure Sunday at the temporary dam occurred at the farthest point downstream of the east side of the lake near Delhi. "We're just looking to get the new ... spillway built and keep things moving forward," Leonard said. The construction was set to be complete by Oct. 23.

(Hear they're going to rename this dam to Costabundle Dam.)

Estabrook Park dam repair costs continue climbing

By Don Behm of the Journal Sentinel, June 15, 2015, jsonline.com

The estimated cost of repairing the dam on the Milwaukee River at Estabrook Park has increased \$627,000 since it was last inspected in 2010, and the price now stands at nearly \$2.3 million, a Milwaukee County consultant said Monday. There are sufficient funds to pay for the higher cost of \$2,287,000 since the county has budgeted \$1.6 million for repairs and the state Department of Natural Resources has set aside \$1.38 million in grants for that purpose, consultant AECOM of Green Bay said in a new report. "Additional



deterioration" of the county-owned, 1930s-era dam is blamed for the increase, according to AECOM senior engineer Donald Pirrung. The analysis was submitted Monday to Milwaukee County Circuit Judge Christopher Foley as part of the court record in an ongoing Milwaukee Riverkeeper lawsuit against the county.

Dam gates have been open since 2008 following a state inspection that found numerous safety problems.

Foley has scheduled a five-day trial beginning July 20 on a different judge's 2012 order declaring the dam a nuisance and requiring the county to eliminate the problem by repair or demolition. The DNR ordered the county to restore the structure or remove it by December 2014, and then granted a two-year delay after no work had been done by the end of last year. Milwaukee Riverkeeper has said removing the dam at a cost of \$1.7 million will be the least costly option for county taxpayers since demolition removes the need for ongoing maintenance. Annual dam operating and maintenance costs are estimated at \$160,000, the AECOM report says. The county has created a dam maintenance trust fund with property rental fees of \$51,000 a year paid by owners of television towers in Lincoln Park. This would reduce the property tax levy support for operating costs to \$110,000 a year, the report says. County parks officials proposed removal in late summer 2014 after AECOM concluded demolition of the dam would lower river levels in floods, and benefit fish and other aquatic life with improved water quality in the free-flowing stream. Estabrook dam has two structures: a dam with floodgates north of an island in the river and a fixed spillway south of the island. A series of ice barriers protects the gated dam.

(A good reminder of why dam safety engineers do what they do.)

Association of State Dam Safety Officials Marks 20th Anniversary of Fatal Virginia Dam Failure

Lessons learned lead to enhanced protection of public safety but risks remain

Lexington, KY (PRWEB) June 17, 2015, prweb.com

Twenty years ago, tragedy struck in Southwest Virginia when Timberlake Dam failed during an extreme summer rainfall event. On June 22, 1995, between 4:00 PM and 11:00 PM, portions of

southwest Virginia received 8.7 to 11 inches of rain, greatly surpassing the six-hour "100-year flood" event total of 4.9 inches. The downpour caused the failure of the Timberlake dam at 10:30 PM, which released about 528 million gallons of water, enough to fill about 58,000 large semi-trailer tanker trucks. The dam failure took two lives. Rescue worker Carter Martin was swept from a bridge over Buffalo Creek between Bedford and Campbell counties while assisting stranded motorists. The second victim, Doris Stanley, perished after her car was washed from the road between Forest and Richmond. The dam failure washed out Virginia 683 in three places and caused extensive damages to three properties along Troublesome Creek near Evington. Workers at Georgia Pacific's Big Island paper mill scrambled to save equipment as floodwaters encroached, but most businesses in the floodpath sustained only low to moderate damage. The dam failure raised questions about safety regulation of Virginia's dams. The Virginia Division of Dam Safety and Floodplain Management had determined that the dam did not meet modern safety standards. Although the dam was subject to an annual inspection, the State lacked authority at that time to require upgrades to the dam as an exemption was in place for dams built prior to promulgation of some dam safety laws. That specific exemption in the law is no longer in place.

"The 20th anniversary of the Timberlake failure serves as a reminder of the importance of stringent safety regulations for dams," said Lori Spragens, Executive Director of the Association of State Dam Safety Officials. "The failure provides a clear example of the need for all dams to meet current design and safety requirements, regardless of when they were constructed. Inspections alone do not make dams safe. It is essential that regulators charged with ensuring public safety have the necessary authorities in place." The dam break also prompted questions about the impacts of commercial and residential development near dams. Four years prior to the dam failure, the 1991 Radford University Timberlake Watershed Study had noted a dramatic increase in runoff from impervious surfaces into Timberlake. Years later, the state now has in place laws that require developers whose projects impact nearby lakes and reservoirs to help pay for consequential required safety upgrades to impacted dams. Spragens said that Virginia is to be commended for its proactive policies regarding development around dams, but that the public needs to understand the potential risks posed by dams. "The Timberlake failure demonstrated that even privately owned dams can pose public safety risks. While such total failures are uncommon, their consequences can be devastating. It is important for property owners to know if they or their loved ones may be affected by the presence of a dam, and, if so, what to do."

ASDSO encourages members of the public to educate themselves on both the benefits of dams and the risks of dam incidents and failures. Residents can determine if they live in a dam failure flood inundation zone by contacting their local emergency management agency or the state dam safety program. ASDSO recommends that people who live near dams familiarize themselves with evacuation routes, make sure all family members know what to do in the event of an emergency and prepare an emergency kit. In conjunction with the Federal Emergency Management Agency, ASDSO created a booklet entitled "Living with Dams: Know Your Risks" that is a good starting point for individuals seeking answers about dams near their communities. An accompanying guide - "Living with Dams: Extreme Rainfall Events" - explains how communities can reduce the chances of a dam failing from an extreme rainfall event, such as that which occurred in Virginia in June 1995. Both booklets are available at <http://www.livingneardams.org>. The Association of State Dam Safety Officials (ASDSO) is a national, non-profit organization founded in 1984 and dedicated to improving dam safety through research, education and communication. Web: <http://www.damsafety.org>.



Hydro:

(Excerpts - If water runs downhill, take advantage of it!)

Rentricity to Push Further Into Irrigation In-Pipe Hydro Market

Richmond Irrigation Company of Utah to develop Flow-to-Wire system to improve energy efficiency.

pr.com, June 15, 2015

New York, NY--(PR.com) -- Rentricity Inc., the innovative in-pipe hydropower clean energy company located in New York City has commenced its first project in the State of Utah. Rentricity's Flow-to-Wire™ system captures excess pressure and flow within gravity-fed water distribution pipelines, converting it into clean energy for the electric grid or the customer's onsite use. The four sites located within the Richmond Irrigation Company (RIC) in Utah represent the first in the state adding to Rentricity's portfolio of projects in California, Canada, Pennsylvania, Vermont, Idaho, New York and New Hampshire.

The RIC project, which is part of a new irrigation pipeline upgrade, involves energy recovery at two distinct sites. The two sites are targeted to generate more than 300 kilowatts of clean electricity. "RIC is excited about the opportunity to use our irrigation flows to also create clean energy offsetting operating costs for our system," says Terry Spackman, President. "The project will provide conduit-based irrigation water for our consortium members and make RIC a net exporter of power to the grid" he added. Eric Franson, Managing Partner of Franson Civil Engineers adds, "Rentricity continues to be our best choice to fully integrate the pipeline and energy recovery portions of the project." -----

(Good blackberries at the overlook downstream of Mossyrock Dam.)

Journey on the Cowlitz: Mossyrock Dam Upgrading, Still With Room to Grow

Electric: Tacoma Power Dams Produce Enough Energy to Power More Than 135,000 Homes

June 12, 2015, by D. Pesanti, chronline.com

The city of Tacoma relies on hydroelectricity for more than half of its power supply. Of its four projects, none produce more electricity than those on the Cowlitz River. The Mayfield and the Mossyrock dams produce enough power for more than 135,000 Pacific Northwest homes. The two dams work in synchronicity to ensure the right amounts of water are moving through the system to keep power production and water levels where they're supposed to be.



Over the last several years, Tacoma Power has been gradually updating several major elements of the Mossyrock Dam at the west end of Riffe Lake. Currently, a 300-ton crane is parked at the top of it where crews are working to remove the two headgates. Headgates control the water flowing through the dam and entering the turbine inside the powerhouse. Tacoma Power plans to remove and refurbish them one at a time, a move they hope will save ratepayers close to \$1 million.

Tacoma Power generates about 40 percent of its energy needs from its four hydroelectric projects around the state, most of which comes from the Mossyrock and Mayfield dams. The Mossyrock Dam creates the 23.5-mile-long Riffe Lake. While the dam's primary function is for power production, it also plays an important role in flood prevention. For example, when the 2006 flood raised water levels to 25.2 feet in the Randle area, the Mossyrock dam held that water back in Riffe Lake. "In 2006 they stored all of it," Cowlitz River Assistant Project Manager Chad Chalmers. Inside the powerhouse, which sits at the base of the 606-foot-tall Mossyrock Dam, a loud hum of an enormous spinning turbine echoes through the cavernous building. In 2006, the city of Tacoma approved a \$50 million project to replace much of the antiquated technology that had reached their lifespans. At several areas through the dam, equipment that has been online since the dam went into operation in 1968 sits in stark contrast to the modern counterparts that are replacing it. Inside the control room, green panels with analog displays sit next to new gray ones that utilize a combination of digital and analog meters.

There are two turbines inside the powerhouse, both of which were replaced in 2010 and 2011, respectively. Currently, only one of the dam's turbines is in operation. The unseasonably dry winter and spring has put water flows at levels much lower than normal. It's the kind of thing officials aren't used to seeing until typically closer to early July. "We're running at about 3,000 cubic feet per second," Cowlitz River Project Manager Larry Burnett said. "Normally, for this time of year, we'd be at 5,000. We could even drop to 2,500."

There is room for one more turbine to be installed, but that's not likely to happen anytime soon. The utility has considered adding another one, but with a contract to purchase power from the Bonneville Power Administration good until 2038, the cost is too prohibitive. "Eventually it'll happen. I'm guessing it'll be after I'm retired." Burnett said.

About the Dams

Mossyrock Dam

Year completed — 1968
Original investment — \$117.8 million
Type of dam — concrete arch/gravity and embankment
Height — above riverbed, 365 feet; above bedrock, 606 feet
Length — 1,648 feet
Width — top, 27 feet; base, 115 feet
Volume of concrete in dam — 1.27 million cubic yards
Average flow — 5,140 cubic feet/second
Drainage area — 1,042 square miles
Reservoir length — 23.5 miles
Miles of shoreline — 52 miles
Reservoir area at maximum elevation — 11,830 acres
Reservoir elevation — full, 778.5 feet; lowest allowable, 600 feet
Average annual generation — 1,100,000,000 kilowatt-hours
Number of generators — Two generators one 203.4 megawatts, the other 175 megawatts

Mayfield Dam

Statistics
Year completed — 1963
Original investment — \$44.5 million
Type of dam — concrete arch/gravity and embankment
Height — above riverbed, 200 feet; above bedrock, 250 feet
Length — 850 feet
Width — top, 5 feet; base, 23 feet
Volume of concrete in dam — 110,000 cubic yards
Average flow — 6,120 cubic feet/second
Drainage area — 1,400 square miles
Reservoir length — 13 miles
Miles of shoreline — 33.5 miles
Reservoir area at maximum elevation — 2,250 acres
Reservoir elevation — full, 425 feet; lowest allowable, 415 feet
Average annual generation — 804 million kilowatt-hours
Number of generators — Four 40,500 kilowatt generators

(A plea for less regulation.)

No renewable left behind

By Linda Church Ciocci, Sue Kelly, Jo Ann Emerson, Thomas Kuhn, Lisa Jacobson and Todd Foley, June 15, 2015, thehill.com

Throughout the country, there are more than 80,000 dams, primarily used for flood control and irrigation. Today, just a mere three percent (roughly 2,500 dams) are equipped to generate affordable, clean power to our homes, businesses and schools. But that three percent produces nearly 7 percent of the nation's electricity and serves every region of the country – with room to grow. Hydropower has significant and real potential for increased capacity, particularly on existing infrastructure. This untapped potential, however, is only the beginning of the story. As America's largest source of renewable and emissions-free energy, hydropower helps the nation avoid over 190 million metric tons of CO₂ each year – the equivalent of over 40 million passenger cars. Yet,

expanding use of this clean energy solution is hindered by outdated regulatory and permitting barriers. Licensing a new hydropower project or relicensing an existing project can take more than 10 years—longer than most other energy options. In fact, hydropower facilities, even small ones, are considered a risky financial investment as a consequence of a protracted, costly and uncertain licensing process.

Lack of coordination among agencies, duplicative processes and over-expansive study requests, can increase costs to a point where a project is no longer cost-competitive or able to attract investment. Without an improvement in this process, existing projects may be shuttered—and fewer proposals for new facilities will be advanced—with the zero-emitting generation from these projects likely to be replaced with fossil fuel-fired generation. Recognizing the importance of modernizing the hydropower licensing process, a number of licensing reform bills recently have been introduced in the House and Senate. These are common-sense bills, which include such provisions as one to make the Federal Energy Regulatory Commission (FERC) the lead agency for all authorizations for the licensing and development of hydropower resources. Authorizing FERC to establish and enforce an overall schedule will help keep the process on track and avoid project delays that have been the status quo for decades. Requiring other agencies with review requirements to cooperate with FERC will create efficiencies and reduce redundancies. The goal is to allow all relevant agencies to exercise their authorities, but to do so in a more optimized and disciplined timeframe.

With nearly 500 existing hydropower projects—constituting nearly 30 percent of all hydropower capacity regulated by FERC—requiring reauthorization over the coming 15 years, now is the time to modernize the process. To be sure, most of these are small projects under 10 MW that may be at risk of closure based on the considerable costs associated with the current relicensing process. Opponents of licensing reform assert that modernizing the process will upend the Federal Power Act (FPA), create loopholes in the system and weaken states' authority. As hydropower supporters, we disagree. The goal of the reform is to improve the licensing process so it can continue to address energy and environmental issues comprehensively but more efficiently. Americans are weary of government dysfunction and look to Congress and the executive branch to make improvements that allow for timely, cost-effective and efficient decision-making under the FPA and the nation's environmental laws. Doing so will advance environmental protection and the availability of clean energy solutions.

Meeting climate change mitigation objectives – including the national reduction goals proposed by the Obama Administration – will require the continued and expanded use of hydropower. The current hydropower licensing process has evolved into a complex, time-consuming process with myriad redundancies and lacking discipline and accountability. Enacting much-needed improvements to the licensing process can be accomplished in a responsible and balanced manner that protects and preserves our fisheries, natural resources and environmental values. Industry calls on all stakeholders to work toward a common-sense solution to reduce costly delays. *Ciocci is the executive director of the National Hydropower Association; Kelly is the president and CEO of the American Public Power Association; Emerson is the CEO of the National Rural Electric Cooperative Association; Kuhn is the president of the Edison Electric Institute; Jacobson is the president of the Business Council for Sustainable Energy; Foley is the chief strategy officer of the American Council on Renewable Energy.*

(Hydro at work at a dam over 100 years old.)

Minnesota Dam Producing Co-op Power

By Derrill Holly | ECT Staff Writer, June 17th, 2015, ect.coop

A dam that once powered a pulp and paper mill on the upper Mississippi River is now producing electricity for Dairyland Power Cooperative. The La Crosse, Wis.-based G & T recently announced a power purchase agreement with Eagle Creek Renewable Energy LLC for the total output from a facility originally built more than a century ago at Sartell, Minn. "The addition of Sartell Hydro to

our power purchase portfolio is important to the continuing growth of Dairyland's renewable energy portfolio," said John Carr, the G&T's vice president, strategic planning.

Dairyland is providing the 10 megawatts of power produced by the facility to its 25 member distribution cooperatives and the 17 municipal utilities it serves in Wisconsin, Minnesota, Iowa and Illinois. Originally developed in 1905 to power wood pulp and paper mill production, the facility was converted exclusively for hydroelectric power production in 1985. Morristown, N.J.-based Eagle Creek Renewable Energy acquired and refurbished the 110-year-old powerhouse and other facilities in 2014.



"Eagle Creek is proud to have restored the Sartell Hydro facility to operation and expects to provide clean, renewable electricity to Dairyland's members for many years to come," said Matt Ocwieja, Eagle Creek's spokesman. Dairyland also operates a 24-MW hydroelectric facility on Wisconsin's Flambeau River. "Water-powered facilities are an excellent resource for generating renewable energy," said Carr. "The Sartell Hydro project helps Dairyland further fulfill our mission to provide reliable, environmentally responsible electricity to our members."

(FERC PRESENTATION ON Update on the Hydropower Regulatory. Efficiency Act of 2013)

<http://www.ferc.gov/industries/hydropower/indus-act/efficiency-act/H-1-presentation.pdf>



Water:

(Some good news about water in the West.)

FEDS PROJECT HIGHER LAKE MEAD LEVEL FOLLOWING WET MAY

BY KEN RITTER, ASSOCIATED PRESS, Jun 16, 2015, hosted.ap.org

LAS VEGAS (AP) -- A wet May across the West boosted monthly projections of water levels at Lake Mead through next year and into 2017, federal water managers said Monday, offering hope that supply cuts can be avoided in the Southwest. A 24-month look ahead by the U.S. Bureau of Reclamation said the surface level of the largest Colorado River reservoir should remain above a benchmark level used to determine if full deliveries will be made in a seven-state region home to about 40 million residents, farms, tribes and businesses. Last month, the bureau reported that the lake behind Hoover Dam could reach a low point in January 2017 that would force reductions for Arizona and Nevada. "Today's numbers say we're projected to not be in shortage in 2016," said Dan Bunk, bureau water operations manager in Boulder City. "There's still a ways to go for 2017, but it's looking better." The bureau is expected to make all its agreed-upon Colorado River water deliveries in Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming at least through December 2016, Bunk said. The surface level of Lake Mead is closely watched, and closely controlled. It can fluctuate during the year, and has reached record lows several times during an ongoing drought that has lasted some 15 years.

"We're in the 13th of 16 years where inflow will be below normal," Bunk said. But as long as the lake surface level is at least 1,075 feet above sea level when crucial measurements are taken in January, delivery cuts to Arizona and Nevada can be avoided. Monday's report projects that Lake

Mead will be at 1,079 feet at the end of 2016. The lake was 37 percent full Monday - no improvement from last month - with a surface level just 6 inches above 1,075 feet. The big improvement came upstream, at Lake Powell. The reservoir near the Utah-Arizona line rose from 45 percent to 51 percent full, which Bunk said would allow for robust flows from Powell to Mead in weeks to come. May became the wettest May on record for the Lower 48 states, dating to 1895. Texas and Oklahoma were the soggiest, but six of the seven states that draw water from the Colorado River reported precipitation levels above normal. California lagged, reporting 70 percent. Brian Fuchs, climatologist with the National Drought Mitigation Center at the University of Nebraska in Lincoln, Nebraska, said that despite regional rains, the main driver for the Colorado River Basin water outlook is snow in the Rocky Mountains. Colorado's mountain snowpack, despite recent snows, was 82 percent in May and just about or below normal for the year, Fuchs said. "We are definitely continuing to see multiyear drought issues in the West," he said. --- Associated Press writer Jim Anderson in Denver contributed to this report.



Environment:

(Freshwater lobster! Not much dam.)

Endangered Crayfish protected by dam removal

A dam on Sevenmile Creek, behind Edmondson Pike Public Library, was removed Wednesday to improve water quality and the ecosystem for the endangered Nashville Crayfish.

By Macaela Bennett / The Tennessean), June 18, 2015, tennessean.com

The creek, which is a tributary to Mill Creek that runs into the Cumberland River, winds behind Edmondson Pike Public Library. For unknown reasons, a dam was built across it as long as 50 years ago. Most dams were once built for flood control, irrigation, power or water supply, but all this dam appears to do today is create a murky mess.

Several public and private groups combined efforts to remove the dam Wednesday to better water quality and hopefully help the Nashville crayfish thrive. "It's intended purpose is over," said Gina Hancock, director of The Nature Conservancy, about the Sevenmile Creek dam. "If we just get

out of the way of nature, it will heal itself and the stream will look like the dam was never there." Wendy Smith, wildlife instream flow coordinator for The Cumberland River Compact, said removing dams also improves communities because the water will need less filtering. Before Sevenmile dam was torn down, biologists from the Tennessee Department of Environment and Conservation, Wildlife Resources Agency and Nashville Zoo combed the creek on both sides of the dam for crayfish and other animals. They then relocated all the creatures at least 150 feet behind the dam, outside the area of pooled water. Without this step, the backed up sediment would have covered any species living beneath the dam when it was torn down, according to Pandy English, a TWRA biologist.



"Crayfish are a keystone species meaning they are vital to their ecosystem," said Glenn Rohrbach, an aquatic biologist at the Nashville Zoo. "They consume and process stuff that would otherwise just lay there and are food for anything imaginable." Nashville Crayfish are distinct from other types common to the region because of their coloring and reproductive organs, Rohrbach said. After hours of clearing the creek of creatures, engineers used an excavator and power tools to break down the dam bit by bit. Once the cinderblock, mortar and sandbags were taken out, the creek began flowing calmly and clearing up. Almost 40 workers and volunteers, \$35,000 and 580 relocated Nashville crayfish later, Sevenmile Creek looks like a refreshing spot for children to play after spending time at the library, Hancock said. "If we just let the stream do what it's supposed to do, we'll all be better off," she said. The Nature Conservancy and Cumberland River Compact also partnered in tearing down a dam in Richland Creek last year and plan to continue removing one dam per year. Hancock said future funds will go toward more work on Mill Creek and other places in the Cumberland basin. Those contributing to the project included the Cumberland River Compact, The Nature Conservancy, TWRA, Metro Water and Nashville Public Library. The Dan and Margaret Maddox Charitable Fund provided funding for the project.



Other Stuff:

(Couldn't happen without hydro.)

How Bonneville Is Tapping Demand Response to Balance Power From Dams, Wind and Sun

Pacific Northwest power agency enlists AutoGrid to integrate demand-side assets in grid balancing

Jeff St. John, June 17, 2015, greentechmedia.com

The Bonneville Power Administration may have an enviable grid system, with the country's largest hydropower resources providing the Pacific Northwest region with cheap and plentiful electricity. But that doesn't mean the federal power agency isn't facing challenges. Saving the Columbia River system's salmon stocks has placed severe constraints on how dams can be tapped as flexible power resources. Meanwhile, Bonneville is balancing about 4,700 megawatts of intermittent wind power in its system, and it has a growing share of solar power to manage as well. These changes are pushing Bonneville to explore new options for demand response, or curtailing power loads to meet its needs related to grid balancing, transmission congestion, and other issues. Unlike the day-ahead and hour-ahead demand response common in the rest of the country, however, Bonneville wants its resources to be able to respond in 10 minutes or less. It also wants to build a platform that can pull in multiple resources, from multiple public and private aggregators, in the same control rooms where it dispatches its hydropower resources and participating power plants.

Last year, Bonneville hired Redwood City, Calif.-based startup AutoGrid Systems to design this platform. This week, it unveiled the results -- a software system that since February has dispatched some 20 events to shed between 18 megawatts and 30 megawatts at a time, for a total of 500 megawatt-hours of grid-balancing load drop. That's a relatively small amount, compared to the gigawatts' worth of demand response at play in the markets run by mid-Atlantic grid operator PJM, ISO New England and New York ISO. But it's an important foundation for Bonneville as it seeks to determine how much of the roughly 1,000 megawatts of potential demand response in the region will suit its needs. "To succeed, demand response has to meet three objectives: it has to be highly reliable, it has to be cost-effective, and it has to be easy to use and deploy," said John Wellschlager, a Bonneville account executive working on the agency's demand response initiative. "While DR is pretty well understood as a concept, it's an immensely complicated product to be used as a reliability tool."

A fast-acting, cross-platform approach to demand response

He's talking about using demand response for ancillary services, which call on generators or other grid assets to quickly ramp up generation or ramp down consumption. In the past few years, Bonneville has launched three different demand response pilots -- one with the city of Port Angeles, Wash., another with demand response aggregator EnerNOC, and the third with Energy Northwest, the entity that owns and operates wind and hydro assets, as well as the Northwest's only nuclear power plant, for 27 public utilities serving more than 1.5 million customers. Results have been mixed. The first project, with the Nippon Paper mill in Port Angeles, used phone calls to mill operators to power down loads, and while "they worked very hard" on meeting Bonneville's needs, "a single point of failure on a load like that didn't provide us the kind of reliability we needed," he said. "Aggregation is the future of DR, not single-source loads," he said. "You need to have some redundancy to create the level of reliability you're looking for." That conclusion informed Bonneville's projects with EnerNOC, which is tapping loads like food-processing and cold-storage facilities, and with Energy Northwest, which has enlisted two paper mills, a small-scale battery bank, and a conservation voltage reduction system run by the municipal utility of Richland, Wash.

These projects use the digital communications protocol OpenADR to assure a much faster dispatch and response of end loads. But Bonneville wanted a single interface to be able to control both sets of demand response aggregations, as well as the ability to add new resources in the future, he said. "We started working with AutoGrid" in November 2014, he said. "The implementation went about as smoothly as we could have hoped. We've had 24 test events, and not one failure. And we're hitting them at all hours of the day, within shift changes, in the middle of the night, and they have to deploy within 10 minutes." Cara Ford, Bonneville senior project manager, said the key requirements for this platform were speed and flexibility in integrating different demand response portfolios with the agency's operations center. Bonneville's grid operators "are managing the flow of the river and the reliability of the power system," she said. "They needed to have one unified interface to dispatch multiple programs. While we could just use Energy Northwest's system, or just use EnerNOC's system, we'd have two different interfaces to learn. We needed somewhere to grow the system and dispatch multiple products." Bonneville also needed software that could be hosted on a cloud computing platform. "We're in a demonstration phase, where all the requirements aren't known," she said. "This is a way for us to start experimenting with using demand response, and having a platform without making that investment" in hosting its own software. AutoGrid's Demand Response Optimization and Management System (DROMS) is playing a role in projects at utilities including Florida Power & Light, Hawaiian Electric, Oklahoma Gas & Electric, and Austin Energy. The startup has received funding from ARPA-E, venture investors and German utility E.ON, and specializes in ingesting, organizing and analyzing disparate sources of data at speeds required for time-sensitive grid operations. In the case of its Bonneville platform, AutoGrid is projecting how much load is available to be shed, sending the OpenADR signals to the participating entities, and then verifying the load reduction, on "almost a minute-by-minute basis," said Raj Pai, the startup's global head of products and marketing.



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