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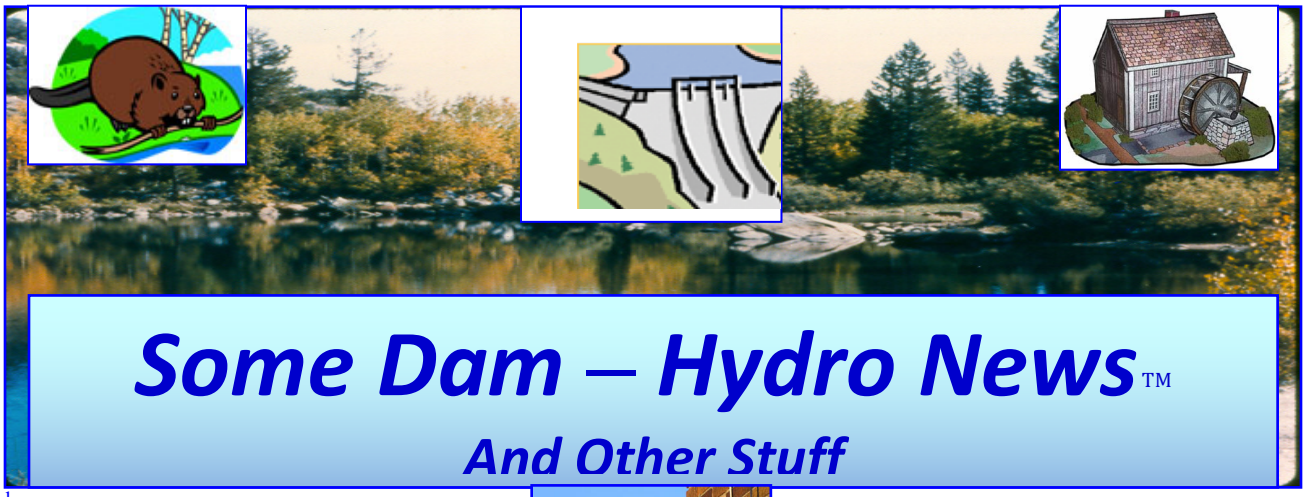


Some Dam – Hydro News™

And Other Stuff

1

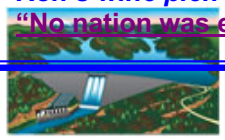
Quote of Note: *"Knowledge is knowing a tomato is a fruit. Wisdom is not putting it in a fruit salad." - Unknown*

Dams:

(Gotta have good stuff so the spillway works.)

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

"Good wine is a necessity of life." - -Thomas Jefferson
Ron's wine pick of the week: **2018 Susana Balbo Cabernet Sauvignon "Crios"**
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson



Culmback Dam Spillway

February 3, 2020, monroemonitor.com

SULTAN, Wash. – For the first time since February 2016, heavy rains and snowmelt in the mountains above Sultan in Snohomish County have caused water levels in Spada Lake Reservoir to reach the Culmback Dam spillway. Much like the extra drain at the top of most bathroom sinks and bathtubs, the spillway allows excess water to safely exit the reservoir long before it can reach the top of the dam. "Essentially, it means we have more than enough water in the reservoir to run our carbon-free hydropower plant at full capacity," says Scott Spahr, who oversees Culmback Dam as part of Snohomish County PUD's Henry M. Jackson Hydroelectric Project. "It's also a testament to all the safety features built into the dam. The spillway is one of those features, and it's working exactly as it should."

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu

Water traveling through the spillway is discharged into the Sultan River, where it flows several miles to join the Skykomish River at Sultan. Areas downstream of Culmback Dam should expect to see some rise in river levels and an increase in river currents. “We worked in advance to lower the reservoir’s level to make room for much of the rain we expect to get this weekend,” Spahr says. “That has helped to reduce the amount of water traveling through the spillway. Still, we encourage areas downstream to monitor weather and river forecasts, especially with the larger Skykomish River already running high in Sultan. The PUD is monitoring flow rates and river levels, and in contact with local agencies to provide updates as needed.”

Culmback Dam was built in 1965 and enlarged in 1984 to create Spada Lake Reservoir, which provides drinking water to the City of Everett, carbon-free hydropower to more than 53,000 Snohomish County homes and has substantially improved flood control along the Sultan River. Each year, Culmback Dam is reviewed by the Federal Energy Regulatory Commission (FERC). In its 55 years of existence, the dam has always received FERC’s highest safety rating. The PUD monitors the dam 24 hours a day and conducts regular and extensive on-site safety checks. To learn more about Culmback Dam, Spada Lake Reservoir and the PUD’s Jackson Hydroelectric Project, visit snopud.com/jhp. For more on Culmback Dam’s safety, visit snopud.com/dam-safety. PHOTOS – Culmback Spillway.pdf: https://monroemonitor.com/wp-content/uploads/2020/02/PHOTOS-Culmback-Spillway.pdf

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(Dam removal comes in all shapes and sizes.)

Habitat Friendly Structure Replacing Rock Dam

By: Steven L. Kohls | Feb 7th 2020, brainerddispatch.com

Heavy equipment operated by Minnesota Native Landscapes employees builds a coffer dam Wednesday, Feb. 5, at the site of the Crosslake Rock Dam on the Pine River. Under the direction of the Crow Wing Country Soil and Water Conservation District, the 50-year-old rock dam is being replaced. Funding for this project was provided in part by the Clean Water Land Legacy Amendment through the Lessard Sams Outdoor Heritage Council and Minnesota State Legislature. The new structure is expected to be complete by March 1 and will control the flow of the river to allow fish and mussel numbers to rebound at the popular recreation location.

Habitat Friendly Structure Replacing Rock Dam
A Minnesota Native Landscapes backhoe is positioned on a bed of rocks at the site of the Crosslake Rock Dam Feb. 5, 2020. The dam is being replaced with a structure that is more habitat friendly. Five rock weirs spaced about 40 feet apart along 200 feet of the stream channel will replace the dam. The series of riffles and pools is expected to restore natural flows, spawning habitat and in-stream cycling. Collectively, the access to habitat needed to reach reproductive age will benefit walleye, smallmouth bass, bait fish and mussels, according to Crow Wing Soil and Water Conservation District, and benefits will also extend to anglers and paddlers.

(Another show me the money moment.)

Coming soon? County wants siren system for Basin Creek dam

By Mike Smith, Feb 5, 2020, mtstandard.com

Emergency management officials want to put in a siren system to warn people about a possible breach or other serious troubles with the Basin Creek Dam south of town. The county is seeking an $85,000 federal grant to pay for that and a separate $50,000 grant for lights and a large generator to

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power them so officials could see any unfolding problems at the dam at night.
"Without seeing the face of the dam and no power source at night, you don't know the extent of a situation, whether it's overtopping or a crack in the dam or what," Dan Dennehy, Butte-Silver Bow's emergency management director, said Wednesday. The dam is not in any imminent danger of failing, officials say, but deterioration in the top 13 feet made of concrete was noted during 2014 and 2019 inspections and the crumbling has accelerated in the past two years. The dam holds water in the Basin Creek Reservoir, a large source of Butte's drinking water for more than a century. It's about 9 miles south of Bert Mooney Airport and a few miles from the $30 million Basin Creek water treatment plant that operations in 2017. Water levels in the reservoir were lowered temporarily in November and core samples from the concrete were taken and sent to a firm in Colorado for analysis.

Jim Keenan, chief operator of Butte's water utility, said the results confirmed that some concrete deterioration is taking place and in need of maintenance. There was nothing alarming about the findings, he said, and the fix might just entail an overlay. But Dennehy, public works personnel, officials with the Montana Department of Natural Resources and others met in November to take another look at existing emergency operation plans and considerations regarding the dam. They identified two deficiencies, including the lack of an early warning alert system for residents and businesses immediately downstream from the dam and areas as far north as the airport that could be affected by the water. There is a local system to notify people by cell phone when emergencies exist and the warnings can be targeted to specific areas. But residents have to provide cell numbers to the county and cell service can be spotty, including in areas just downstream from the dam.

County officials want to set up sirens with a distinct sound to warn people about any potential problems or emergencies so they can get to higher ground if needed. One siren would be at the dam, one at the water treatment plant and one further north. Dennehy's office is applying for an $85,000 Homeland Security grant that would pay for the system and installation. If a siren system is put in, Dennehy said, officials would train operators and inform people in potential harm's way how the system works. A separate $50,000 Homeland Security grant would pay for a generator and lights that could shine sufficient light on the dam at night in case of problems. Both grants are fully funded by the federal government so the county is not required to match any of the money. But the grants are competitive statewide, with an advisory committee of the Montana Department of Emergency Management reviewing applications and doling out the money. The grants are typically awarded in September.

(Dam removal, sort of,)

Beginning of the end for Elkhart dam

By RASMUS S. JORGENSEN, elkharttruth.com, Feb, 6, 2020

ELKHART, IN — Crews breached the dam on the Elkhart River near downtown on Friday, an initial but long-awaited step toward improving safety and the river ecosystem. The opening was part of an effort to take the height of the dam down from 8 to 3 feet. The old dam had significant structural problems and was expected to eventually fail, according to the Army Corps of Engineers. Low-head dams are also known for creating dangerous currents. City engineer Mike Machlan said RBV Contracting, Inc., which was hired for the job, was lowering the dam in stages, letting the water level slowly fall. "That minimized any damage downstream. It also helps to minimize erosion upstream," Machlan said. The breach drew a crowd of about 40 people but happened slowly. An excavator drove into the middle of the river on top of the dam on a stone ramp that

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was built earlier in the day. The excavator, fitted with a grinder, then began breaking down a 15-foot section of the dam. The crowd got smaller after little had happened in the first 30 minutes. "It's just above watching grass grow," Machlan joked.

RBV Contracting, Inc. began the breach on short notice Friday because of a concern that melting snow and rain might otherwise cause delays. The Army Corps of Engineers is behind the project and will pay between one-fourth and one-third of the cost. The city is contributing the rest, which is about $600,000, according to Machlan. That means the total price is projected to be between $1.8 million and $2.4 million. Beyond the safety aspect, lowering the dam will also allow about 15 fish species to swim upstream, according to City of Elkhart aquatic biologist Dagh Deegan. "They're blocked by that dam from migrating back upstream, and so I guess the overall goal of this project is to open the Elkhart River back up to the species that have been lost," he said. With the dam at 8 feet, fish have been unable to move upstream. At 3 feet, Deegan said all fish species in the river should be able to go upstream again. The new dam will really be a 150-foot-long ramp with a 3-foot drop. Machlan said even canoes and kayaks will be able to go down that drop.

Among the species that can soon be found upstream are river and black redhorse, longnose and spotted gar, and logperch. Walleye can already be found upstream, but the population is likely to grow as a result of the project. Deegan has found that smallmouth bass in the Elkhart River do not grow as much as those in the St. Joseph River. Lowering the dam should help with that. "By taking the dam out, we'll be able to intermingle those populations again and hopefully get some healthier smallmouth bass up into the Elkhart River," he said. "Fish populations in general, both downstream and upstream, will benefit because it will be like a free passage." Part of the reason for that is that gene pools that are currently isolated on each side of the dam will be able to mix. But the project will not only benefit fish and anglers. Mussels, who travel with the help of fish when they are larvae, will also more likely to be found upstream once the dam is lowered. That is critical, Deegan said, because mussels are the most endangered freshwater animals in the country.

Fish in the St. Joseph River remain blocked at several dams, including the Twin Branch Dam downstream in Mishawaka and the Johnson Street dam in Elkhart. Neither of those has a fish ladder, and there are no immediate plans to change that, according to Deegan. But that is not all bad, at least not for anglers. "On the St. Joe, you can fish for salmon and steelhead downstream of Mishawaka, and then if you go upstream, you have a totally different fishery that isn't impacted by salmon and steelhead," Deegan said. "You kind of have the best of both worlds." The low-head dam is expected to be replaced by the 3-foot ramp in one or two months, according to Machlan. *An earlier version of this article misstated the name of RBV Contracting, Inc.*

(It just won' go away. Oroville spillway failure in review.)

3 years later: A look back at the Oroville Dam spillway crisis

Community, Department of Water Resources clash over handling of Lake Oroville emergency
Feb 7, 2020, by Sarah Heise, Senior Digital Editor, kcra.com

OROVILLE, Calif. (KCRA) — What started as a small hole on the Oroville Dam main spillway led to massive erosion and a potentially catastrophic event as more than 180,000 people were evacuated near Lake Oroville and downstream along the Feather River in February 2017.
It's been three years since that hole was first spotted. Take a look back at the controversy and troubles that followed the crisis surrounding the spillways and the Department of Water Resources.

Feb. 7, 2017

DWR investigates "erosion of concrete" at Oroville Dam spillway, and water officials severely cut back on water releases from Lake Oroville to the Feather River.
Play Video

Feb. 8, 2017

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu

Erosion gets worse Wednesday, but engineers said they are pleased with the test results because increased erosion is expected.

Feb. 9, 2017

A constant onslaught of rain doesn't help the situation at the spillway. Water officials work to assess the damage and a possible solution for the continued erosion as the hole gets significantly bigger since it was first noticed, in part because of the increased outflow from the lake.

Feb. 10, 2017

Lake Oroville reaches 99 percent capacity, as of 5 p.m., with only 3.5 feet left to fill. DWR announces that it will make a slight reduction to the releases to prevent the spillway erosion from getting worse on the north side. DWR does not anticipate the emergency spillway to be used, but tells the public they should not be surprised if it does.

Feb 11, 2017

Water begins flowing over the emergency spillway this morning after rain and inflows to Lake Oroville filled up the reservoir. It's the first time the emergency spillway has been used in the dam's 50-year history.

Feb. 12, 2017

By 4 p.m., more than 180,000 people are ordered to evacuate as officials spot severe erosion on the emergency spillway. Officials warn the emergency spillway was in danger of failing and could send a 30-foot wall of water into communities along the Feather River basin.

Feb. 13, 2017

Water levels at Lake Oroville drop below capacity, and water stops flowing over the potentially hazardous emergency spillway. Helicopters begin dropping packages into the erosion scar in the emergency spillway to fortify the weir and prevent a future disaster.

Feb. 14, 2017

The mandatory evacuation orders that were in place for two nights are reduced to evacuation warnings near Lake Oroville. Butte County Sheriff Kory Honea said the decision was made to reduce the evacuation orders because the situation at Lake Oroville had improved.

Feb. 27, 2017

Water releases at Lake Oroville via the damaged spillway are completely shut off after water officials began ramping down the outflows several hours before. Water outflows are expected to remain shut off for five to seven days. DWR officials project the cost to fix the damaged spillway would be more than $275 million, as they push for a deadline of Nov. 1 for both spillways to be repaired and operational. Nov. 1 is the traditional start of the rainy season.

Aug. 2, 2017

A Butte County farm files a $15 million claim with the state's Department of General Services, claiming it has sustained damages exceeding $15 million "as a result of dam and gates spillway failure at the Oroville Facility." They claim the loss of cleanup and remediation, production and acreage costs along the Feather River., including 27 acres and walnut-producing trees that would have produced about 189,000 pounds.

Sept. 5, 2017

An independent team of national dam safety experts releases a report that bad design and construction, as well as an inadequate state oversight led to the spillway collapse. The report adds that the state probably could have detected the problems if dam managers had reviewed the original flaws in the half-century-old dam using modern engineering standards.

Sept. 13, 2017

KCRA gets an up-close look at the construction on the main and emergency spillways at Oroville Dam. Seven-hundred contractors are working 24 hours a day, 7 days a week.

Oct. 19, 2017

DWR officials report that the costs to repair the Oroville Dam spillway are nearly double what was originally projected and will top $500 million. The original cost was estimated at $275 million.

Nov. 1, 2017

DWR officials say a "milestone" is reached as Phase 1 of the spillway construction is completed by DWR's self-imposed deadline of Nov. 1, less than nine months after the large hole eroded in the structure of the 3,000-foot-long spillway.

Nov. 28, 2017

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu

DWR officials say that small cracks that have appeared in the brand new concrete spillway at Oroville Dam are expected and do not pose a threat, adding that steps taken to build a more durable spillway caused the cracks.

Jan. 17, 2018

The city of Oroville files a lawsuit against the state over the spillway emergency, arguing the crisis was caused by decades of mismanagement, a culture of cronyism and a priority for low-cost dam repairs over quality maintenance for the crisis. Oroville's case seeks unspecified monetary damages to reimburse the city for the costs of the evacuation, lost revenue from sales taxes and tourism, and other expenses.

(To fix a dam or not.)

DAM CONTROLLING GULL LAKE WATER LEVEL IS KAPUT

By JIM MISHLER, February 12, 2020, wbckfm.com


Gull Lake

A privately owned dam is about all that controls the water level at Gull Lake. The large lake straddles Kalamazoo and Barry counties. The dam is a barrier for the downstream flow of water from an outflow channel near the south end of the lake. It's about kaput. An association of lakefront property owners has been in place for some time educating residents about what the dam does and what can happen if it fails.

One of the more notable end results of a failed dam is the potential of water levels on the lake falling from 4 to as much as 8 feet. The association has put a replacement project out to bid and they're all coming back about a quarter-million dollars higher than expected. The Gull Lake Dam Association is now working to bolster its bank account to be able to meet the higher than expected costs. Original estimates put the dam replacement cost at about $700 thousand dollars. The association is looking at a June deadline to raise the additional funds or face the need to re-bid the project which probably means even higher bids then. An association spokesman says everyone who owns a home on the lake should be supporting the fundraising, but surprisingly, quite a few aren't.

(When flood control and water supply are involved, you gotta do it.)

Feds to spend nearly $400 million to fix Whittier Narrows Dam

By MIKE SPRAGUE | msprague@scng.com | Whittier Daily News, whittierdailynews.com, February 11, 2020


Whittier Narrows Dam

Under pressure to refurbish the Whittier Narrows Dam, Montebello, California, the U.S. Army Corps of Engineers has released plans to spend $393.2 million on the facility as part of its Dam Safety and Seepage program, U.S. Rep. Grace Napolitano announced Monday afternoon. A year ago, Napolitano, D-El Monte sent a letter urging the U.S. Army Corps of Engineers to make safety repairs at Whittier Narrows Dam its highest budgetary priority in light of an assessment that said the barrier could fail in the event of a very large, very rare storm. Then in March, she met with Lt. Gen. Todd Semonite, the commanding general of the U.S. Army Corps of Engineers, again seeking help. "I've been harping on this for the last 10 years," Napolitano said in a Tuesday phone interview. Every time I see the commander, I would ask, 'What about Whittier Narrows?' Maybe, they got tired of me asking them."

Napolitano said in a statement she will continue to work closely with the Corps as this project moves forward to ensure these improvements are completed in an "expeditious manner," she

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu

wrote. "This dam safety work is needed not only for proper flood control for our area but also for water supply operations," Napolitano wrote. "Whittier Narrows is an extremely important water supply facility for our region as water is captured during storm events and channeled to local spreading basins for recharge into the groundwater basin. "These aquifers have been depleted by recent droughts in Southern California. The water captured at Whittier Narrows for groundwater replenishment is a vital source of water for our community. The main part of the work, some of which has already begun, is expected to begin in 2021, she said.

Nearly four years ago, the Army Corps of Engineers elevated the risk of dam failure from "high urgency" to "very high urgency" after a re-inspection revealed a greater threat of erosion and breach that would cause massive downstream flooding to 1 million Southern California residents in the event of a severe storm event.\ Inspectors also were alerted to the increased likelihood of spillway gates opening by themselves without prompting. Pico Rivera Mayor Gustavo Camacho, whose city is immediately south of the dam, praised Napolitano for her efforts to get the money. "It's good news for the safety and security of our residents," Camacho said. "We are the ones immediately impacted should there be any break." He acknowledged the chances of a large enough storm to break the dam is unlikely, but it's a risk not worth taking, Camacho said.
Last year, Napolitano and U.S, Rep. Linda T. Sánchez, D-Norwalk, spearheaded a letter with other local representatives to House Appropriators requesting more than $100 million in funding for Whittier Narrows. Napolitano has directly advocated for funding for this project over the past decade.

(It must be lonely out there. Think they mean dam safety program. Why do they always ask an environmental rep.about dam safety? The author spelled dam (damn) wrong.)

Alabama remains only state without state dam safety infrastructure

By: Jordan Highsmith, Feb 11, 2020, cbs42.com

BIRMINGHAM, Ala. (WIAT) — Many cars drove through flooded streets and detour road routes during Monday's severe weather. And the chance for severe weather is not overcome Wednesday. The heavy rain over the last couple of days has riverkeepers across the area concerned for the dam systems in Alabama. Alabama is the only state that does not have a regulatory program to ensure that dams are safely constructed. Officials say the heavy rain has the potential to weaken dams and pose a threat to neighboring communities.

Coosa staff riverkeeper Steven Dudley tells CBS 42 the need for a dam system program in the state is crucial to the longevity of the thousands of damns in the region. "Dams have life cycles and without a regulatory framework to make sure that people are doing what they need to, to make sure that those are structurally intact and not degraded, we don't know if those dams might just break in a flood event like we're seeing right now," Dudley said. According to the US Army Corps of Engineers, there are over 2200 dams in Alabama. The regulatory program would maintain that the dams are safely constructed and checked to ensure that downstream water users and upstream property owners are protected. Dams serve useful purposes across Alabama. Dams provide a range of economic, environmental, and social benefits, including recreation, flood control, water supply, hydroelectric power, waste management, river navigation, and wildlife habitat.

Hydro:

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu

(Bogus Basin – what a name! Great photo!)

Bogus Basin joins the clean energy bandwagon, switching to 100% renewables

By TAYLOR RICO-PEKEROL, January 29, 2020, arbiteronline.com

Bogus Basin is known for its peak 16-mile location from Boise and Boise State's campus; it is the area's closest ski mountain and has day and night skiing slopes available. The winter ski mountain announced they will be switching to 100% clean energy and will be buying renewable energy from Idaho Power due to an increase in the production of Idaho-based hydroelectric plants, according to Steve Hubble, the project manager for Boise's Energy Future. According to an article published by Snow Industry News, Bogus Basin is the second ski area in Idaho to make the pledge to clean energy.

Ada County first introduced the plan to switch to 100% clean energy by 2035 in 2019. Hubble has been a part of the city of Boise's plan to implement 100% clean energy and noted that, although Bogus is not in Ada County or Boise, it is still important to take on the initiative as well.\ "One of the areas that [Boise Energy Future] focused that maybe ties a little bit to what they're doing at Bogus Basin is that Idaho power is our electric utility," Hubble said. "They have energy efficiency programs, and they also have programs that allow users to purchase renewable energy ones called their Green Power Program." This program allows anyone the ability to confirm that they are using clean energy and allows for a relatively normal cost for renewable energy credits. According to Hubble, Idaho has an above-average supply of renewable energy compared to the national average due to hydroelectric generators that are powered by dams around the state. Government Relations officer and student lobbyist for the Associated Students of Boise State University (ASBSU) Morgan Brummund has worked on sustainability initiatives on campus in the past. Last semester, she and her committee passed a clean energy resolution for Boise State to follow along with the city's plan for 100% renewable energy.

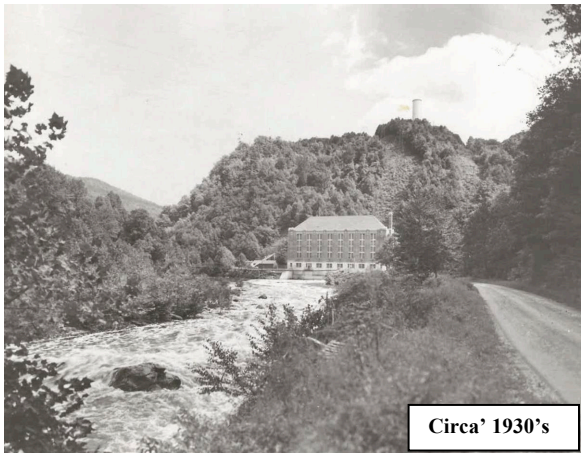
"[Bogus Basin] is a nonprofit and I think that they're totally listening to what Idahoans and Boise specifically are passionate about," Brummund said. "I think that obviously with Boise's energy future being a set goal and a set initiative, [Bogus Basin] really listened to that because they're really like a part of Boise too." Ty Callihan, a senior construction management major, has been an avid snowboarder for most of his college career and appreciates the actions he is seeing this popular local resort. "I feel like it's important that they are showing initiative for other ski areas to go clean energy because it will show other areas they should do it too," Callihan said. "I think that if other resorts want to take after Bogus that would only benefit the environment because I don't see any cons to it." Brummund noted that the news about Bogus Basin is spreading across state borders as her friends from out-of-state began messaging her about the plan to move towards clean energy. The plan not only coincides with Boise's but also places an emphasis on the impact that popular areas can have if they switch to a clean energy initiative. "It's right now economically smart to make that transition [to renewable energy] early on because you're going to have those benefits down the line in renewable energy," Brummund said. "And energy efficiency technology really does pay itself off when you do a cost-benefit analysis, but it also is really good for our planet, which is what we need right now."

(Some hydro history.)

Building a marvel: The Walters power plant and dam

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu

By Kathy N. Ross, 2/1/2020, themountaineer.com


Circa' 1930's

An engineering marvel snakes alongside Interstate 40 through the Pigeon River gorge, a power plant remarkable for any age, but especially in the time it was built.
Walters Lake and the power plant below it now belong to Duke Energy, but almost 100 years ago, it was Carolina Power & Light that conceived the idea of building a massive electric power facility in some of the most rugged territory in Haywood County. How rugged? Before the power company could build the 180-foot-high dam that would hold back the waters of the Pigeon River, it would have to build a railroad to haul in its workers and materials. There was no road to give easy access to the construction site, especially not from the rest of Haywood County. The cheaper solution was to extend an old logging railroad line five miles up the gorge.

Carolina Power & Light was not the first to provide power from the Pigeon River. In 1906 Haywood Electric Power Company, Hepco for short, constructed a dam on the Pigeon near the mouth of Fines Creek. Benjamin Sloan, owner of the White Sulphur Springs Hotel organized the company with Sam Welch and Thomas Stringfield to obtain a consistent power supply for his tourist hotel. The Hepco dam, built of granite stone and mortar, provided the water flow to power a 1,300-volt generator. Transmission lines were routed up the river to Jonathan Creek, through Iron Duff and into Waynesville. Hepco may have been a key player in luring Haywood's largest manufacturer. When industrialist Peter Thomson was looking for a site to build a paper mill, Sloan offered to supply the electric power if he would locate the mill in Canton or Clyde. Thompson constructed the Champion pulp and paper mill in Canton, and in its early years, Hepco could also generate enough power to sell some to a company in Newport, Tenn. Its challenges were also ample warning to those who would try hydropower on a bigger scale. The power plant equipment had to be hauled to the dam by wagon in a trip that took two days and sometimes required several teams of horses. The late Louise Sloan, whose husband was one of Sloan's grandsons, told of family stories about having to shift from one side of the wagon to the other on trips to the plant, to keep from overturning in deep ruts. By 1920, however, Hepco was having problems. The lake basin behind the dam had become choked with debris which lowered the water capacity and damaged equipment. Sloan died in 1922 and the company was recognized into the Smoky Mountain Power Company, but when CP&L started construction of the Walters plant, the local company sold out.

New dam studied

The year after Sloan died, the Asheville Power & Light Company, soon to become Carolina Power & Light, began studying the gorge for a massive hydroelectric power plant. The same thing that had drawn Sloan to build his Hepco dam on the Pigeon, the deep gorge that made up the river's sides, drew the attention of the Asheville company and its engineers. The company spent the next three years getting a temporary permit to explore the issue, surveying the land, leasing and buying property and designing a power plant. "Twelve Million Dollar Power Development Plans for Haywood County," declared The Waynesville Mountaineer in January of 1926. The power company was ready to submit plans to the Federal Power Commission. "The great hydroelectric plan contemplated would exceed 60,000 kilowatts and would probably not be surpassed by any power development in the south of this kind," stated the article, reprinted from the Asheville Citizen.

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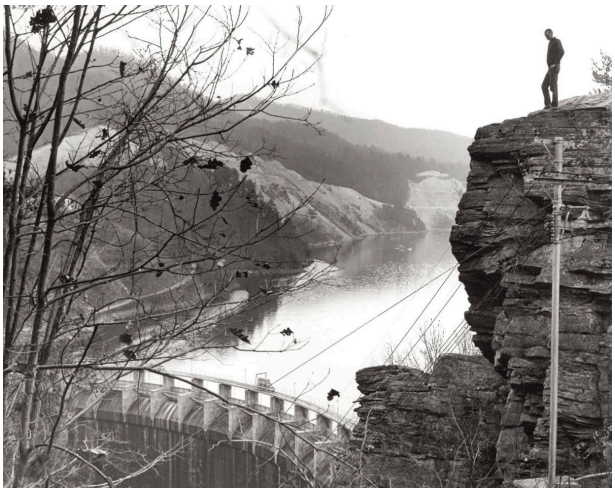

The idea the power company proposed was staggering. It would build a 180-foot dam near the mouth of Cataloochee Creek. A 6.2-mile tunnel would be carved and blasted through the mountain where it would end at a power generating plant just inside the North Carolina state line. Water would enter the 14-foot-wide horse-shoe-shaped tunnel near the dam. Its journey down the first four miles of the tunnel would be a slight, .28-percent grade. Then the tunnel would plunge 552 feet straight down before resuming a slight downhill run for the last two miles, dividing into three penstocks near the power house where it would encounter the turbines.

On the last steep knoll above the power plant, a surge tower would be built that would stand 180 feet high, atop a concrete shaft cut 600 feet down and connecting to the tunnel. The surge tower would be a guard against sudden changes in the flow and pressure of water, a massive release valve to allow water to surge up the shafts and tunnel and wash down its sides, if needed. It took workers a year to build the rail line to the dam site. Though the tunnel would run 6.2 miles under the mountain from the dam to the power plant, the route the railroad would take was along the river and the gorge.

In addition to building the railroad, the power company and contractor built separate work camps for crews working on the dam, the powerhouse and the tunnel. A more permanent village was built near the powerhouse for the workers in the isolated region, including a clubhouse, schoolhouse, boarding house, and post office. Permanent homes were also built near the dam, so that employees could always be on site.

Building the dam

The late Wilbur Teague, born in 1927, grew up around the dam, for his father, Joseph, was a rigger foreman and later maintenance supervisor at the site. Wilbur, in turn, spent 28 years as supervisor, working 45 years at the dam in total. The story of his father getting work at the dam was one of many Wilbur liked to tell: In 1927, rock that was blasted out of the tunnel was hauled out the tunnel's head gate near the Cataloochee Creek cove, then hauled across the lake on cable, transported by railcar to a rock crusher and used in the cement for the dam. One day the cable system broke down. When workers could not repair it, a county deputy suggested sending for Joe Teague. Teague had the system running again within hours. The company hired him full-time, and he worked at the dam until 1957.

The diary of Noah Baxter, a carpenter and job foreman working on the power plant, gives glimpses into workmen's lives during the construction of the dam and the power plant.
In March of 1927, Baxter and his crew built a temporary camp for workers, repaired one bridge and built two more. In April, they built another four bridges, began building another work camp and cut and skidded out timber. The next month they built a mess hall and store house, built a depot in a single day and constructed a powder house, among other projects. Baxter spent much of the year constructing workers' villages. In August of the next year he was working on the project itself, building forms for a crusher plant that broke the granite blasted out of the tunnel, pouring concrete for the crusher foundation, and cutting rings for the tunnel.

Over the next year his journal included these entries and more: "the steel workers now putting in no. 19 tube of steel for penstock no. 3" "…visit in tunnel at Sterling Creek, about 60 feet under solid rock" "… drilling penstocks of tunnel at Waterville … distribute heating stoves to bunk house

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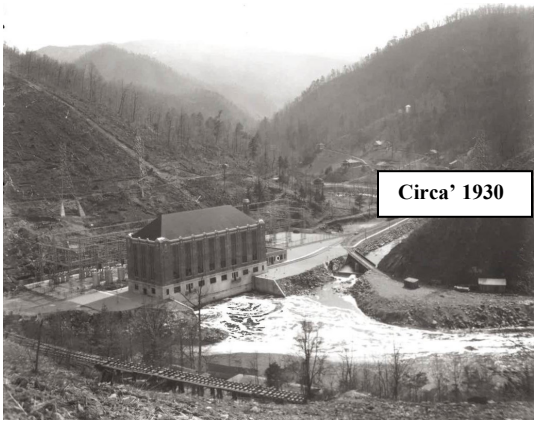
… caulk spillway … finish spillway, 6 foot deep, 15 food wide, 350 feet long … third deck of crusher building (is) up … made tunnel wedges … began excavation for concrete mixing plant …
In November of 1929, his entries show that work was nearing completion. "Raining. River begins to rise. Dam is full … river rising rapidly on account of rain and raising one or two flood gates on dam." "Finish forms of spillway at Sterling Creek. Crusher torn down. Rode across on cable on a load of crusher junk." "Saw a boat going up on a flat car toward the dam — guess there's to be joy-riding on the lake." "Cutting up crusher parts. Last tube in penstock pulled in, partly bolted."



Power — at last
The CP&L plant began providing electricity in 1930. For many men, their work there was completed. For a few, the adventures were just getting under way. In next week's story, the dangers and adventures of working for CP&L at Walters Lake and Waterville. *Sources for this story include past editions of The Mountaineer, among them a feature on Wilbur Teague, 10/22/1998, and a story on Hepco, 3/27/1998. Other sources: "A Guide to the Historic Architecture of Western North Carolina by Catherine W. Bishir, Michael T. Southern & Jennifer Martin; Kathy N. Ross' own visits to the power plant as a member of the Pigeon River Board. Excerpts of Noah Baxter's work journal were published by Junior and Helen Ball in their "History of Mt. Sterling, N.C. and its People, Volume II."*

(More history for your lesson today!)

History made: Abbot Machine Co., formerly Alton Gas and Electric powerhouse, makes National Register of Historic Places

The Telegraph, February 10, 2020, thetelegraph.com

ALTON, Miss. — The Alton Gas and Electric Co. Powerhouse on Illinois 100, the Great River Road, was among 12 sites added to the National Register of Historic Places during 2019, the Illinois Department of Natural Resources (IDNR) announced Monday. The honored locations include a replica of the Leaning Tower of Pisa, a stone wine cellar and three historic districts that, when combined, include more than 60 significant properties. Historic places are added to the National Register of Historic Places by the National Park Service based on recommendations from the Illinois State Historic Preservation Office, a division of the IDNR. The Alton Gas and Electric Powerhouse, now Abbott Machine Co., was initially constructed in 1913-1914 as a substation for Keokuk, Iowa's hydroelectric system. The power house remains in its original location and the site has not been significantly altered since the power house complex was completed in 1914.

Alton's first power plant, at 727 Belle St., was built in 1855 by Alton Gas & Electric Co. It was coal powered. By 1897, the firm had built a new power station at the southwest corner of Piasa and West 6th streets for the power company's owner, Alton Railway and Illuminating Company. In 1899, Alton Railway Gas & Electric Co. acquired the Alton Railway and Illuminating Co. Alton Railway Gas & Electric became a subsidiary of Alton Light & Traction Co. in 1903. The following year, it merged with Alton, Granite & St. Louis Traction Co., placing the company's utilities under direct management of the Alton Gas & Electric Co.

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In 1911, Henry Lewis with the Keokuk Power Co. came to Alton seeking partnerships with power suppliers such as Alton Gas & Electric. Alton was within the direct path of Keokuk's hydroelectric system intended to reach St. Louis. By 1911 the city of Alton had signed a contract to receive power via Keokuk's system.

In 1912, a newly formed Piasa Power and Light Company announced plans to construct a power house in Alton, and Alton Gas & Electric Company immediately disclosed plans for a power plant "12 times" larger than Piasa's proposal. The facility supported a 159-foot smokestack that still survives constructed of reinforced concrete and steel. The plant's innovative machinery was designed to pump an average of 10 million gallons of water per day from the Mississippi River. For more than a decade, the plant powered Alton and its neighboring communities' industrial, commercial and residential concerns. But by 1928, the plant was no longer considered viable for providing electricity sufficient to support local industry and/or residential customers, both of which expanded rapidly after World War I.

In 1928, the "old steam plant under the bluffs" as it was called was retired and Alton's electrical needs were met via new transmission towers connecting the city with Cahokia's coal-powered station. Following a merger of the Union Electric Company and the Mississippi River Power Co., the Alton Gas and Electric Power House became reassigned as an emergency station in 1928. Union Electric permanently closed the powerhouse in 1937. Bill Abbott bought the aging building in 1950 and, after an extensive rebuild of the facility, operated a machine shop until 1961 when his son, Bob Abbott, returned from the Air Force. The father-son team founded Abbott Machine Co. which currently works all over the world refurbishing grinding equipment, providing onsite equipment installations, servicing and training. IDNR officials said what remains of the Alton Gas and Electric Co. power house "is a clear testament to Alton's early 20th century industrial prominence." *The National Register of Historic Places is the official list of properties that merit special attention and preservation. In general, properties must be more than 50 years old. A listing places no obligations on private property owners but does make properties eligible for some financial incentives.*

(Let's get the facts straight. Pumped up opponents using the wrong facts.)

Response To 'Lake Elsinore Area Residents Organize to Oppose Hydroelectric Project'

By Greg Thomas, February 7, 2020, myvalleynews.com

Opinion:

It is important to clarify misinformation about Elsinore Valley Municipal Water District and the proposed Lake Elsinore Advanced Pumped Storage project that were reported in the Jan. 23 story "Lake Elsinore area residents organize to oppose hydroelectric project." EVMWD is not a partner in LEAPS. Under a 2018 agreement to settle litigation between EVMWD and Nevada Hydro, which is the project's proponent, Nevada Hydro will be able to deposit imported water into Lake Elsinore for its operations. Nevada Hydro will be responsible for all the costs of securing and delivering the additional water and the district would convey it through our distribution system should the LEAPS project receive federal licensing approval. Specific source has not been identified but will come through a regional wholesaler. The agreed-upon lake level that would have to be maintained is 1,240 feet, not 1,244 feet as was quoted in the story. EVMWD has been part of an ongoing effort to improve water quality in Lake Elsinore. The district adds 5 million gallons of highly treated recycled water to the lake each day, though the city has no required lake level. We pride ourselves on being a good steward of the lake and will continue to serve as a resource for this important community partnership. *Greg Thomas*, *General Manager*, *Elsinore Valley Municipal Water District*

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([Excerpts].He thinks hydro is renewable, why doesn't everyone think that?)

Four key takeaways from Mayor de Blasio's 2020 State of the City Address

By Mark Hallum, Feb.6, amny.com

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Climate

Almost a year after he announced a Green New Deal for New York City that cracked down high exhaust buildings and planned to source electricity from "sustainable," hydroelectric power from Canada. The administration says an agreement will be secured to fully power the city with hydroelectric power by 2025. ----------.

([Excerpts]. Hope they don't get screwed again.)

EDITORIAL: 11 things we liked this week

February 06, 2020, myrecordjournal.com

----------. The hydroelectric dam project at Hanover Pond in Meriden. CT recently received certification from the Low Impact Hydropower Institute, a nonprofit dedicated to reducing environmental impacts of hydropower dams. New England Hydropower Co. installed an Archimedes screw turbine at the Hanover Pond dam in 2016 and it began generating power in 2017. Water flowing through the system turns the large screw to generate power. Fish and other aquatic life can safely pass through the large pockets of water taken in by the screw.----------.

(Getting their internet up-to-date by installing fiber optics cable.)

CenturyLink builds fiber to dams for the U.S. Army Corps of Engineers

By Mike Robuck | Feb 6, 2020, fiercetelecom.com

CenturyLink to bring fiber to U.S. Army Corps of Engineers' dams in Oreg. and Wash..(Pixabay)

CenturyLink is pushing fiber to dams in Oregon and Washington to help the U.S. Army Corps of Engineers modernize its infrastructure. The network operator won five contracts valued at a total of $3.4 million over five years. The contracts were awarded over the past year by the General Service Administration's IT Schedule 70 contract. CenturyLink's fiber will provide high-speed data transmission services to the Ice Harbor, Little Goose and Lower Granite Dams along the lower Snake River in Washington, and the Foster and Green Peters Dams along the Columbia River in Oregon, as part of the dam safety program. The dams serve as multi-use critical infrastructure facilities that provide flood risk management, hydropower, navigation, environmental stewardship, fish and wildlife conservation, and recreation benefits. CenturyLink's Ethernet solution will eliminate the need for specialized high-voltage safety protection equipment, as well as the use of legacy copper cable that was old and, in some places, chewed up by gophers. (Caddy Shack's Carl Spackler must have not been available to terminate the gophers.)

"By replacing the legacy copper cables and modernizing the network with fiber, CenturyLink is helping the Army Corps of Engineers improve its safety posture and better protect critical infrastructure at five dams in Oregon and Washington," said David Young, CenturyLink senior vice president, public sector, in a statement. Founded in 1802, the U.S. Army Corps of Engineers operates and maintains approximately 700 dams nationwide and in Puerto Rico. Last month, CenturyLink announced it was awarded a 15-year contract with the U.S. Social Security Administration (SSA) that's worth up to $470 million. Also in January, CenturyLink was awarded a

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$1.6 billion contract with the U.S. Department of Interior (DoI), as well as a U.S. Department of Defense Education Activity (DoDEA) contract that's worth up to $75 million. Last year CenturyLink won a contract to provide connectivity for NASA. All of those contracts, or task orders, were awarded by the General Services Administration's Enterprise Infrastructure Solutions (EIS) program. CenturyLink was the first supplier last year to garner the authority to operate under the GSA's 15-year, $50 billion EIS program. EIS was designed to award various contracts to vendors that help federal agencies to buy and update their IT and telecommunications infrastructure services. It's an indefinite-delivery, indefinite-quantity (IDIQ) program that serves as the follow-on to GSA's Networks, WITS3 and regional telecommunications services contracts.

Other Stuff:

(Old article, but pertinent. A lot of reference to Articles and where new future technologies are going. Who knows what the future brings?)

Future Power Technology – Issue 102

In this issue: Recasting the EU Renewable Energy Directive, promising renewable projects in Africa, the world's biggest solar power plants, risks faced by paramedics on offshore windfarms, and more

Sept 5, 2018, .power-technology.com

The September issue of Future Power Technology is out now and you can read it here for free on all devices. The EU's Renewable Energy Directive has been recast, raising renewables targets and establishing a clear regulatory framework on self-consumption. Importantly, it has clarified the definition of biomass, previously drawing criticism for being too simplistic. We review the key changes to the directive and the concerns about biomass in particular. We also take a look at the potential of renewables to transform energy systems across the African continent and profile the most promising new energy markets in the region, and consider the implications of India's recent decision to impose a safeguard duty on solar cells and modules imported from China and Malaysia for the next two years. Also in solar, we round up the world's biggest solar power plants by installed capacity. Plus, we check in with Siemens' pilot project for ammonia-based energy storage, take a look at ABB and Imperial University London's carbon capture plant, find out how energy usage and demand is set to change as a result of global warming, and consider the risks faced by paramedics working on remote offshore windfarms.

Can renewables meet their potential in Africa? (Article)
A recent report from Hogan Lovells highlights the potential of renewables to transform the energy system in Africa. What are the most promising new energy markets, why are they exciting and what challenges remain? Molly Lempriere reports.

Biomass in the EU: has the latest energy directive done enough to calm fears?
The European Union's Renewable Energy Directive has been recast, raising the renewables target and establishing a clear framework on self-consumption. Despite the positives there has

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also been criticism, especially over the definition of biomass. What were these concerns and what has the recast changed? Molly Lempriere finds out.

Cold comfort: energy in a warming world (Article)
As the world heats up, energy demand is shifting. More energy is needed for cooling systems as heatwaves create health and safety concerns, yet little is being done to meet this requirement. Molly Lempriere considers the implications of a warming world on energy demand.
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India's safeguard duty: targeting Chinese and Malaysian solar tech (Article)
India's Ministry of Commerce, through the Directorate General of Trade Remedies, has imposed a safeguard duty on solar cells and modules imported from China and Malaysia for the next two years. Global Data Energy considers the implications of the duty.
.
Could ammonia be the next key player in energy storage? (Article)
Reliable energy storage has fast become the target technology to unlock the vast potential of renewable energy, and while lithium currently hogs the spotlight as the battery material of choice, a new ammonia demonstrator piloted by Siemens is showing strong potential. Scarlett Evans reports.

Inside London's very own carbon capture (test) plant (Article)
Filling four stories of Imperial College London, UK, is a one-of-a-kind carbon capture plant. Built for students in partnership with ABB, the facility is currently being used to test the firm's new software solution that will allow pupils to understand how different plant devices work. Heidi Vella finds out more from ABB digital lead David Lincoln.

Golden hour: the paramedics saving lives on offshore windfarms (Article)
SSI Energy has secured two contracts to supply highly trained, dual role technicians to work on the Greater Gabbard Offshore Wind Farm and to deploy paramedics during construction of the East Anglia One project. Talal Husseini considers the risks faced by paramedics working on these remote windfarms.

The world's biggest solar power plants (Article)
Solar is one of the fastest growing energy sources in the world, and with countries racing to assert their dominance in the burgeoning industry the leading nation is never clear for long. Scarlett Evans profiles the eight biggest solar power plants in the world.

Preview – Future Power October (Article)
A new report published by Eurelectric examines the impact block chain will have on Europe's distribution network operators. The digital ledger technology is a potential threat to operators, offering a cheaper and more efficient alternative, but with it comes concerns of a monopolised network system. Could block chain spell the end for the traditional network distribution model?

We also find out more about a mobile app that allows Northern Power grid customers to win cash prizes by turning off appliances at times of peak demand, consider whether a big city can retrofit its already vast network of drinking water and sewage pipes with turbines capable of producing hydropower, and in a special roundtable feature we ask experts for their opinions on new nuclear in the UK. Plus, we talk to Centrica about how an organisation as large and unwieldy as the NHS could benefit from an energy upgrade, investigate the role of water in the coal supply chain, and address the £1.3bn worth of energy loss in the UK due to poor cabling.

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(Other renewables on the rise, hydro is stagnant.)

Renewables Will Soon Surpass Nuclear, Coal in Power Generation [Report]

By Mike Hockett, Feb 06, 2020, thomasnet.com

Welcome to Thomas Insights — every day, we publish the latest news and analysis to keep our readers up to date on what's happening in industry. Sign up here to get the day's top stories delivered straight to your inbox.

At the end of January, the U.S. Energy Information Administration (EIA) shared its latest long-term projections for U.S. electricity generation, showing that renewables are expected to soon surpass nuclear and coal. EIA's 30-year forecasts show that electricity from renewable sources such as wind and solar will surpass nuclear and coal by 2021 and overtake natural gas by 2045. The administration's Annual Energy Outlook 2020 (AEO2020) states that the share of renewables in the U.S. electricity generation mix increases from 19% in 2019 to 38% in 2050. Most of the projected growth in renewable electricity is attributed to wind and solar, which combined to account for about half of renewable electricity today. EIA projects wind and solar to account for nearly 80% of the renewable total in 2050, with the group adding that new wind capacity additions continue at much lower levels after production tax credits expire in the early 2020s. Most of the growth in renewable electricity generation is attributed to wind and solar, which account for about half of renewable generation today. In EIA's AEO2020 Reference case, these technologies account for nearly 80% of the renewable total in 2050. New wind capacity additions continue at much lower levels after production tax credits expire in the early 2020s.

EIA says that growth in solar electricity continues through 2050 both for utility-scale and small-scale applications due to declining photovoltaic costs through the projected period. Meanwhile, conventional hydroelectric generation remains relatively unchanged and becomes a smaller portion of the renewable generation mix as other sources increase. Alternative scenario's in EIA's AEO2020 account for changes to the costs of renewables and the availability of oil and natural gas resources. But even in cases of high oil and gas supply and high renewable cost cases, projections show renewable generation nearly doubles form current levels by 2050. The AEO2020 shows that renewable generation grows in all U.S. regions in all scenarios and that the preferred technology type depends on available resources. Wind-powered generation grows most in the west and mid-continent regions, while solar-power grows most in the southeast. Offshore wind will also take place in the SE. Renewable generation grows in all regions of the United States in all AEO2020 scenarios, but the preferred technology type depends on the availability of renewable energy resources. Wind-powered generation grows the most in the West and Mid-Continent regions, and solar-powered generation grows the most in the Southeast

(Here's the best places to live if you want to be healthy.)

10 Healthiest, Most Unhealthy Cities in America

Head West for good health

By Jenn Gidman, Newser Staff, Feb 10, 2020, newser.com

(NEWSER) – Staying in shape and in a general state of wellness is (and should be) a priority for most—and where you live can have an effect on how you maintain your health. WalletHub looked at more than 170 of the most populated US cities across more than three dozen metrics, in four main categories: Health Care (e.g., doctors and dentists per capita, the quality of local public hospitals); Food (such

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factors as the share of residents who say they eat healthy, how many neglect their fruits and veggies, and nutritionists per capita); Fitness (including share of adults who partake in physical activity, as well as fitness clubs and weight-loss centers per capita); and Green Space (e.g., such things as the quality of a city's parks and how many hiking, walking, and running trails it boasts).

Best cities in America for your health.

1. San Francisco (No. 1 in both "Food" and "Green Space" categories)
2. Seattle
3. San Diego (No. 1 in "Fitness" category)
4. Portland, Ore.
5. Washington, DC
6. New York
7. Denver
8. Irvine, Calif.
9. Scottsdale, Ariz.
10. Chicago

Worst-performing cities that need a checkup.

1. Brownsville, Texas (last in both "Health Care" and "Food" categories)
2. Laredo, Texas (last in "Fitness" category)
3. Gulfport, Miss. (last in "Green Space category)
4. Shreveport, La.
5. Memphis, Tenn.
6. Montgomery, Ala.
7. Huntington, W. Va.
8. Augusta, Ga.
9. Fort Smith, Ark.
10. Detroit

See how other cities on the full list fared here:
https://wallethub.com/edu/healthiest-cities/31072/ with San Francisco atop the list.
Here, the top 10 cities to consider for your golden years:
https://www.newser.com/story/280024/10-best-worst-us-cities-for-retirees.html ,

[i]This compilation of articles and other information is provided at no cost for those interested in hydropower, dams, and other resources issues and development, and should not be used for any commercial or other purpose. Any copyrighted material herein is distributed without profit or payment from those who have an interest in receiving this information for non-profit and educational purposes only.

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