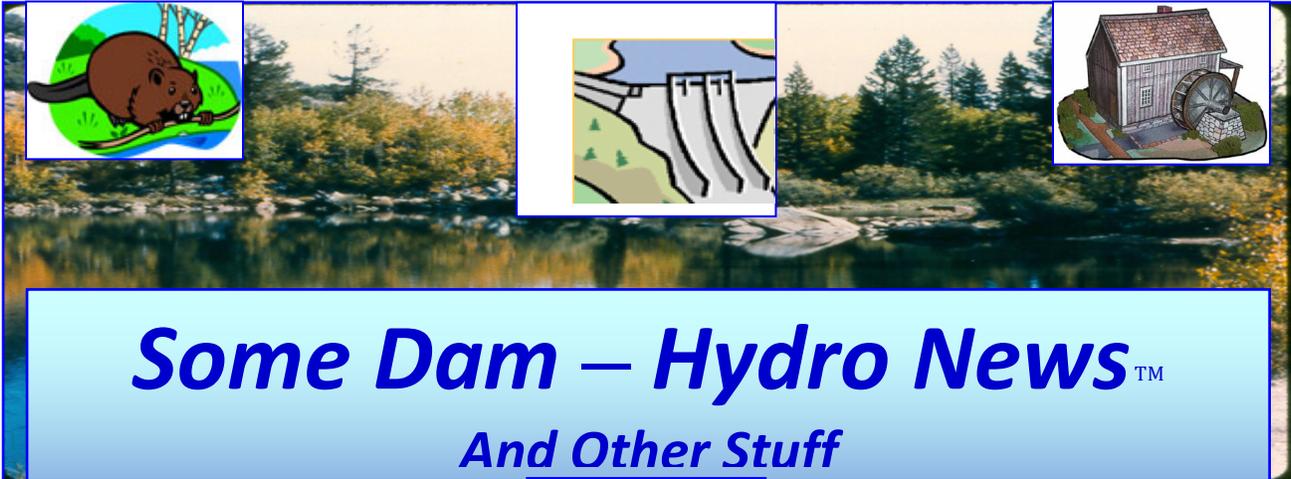


1/31/2020



# Some Dam – Hydro News™

## And Other Stuff



**Quote of Note:** *“And are we not all 'mere guests' upon this whirling earth?” - Lee Smith*

### Dams:

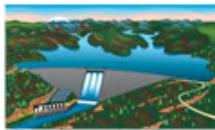
(Another “show me the money” moment.)

**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: 2017 Clos de Nit Spanish Red "Tinto"**

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



### **NY state funding denied for Kingston reservoir dam project**

**State denies city's request for aid to rehabilitate dam at reservoir**

By Paul Kirby. [dailyfreeman.com](http://dailyfreeman.com), 12/30/19

KINGSTON, N.Y. — The city Water Department is getting \$900,000 in state aid to help offset the cost of water delivery infrastructure, but it has been denied New York funding for the multimillion-dollar dam restoration project at the Cooper Lake reservoir. Department Superintendent Judith Hansen, though, remains hopeful about receiving aid for the dam project. “We had originally applied for this in 2017,” Hansen wrote in an email. “If you are not



funded in the year that you apply, they keep your application and consider it in future rounds of funding. "Based on the 2019 awardee list, we got funding for [the infrastructure] work but not for Cooper," Hansen said. "I am hopeful we will be successful for that in the next round."

The dam restoration, which is needed to comply with new state safety standards, is expected to cost \$12 million. The maximum state grant for the work would be \$3 million. If the city has to cover the full cost of the project, water users' rates will rise about 20 percent, Hansen has said. If the local cost is reduced by \$3 million, ratepayers still are likely to see a 15 percent jump. The city Board of Water Commissioners already has approved a 5 percent rate hike for customers for 2020, and multiple annual hikes of the same amount could follow. Any local cost of dam project is to be financed in part by bonding and possibly by a \$4 million low-interest loan. Cooper Lake, in the Woodstock hamlet of Lake Hill, is the main water supply for the city of Kingston. The lake is fed by the Mink Hollow Creek.

The \$900,000 for the water delivery infrastructure improvements is coming from \$2.2 million awarded to the city by the state Environmental Facilities Corp. Hansen has said the Water Department will use the money for its ongoing Transmission Main Rehabilitation Project and Supervisory Control and Data Acquisition Project. The projects include replacement of key valves within the distribution system. The transmission mains are the "life-blood of our system, conducting water from our source, through the treatment system and into the homes and businesses of the city of Kingston," Hansen said. The department also will use some of the funding for the final phase of the installation of a system that will allow staff to remotely monitor the water system and control some aspects of the operations from central locations.

(Doesn't look good for this guy.)

## OFFICIALS: DAM AT MISSISSIPPI LAKE COULD SOON FAIL, RESIDENTS URGED TO EVACUATE

By Associated Press, WXXV, January 15, 2020, wxxv25.com

County officials work on the Oktibbeha County Lake Dam, Tuesday, Jan. 14, 2020, near Starkville, Miss., after County Engineer Clyde Pritchard warned the dam's failure was imminent. Emergency management officials in one Mississippi county say heavy rains could cause a failure in the dam at Oktibbeha County Lake and they're urging residents near there to evacuate as a precaution



STARKVILLE, Miss. (AP) — Emergency management officials say heavy rains could cause the failure of a dam in rural northeastern Mississippi. Officials are urging residents near Oktibbeha County Lake to evacuate. While the evacuation is not mandatory, officials say residents near the dam should relocate to a safer distance. The number of people affected wasn't immediately clear. Officials say there are about 130 property addresses in the area. A two-year Associated Press investigation found that Mississippi has one of the nation's highest numbers of dams that pose dangers and are in poor or unsatisfactory condition.

(Update!)

## Supervisors approve plan to lower Oktibbeha Lake water level

By Tess Vrbin, January 16, 2020, cdispatch.com

Oktibbeha County will ask the U.S. Army Corps of Engineers for a set of pipes to drain the Oktibbeha County Lake Dam to a few feet above the bottom in order to relieve pressure on the levee, which started to show early signs of breaching Tuesday morning and prompted a warning and 24-hour monitoring from county leaders. The board of supervisors held a special call meeting

this morning and voted unanimously to grant county Emergency Management Agency director Kristen Campanella the authority to submit the request to the corps of engineers. Ryan Reves, the dam safety manager for the Vicksburg district, said the county can use the pipes as long as they are needed, but the corps first needs to determine how many pipes are available and in what size, pick them up and bring them to the county lake, so it is currently unknown how soon the pipes will arrive. "We'll expedite that as quickly as we can," Reves told the board.

(More problems with dam in Mississippi.)

### **New sinkhole found at endangered Mississippi dam**

By Associated Press, JANUARY 17, 2020, mynorthwest.com

STARKVILLE, Miss. (AP) — An inspection found a new sinkhole at a Mississippi lake where an earthen dam could fail because of high water levels linked to heavy rains, officials said Friday. The sinkhole was discovered at Oktibbeha County Lake on Thursday after county supervisors approved a plan to drain the lake in an effort to keep it from breaching, the Starkville Daily News Measuring about 3 feet (0.9 meters) deep and 4 feet (1.2 meters) wide, the hole hadn't gotten larger by Friday, but officials feared that could change with heavy rain predicted over the weekend.



County engineer Clyde Pritchard said the surface area of the lake already has doubled to about 900 acres (360 hectares), and he estimated it could take as long as 24 days to lower the water level by just 5 feet (1.5 meters) using pumps that move 25,000 gallons (94,600 liters) of water a minute. The lake is about 10 miles (16 kilometers) northwest of Starkville, the home of Mississippi State University. A breach of the dam, which Pritchard said was built in the 1960s, would endanger about 130 properties and nine highways downstream. Mississippi has one of the highest numbers of dams that pose dangers and are in poor or unsatisfactory condition, according to a two-year investigation by The Associated Press.

(Hope this makes it safer. The fines are not high enough. You can do a lot of safety fixes, but it won't trump stupid.)

### **Pa. House passes bill to strengthen penalties for not properly marking dams that can become 'drowning machines'**

By Jan Murphy, Jan 15, 2020, pennlive.com

The Pennsylvania House of Representatives passed a bill to strengthen the penalties for not properly marking low head dams with signs and buoys and for not maintaining those markers to warn of the dangers of getting too close to these so-called "drowning machines." The drowning deaths of a mother and her 3-year-old daughter after their boat capsized at the Dock Street Dam in Harrisburg has spurred Pennsylvania lawmakers' interest in making sure low head dams are properly marked for public safety. The state House of Representatives on Wednesday voted 194-0 to pass a bill that establishes criminal penalties for anyone who fails to properly mark a low head, or run-of-the-river, dam with signs and buoys on both the upstream and downstream sides of the dam. Failure to maintain those signs and buoys also is subject to penalties. The bill now goes to the Senate for consideration.



Under the bill, failure to mark a new or existing dam would be subject to a fine of \$250 or up to 90 days' imprisonment. Every month thereafter the dam is not marked would be a subsequent offense that would carry up to a \$5,000 fine and/or up to 90 days' imprisonment. Failing to maintain the signage or buoys would carry a penalty of up to a \$150 fine and up to 20 days' imprisonment with subsequent offenses subject to a \$250 fine or up to 90 days' imprisonment. Currently, the only way to enforce the low-head dam marking provisions is through a prolonged civil process. This legislation would allow the Pennsylvania Fish and Boat Commission to directly issue citations to owners who fail to mark and maintain the markings of their low head dam.

"Forty-nine individuals have lost their lives in dam-related boating accidents since 1989," said Rep. Keith Gillespie, R-York County, who sponsored the bill. "Boaters are often caught in the dangerous hydraulic boil behind the structure, which is often referred to as a 'drowning machine.' It's far past time to strengthen the warnings for these dangerous structures and protect those who take advantage of the recreational opportunities that Pennsylvania's rivers offer."

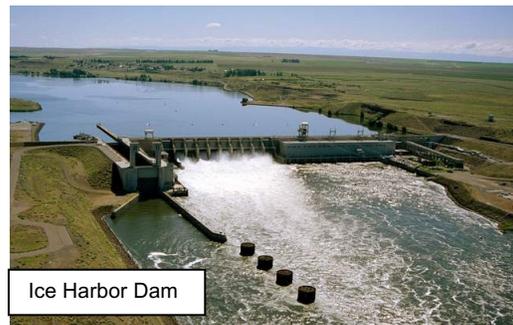
The City of Harrisburg last year installed warning buoys downstream from the Dock Street Dam. It also added flashing LED lights to the buoys on both sides of the dam and put the more than 40 buoys out in the wake of the 2018 drowning deaths of 25-year-old Mary Bredbenner, 25, her 3-year-old daughter Madelyn Binkley, and the family dog. Cody Binkley in November pleaded guilty to involuntary manslaughter and other charges for being intoxicated while operating the boat that claimed the lives of his fiancée and daughter. Pennsylvania has over 300 of these dams, many of which were originally constructed to support a local mill or factory and are now obsolete. These dams impound water where the impoundment at normal flow is completely within the banks and all flow passes over the entire dam structure. The Dock Street Dam was constructed originally to serve as both flood control and recreational use, according to the Harrisburg Parks Foundation website.

(Wow, that's a big price tag!)

## DAM REMOVAL WOULD COST \$2.3B, JEOPARDIZE LOCAL ECONOMIES

January 17, 2020 at 5:00 am | By Mallory Gruben, TNS, columbiabasinherald.com

LONGVIEW, Wash. — A new study commissioned by an association of river commercial groups says removing the four Lower Snake River dams to improve salmon runs would cost \$2.3 billion over the next 30 years, boost state carbon emissions and jeopardize already fragile local and regional economies. "Dam breaching extremists talk about how easy and inexpensive it would be to compensate Washington, Oregon and Idaho businesses and residents if the lower Snake River dams were removed," PNWA Executive Director Kristin Meira said Monday. "We commissioned this study to show federal and state decision makers the real economic and environmental impacts on real people and communities that would result." The report considers how breaching would affect regional and national transportation; infrastructure; air quality; safety; and tax revenue. It does not consider the effects on hydropower, irrigation, salmon or other dam and river uses.



"We weren't trying to capture everything. ... This study is just looking at barging," Meira told The Daily News on Monday. "Transportation and the use of waterways for movement of people and goods is a big focus of our organization. ... But no one else was out there doing that kind of analysis." Ship locks on the dams make barging commodities such as grain and wood chips possible through the Snake and Columbia River system. They would not be functional if the dams are breached. An earlier report by environmental groups argues that benefits to salmon and recreation outweigh economic losses of dam breaching. And removing the dams could cost less than efforts to make the dams more friendly to fish. (Dams are friendlier to salmon than they used

to be, but runs have continued to struggle for many reasons.) “Spending \$2.3 billion over the next three decades ... to remove dams and upgrade our roads and bridges sounds expensive. But it could be cheaper, and more effective, than the \$16 billion we’ve already squandered trying to restore salmon with the dams in place,” said Miles Johnson, senior attorney with Columbia Riverkeeper. (The \$16 billion figure applies to salmon-protection measures throughout the main stem Columbia and Snake rivers, not just the Snake.)

Economic consultants FCS Group released the study Monday on behalf of PNWA — a coalition of ports, businesses, public agencies and individuals supportive of regional river commerce. The study pulls from 14 interviews with regional farmers, shippers, port managers and agricultural trade groups, as well as data from state agencies in Washington and Idaho. According to the report, breaching the dams would require at least 201 additional unit trains and 23.8 million miles in additional trucking activity annually to maintain current shipping activities. To accommodate the increased rail and truck shipping, federal investments between \$1.17 billion and \$2 billion in road and rail improvements, the report says. No funding for these improvements has been identified, and all of these improvements are considered to be national costs that would not otherwise be required if the LSR (Lower Snake River) locks remain in operation,” the report says. Shipping by rail and truck is more expensive than barging, so costs for regional farmers would also increase. The report estimates that more than 1,100 farms could go bankrupt if federal subsidies do not increase to offset those costs. It would take between \$18.9 million and \$38.8 million more in federal funding to keep farm profits level, the report says.

Without those subsidies, nearly 4,000 jobs and \$472.7 million sales supported by agricultural exports from the 10-county region nearest to the dams could vanish. Thousands more jobs in tourism, paper manufacturing, munition manufacturing, water transportation, lumber mill and wholesale trade would also be put at risk. (The report did not evaluate the potential loss of indirect jobs downriver in Cowlitz or Clark counties.) Removing the dams also would significantly increase air pollution, because shipping by rail or truck is dirtier than by tug and barge. The report estimates carbon emissions would increase by about 860,000 tons, the equivalent of adding almost 182,000 new cars to the road.

“It just seems counter to the way we are all thinking about the environment these days to want to go in the direction of putting more carbon and emissions in the air,” Meira said. The PNWA report comes about five months after another dam study by Seattle-based economics firm ECONorthwest concluded that dam removal would create 317 new jobs, \$408 million in labor income and other wealth. There would be some job shifting, though. PNWA blasted the report when it came out, saying it “lacks science-based evidence.” Meira on Monday said the PNWA report uses data and scientific assessment in a way the ECONorthwest report didn’t. “The big numbers you saw in the ECONorthwest report were due to phone calls that were made to people in the Northwest asking them to think about what a free flowing Snake River would be worth to them. We don’t think this is a scientifically valid way of assessing the value of a river system,” Meira said. “In contrast, our study uses existing, verified data that is available publicly.”

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(Good idea! Trying to stay ahead in the game. One scare is enough for a lifetime.)

## **MDEQ checking dams prior to forecasted rain**

### **Dam inspectors keeping watch ahead of bad weather**

By Chelsey Sellars | January 17, wlbt.com

JACKSON, Miss. (WLBT) - “Right now, we have 6,800 dams on our inventory for the state,” said William McKercher, chief of Mississippi Department of Environmental Quality’s Dam Safety Division. He said the dams are inspected yearly and every five years, an engineer inspects them too. “We look at the spillway, which is the outlets for the water so that when there’s a rainfall event, the water comes out. We look at those areas for erosion, what we call piping. We also look at slopes of the dam to look for erosion features, as well as general overall health and maintenance on the structure,” explained McKercher.

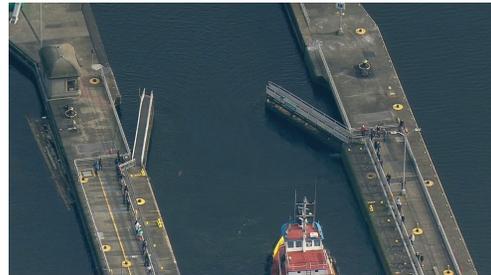
The recent rainfall in the metro had experts monitoring different areas like Oktibbeha County Lake and the reservoir; "Ross Barnett is actively monitoring the water level and controlling the gate structure so that they can keep up with the flow. But during that time, they also have people going in and inspecting the dam." McKercher said you can see what dams are near your home using the MDEQ interactive map online. Some of the marked dams even have posted inspection reports and action plans if something goes wrong. "Any given time, any dam can fail but the reality is that, that's why we have the program in place," said McKercher.

(Unusual dam removal proposed with strings attached. This sure sounds like a dig on the dam removal advocates on the Lower Snake River,)

### Senator proposes bill to breach locks, remove Seattle City Light Dams

By Thomas Yazwinski, January 17th 2020, keprtv.com

OLYMPIA, WA – Sen. Doug Ericksen, R-Ferndale, has introduced legislation that suggests the breaching of Seattle locks and the removal of Seattle City Light Dams before the removal of dams along the Snake River. Senate Bill 6380 would launch a study of breaching the Ballard Locks, removing the Seattle City Light dams that provide most of Seattle's power, and restoring Seattle waterways to a pristine natural state. The measure aims to restore the natural paradise that existed in Seattle before settlers arrived 169 years ago. "When we started talking about this idea last summer, we heard applause from across the state," Ericksen said. "It was loudest from areas where Seattle environmental groups have proposed radical measures that would create local economic disaster, like breaching the Snake River dams. Funny thing, we didn't hear any cheers from Seattle."



According to a news release from Ericksen's office, this bold vision would 'enable Seattle to "go first" and lead by example.' The Skagit River would run free. The Montlake Cut would be filled so that Lake Washington could be raised to historic levels. Ravenna Creek, now routed through a sewer pipe, would return to daylight, providing spawning habitat for fish. The local economy could be reoriented to tourism. "I'm sure we could design an impartial study to reach the conclusions we want," Ericksen said. "Lake Washington property owners might be inconvenienced when the water starts rising. Others might not like it when electricity bills skyrocket. But as they say in Seattle, no sacrifice is too great for somebody else to make."

(Yeah what about? This one hits the nail on the head. Who says dam removal advocates use common sense. They don't want common sense to get in the way, they just want ALL dams removed.)

### Jan. 19 Letters to the Editor, Part 2

Jan 19, 2020, mtribune.com



#### Dams aren't the problem

Another river with no dams has closed fishing due to poor returns from the ocean. Predators and poor ocean conditions are the reasons fish are not returning. Man is the worse predator with gill nets that kill all types of fish, not just steelhead and salmon. We need to remove gill nets from the rivers and oceans. Natural predators that are protected need to be brought under control to save the fish.

Mother Nature's rule of supply and demand doesn't work when one side is allowed to populate beyond what the supply allows. To save the fish, we need to work on ocean conditions and

predator control. When rivers with no dams have the same problem that rivers with dams have, common sense tells me dams are not the problem. Abel Workman, Weippe, ID

(This goes further than this one case. Owners must be responsible for their dams. What about the increased revenue from real estate taxes that the County gets?)

### Northern Indiana county seeks to overturn dam repairs ruling

1/19/2020, bcdemocrat.com

PERU, Ind. — A northern Indiana county is seeking to overturn a court ruling that puts it on the hook for costly repairs to six aging dams in a lake-filled subdivision. Miami County is challenging a Marion County judge's August ruling which found that the Indiana Department of Natural Resources had the authority to require property owners and Miami County to fix the dams at the Hidden Hills subdivision. That judge also found that Miami County was fully responsible for those repairs. But Miami County has asked the Indiana Court of Appeals to overturn that decision, which could leave it saddled with hundreds of thousands of dollars of repairs, the Kokomo Tribune reported. The county wrote in a brief that the subdivision's property owners should share the burden of fixing the dams since the lakes created by them are only used by residents for their "own private pleasure." That court filing also notes that the homes' waterfront views have raised their property values.



"The County, by contrast, gains no benefit from the dams," the brief states. "It maintains roads. It does not matter whether those roads traverse dams or the ground." Residents of the Hidden Hills subdivision, in turn, asked the Court of Appeals in their brief filed this month to uphold the Marion County judge's ruling that requires the county to fix the dams.

Attorney Anthony Spahr, who represents over 30 of the subdivision's homeowners, wrote that the county has had the means and authority to make improvements to the dams for years because the county has been maintaining roads on top of the structures, but chose not make those improvements.

(Wonder if this will be the only lawsuit. Bet they settle it.)

### Widow of man swept away after Spencer Dam collapse suing NPPD for \$5 million

Jan 20, 2020, ktiv.com.

SPENCER, Neb. (KTIV) -- The widow of the man swept away and never seen again after the collapse of the Spencer Dam is suing the Nebraska Public Power District for \$5 million. The Spencer Dam collapsed on March 14, 2019. The home of a man who lived below the dam, Kenny Angel, was swept away. Kenny was legally declared dead in June of 2019.



The owner of the dam, NPPD, says the collapse was due to a combination of high Niobrara River flows and massive chunks of ice.

Court documents accuse the electrical utility of failing to maintain the 92-year-old dam and not warning Angel the dam could fail. The court filing says the Nebraska Public Power District did not conduct inspections "despite knowing that such failure to inspect and test constituted a reckless disregard for the public's health and safety." Kenny's wife, Linda, asked the court for \$5 million in damages for both the loss of her husband's life and the total loss of the structures and the land.

(Raising the dikes to the same elevation as the main dam for more flood control.)

## Nearly 500,000 Sacramento-area residents will be safer because of this Folsom Dam upgrade

BY TONY BIZJAK, JANUARY 20, 2020, sacbee.com

At the ripe old age of 64, Folsom Dam is about to hit a growth spurt.

Federal crews have begun a five-year effort to raise the height of the dam by 3.5 feet to increase flood protection for 440,000 downstream residents in metropolitan Sacramento, including areas of Arden-Arcade, Rosemont and many areas in the city of Sacramento as far south as the Pocket area and north to upper Natomas. The Sacramento region, much of built on low-lying land at the confluence of two major rivers, is considered one of the highest urban flood-risk areas in the country.



The Folsom Dam Raise project is one of several flood protection upgrades at the dam and along the lower American River after major storms in 1986 and 1997 forced dam operators to discharge dangerously high water flows into the river, threatening to burst the levees that protect much of the metropolitan area. At the time of the 1986 and 1997 incidents, officials feared the fast-rising reservoir water could over-top the dam, which in fact is not one dam but instead a series of eight earthen dikes or dams that flank a central concrete dam. To avoid that, they released unprecedented flows of water from the dam into the American River channel below at levels that were thought to be higher than the levees at the time could handle. Officials were able, though, to reduce the flows before a levee break occurred.

The dam-raise work involves packing rock, gravel, dirt and pavement on top of the earthen portions of the Folsom dam and dike system, which is several miles long, boosting the height from 340 to 344 feet. The concrete central portion of the dam itself already is taller than the adjacent dikes and will not be raised, but will have seals added to the top of the row of outlet gates near its brim to allow for more water storage. The project, expected to cost nearly \$400 million, will allow the federal Bureau of Reclamation to hold an additional 43,000 acre feet of water in Folsom reservoir annually if needed during heavy rains. That's 4 percent more capacity. The project also will bolster the earthen dike portions of the dam against potential failure in the event of high-water storm wave action in the reservoir.

The dam raise follows on the heels of another modernization project at the dam, completed in 2017, that rebuilt the facility's emergency spillway, lowering the top of the spillway some 50 feet to allow dam operators to release more water at lower lake levels. "The dam raise builds on flood risk management benefits that were derived from (previous work)," said Army Corps project manager Gerry Slattery. "We are going to further reduce that risk with the dam raise." As a secondary benefit, officials said, the dam raise will allow federal dam managers to hold more water behind the dam to be used for water supply when drought years are expected. The reservoir water is used as drinking water by many downstream communities. Rep. Doris Matsui, D-Sacramento, a federal flood control advocate who secured the federal funding portion for the project, will be at the dam with other federal and local officials on Tuesday at an invitation-only event to commemorate the formal start of the project. Some work has been underway, though, for several months.

"The Sacramento region faces some of the most unique and severe flood challenges in the country," Matsui said in an emailed statement to The Bee. "It has taken years of innovation, collaboration, and hard work to develop a forward-looking approach that has resulted in one of the most advanced flood protection systems in the country. The Folsom Dam Raise project advances this work to provide even more robust protection for decades into the future. I ... will

continue to work to make sure our region gets the support and flood protection infrastructure it needs.” The dam, which went into operation in 1956, sits just above the city of Folsom where the American River slides from the foothills into the Sacramento region. The American River below the dam is channeled between tall levees. **More than \$2.2 billion has been spent on dam and levee improvements around Sacramento** since 1986 in an effort to improve flood safety to what is considered 240-year flood incident level, local flood protection officials said. **The upcoming dam raise work is part of another \$1.8 billion in flood safety work expected to be done over the next five years around the region**, including American and Sacramento rivers levee work and widening of the Sacramento Weir and bypass in Yolo County.

(Here’s why they’re doing it.)

## **5 things to know about Folsom Dam Raise Project**

### **Work begins at Folsom Lake to raise dam, lower flood risk**

By Vicki Gonzalez, Reporter, Jan 21, 2020, kcra.com

FOLSOM, Calif. — **Folsom Dam is embarking on an expansion to increase the reservoir’s storage and strengthen flood control.** Rep. Doris Matsui, D-Sacramento, Rep. Ami Bera, D-Elk Grove, the Army Corp of Engineers, the Bureau of Reclamation and water officials at the state and local level held a groundbreaking Tuesday.



“This is basically a flood control project, but we also know **there’s water here and if we can do both, it would be great,**” Matsui said. “We sit at the confluence of two great rivers and it’s got a diverse and beautiful ecosystem. But from this beauty also comes many challenges. We all know that. It’s probably one of the most critical challenges in this country.” The Sacramento Area Flood Control Agency, or SAFCA, has identified **the Sacramento region as the metropolitan area with the greatest flood risk in the nation.**

### **Here’s what to know about the Folsom Dam Raise Project:**

**1) It’s a growth spurt, of sorts Folsom Dam’s eight dikes surrounding the reservoir will rise by roughly 3.5 feet, increasing the current 1 million acre-feet capacity by 43,000 acre-feet -- or about 4 percent.** The main spillway, emergency spillway and piers will also be modified, among other improvements, which include habitat restoration along the lower American River Parkway.

#### **2) Project is 20 years in the making**

The project was originally authorized by Congress in 1999 but changed in scope over the years. It was reauthorized in 2004 and 2007, according to the Army Corps of Engineers.

#### **3) Why is it starting now?**

**The Army Corps of Engineers explained the priority of the Folsom Dam Raise Project focused on the auxiliary spillway, which was put into use for the first time last year.** That gave dam operators the greatest benefit in terms of dam safety and flood risk reduction, officials said. The project began in 2008 and was completed in 2017 at a cost of \$900 million.

#### **4) When will it be completed?**

Scheduled completion is 2024 at a cost of \$373 million, which is largely paid for through federal funds and from partners, the Army Corps of Engineers said.

#### **5) This is one of several flood control projects**

All told, **at least \$3 billion has been committed to Sacramento flood plain improvements** in recent years. Another project will expand the Sacramento Weir along the Yolo Bypass as part of the American River Common Project. **The \$1.8 billion project also includes miles of levee improvements** along the Sacramento and American rivers, including the Greenhaven-Pocket area, Natomas basin and Arcade Creek.

(Dam removal comes with a cost. Some of the best CA wine comes from this area.)

## **St. Helena on track to remove dam by end of 2020**

By JESSE DUARTE, /napavalleyregister.com Jan 21, 2020

St. Helena is on track to remove the Upper York Creek Dam by the end of 2020, restoring habitat for protected steelhead and fulfilling a longstanding legal mandate. The actual cost won't be clear until construction bids come in, city officials told the council on Jan. 14. A preliminary budget puts the total cost of the project at \$8 million, up from a previous estimate of \$6.5 million. With \$2.6 million already spent to date, the council approved a new \$1.2 million contract with EKI Environment & Water, Inc. for design, project management, permitting services and construction management.



The city had previously paid \$300,000 to EKI, which has been managing the project since last July. The firm took over management of the project last year from the city's previous consultant, Michael Baker International. The goal of the project is to remove a barrier to fish passage and restore the creek's ecological balance. Workers will construct artificial log structures downstream to act as sediment traps and provide habitat for endangered steelhead. The city is scheduled to award a contract this spring, with construction occurring between June and November. The environmental effects of the project will be monitored for 10 years. Tom Belt, a St. Helena resident and former Fish and Wildlife official who has studied the project extensively, said he was troubled that cost estimates have escalated – especially since city officials had expected the cost to go down due to last year's design changes. "As a resident and one of St. Helena's water customers, this makes me feel insecure about what the final cost will end up being," Belt said.



Belt also questioned the city's accounting of the total cost spent on the project during its 26-year history. Belt said the city had actually spent more than \$5 million before approving the EKI contract, based on public records the city has provided him. Vice Mayor Paul Dohring shared Belt's concern about the cost. "The premise was that this new way of handling this was going to reduce the cost," he said. "I'm not seeing a reduction in cost. I'm seeing a substantial escalation in cost." Mayor Geoff Ellsworth said he was concerned about the cost too, "but we appear to be on a trajectory to accomplish this after many years." Public Works Director Erica Ahmann Smithies stressed that the actual cost won't be known until contractors submit construction bids. The project consists of removing the earthen dam and trucking dam material and fine sediment to Clover Flat landfill and possibly a nearby vineyard. Approximately 14,000 cubic yards of material will be removed, with 40-50 truck trips per day for three months. The city was first ordered to remove the dam in 1993. That order was rescinded in 2001, but ever since November 2012 the city has been paying a \$70/day fine (\$570,000 to date) for blocking fish passage.

(Another Tailings Dam story.)

## Pebble Update: Why the Army Corps says Final EIS won't analyze a tailings dam failure

(KTUU), by Grant Robinson | Jan 21, 2020, ktuu.com

ANCHORAGE (KTUU). Alaska - Despite requests from agencies including the Environmental Protection Agency, when the U.S. Army Corps of Engineers releases the Final Environmental Impact Statement for the proposed Pebble Mine, an Army Corps leader says the EIS will not include an analysis of the impacts of a tailings dam failure. The Pebble Limited Partnership's preferred plan for the mine would include two facilities



for storing tailings, which are the waste products left over after the valuable metals are removed. According to the USACE, Pebble's preferred alternative would include an approximately 2,800-acre storage facility with two embankments for bulk tailings. Pyritic tailings, which can create highly acidic conditions, would be stored in a lined facility with three embankments and cover about 1,000 acres. **In its official comments on the Draft EIS submitted last summer, the EPA recommended that the Corps consider a breach scenario,** and this winter the discussion over whether or not to analyze a tailings dam breach intensified during technical meetings between the Army Corps, EPA, State of Alaska, and 10 other agencies and organizations. "That was one of the issues that was robustly discussed and debated with all of the cooperators," Sheila Newman, deputy chief of the Regulatory Division of the Alaska District Army Corps of Engineers said in a teleconference Thursday.

"There were two main themes running through the conversation. **The first would be whether or not under NEPA a worst-case scenario is a requirement,**" Newman said. In 1978, eight years after President Richard Nixon signed the National Environmental Policy Act into law, the Council on Environmental Quality issued regulations further guiding agencies on how to implement NEPA. Part of those regulations required federal agencies to address uncertainties with "worst-case analyses." That requirement stood until it was removed in 1986, which marked the only substantive change to the environmental law until the Trump Administration proposed new rules earlier this month. **The Draft EIS described a total embankment breach, although a catastrophic failure, as extremely unlikely and a "worst-case" scenario.** In its July comments, the EPA raised concern that "given the occurrence of multiple large-scale tailings dam releases in recent years at modern operating mine facilities, **the possibility of a dam breach may not be too remote and speculative.**"

Although the Army Corps and cooperators conducted a Dam Failure workshop, which identified the most probable dam failure scenarios and eliminated full breaches as probable scenarios, draft meeting notes from technical meetings in November show that the EPA doubled down on its request for the Army Corps to conduct a full breach analysis. **The EPA voiced concern that most dam factors are due to human factors rather than design.** The EPA also cited a U.S. Fish & Wildlife decision to require a full breach analysis for a copper mine in Arizona based on public concern. The Army Corps and cooperating agencies held additional technical meetings on December 16 and January 14 with update teleconferences on December 12, and January 7 and 21. Channel 2 has requested notes from those meetings, though they have not yet been supplied. **In the teleconference call, Newman said that in addition to determining that a tailings dam breach would be a worst-case scenario and NEPA did not require assessing the impacts of it,** there was another reason that led the Army Corps to continue with its decision not to assess a tailings dam breach.

"**The second theme helped us understand what the tailings dam construction is and how that's different from tailings dams that have breached.** That conversation was conducted by experts in the field regarded subaqueous tailings versus thickened tailings. **What this applicant is proposing are thickened tailings,**" Newman said. "The Failure Modes Effects Analysis that was conducted in the Draft EIS by a group of experts including the State of Alaska's dam folks built scenarios based on what was proposed. **Those groups of experts felt that they had adequately captured scenarios that have a probability reasonable to pursue.** In other words, that those things would not be speculative to analyze. **To conduct a breach analysis on something that the applicant has not proposed was unwarranted.**" The Final EIS for the Pebble Project is expected to be completed in early June, which a record of decision coming the following Fall.

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(Excerpts. People from everywhere are getting in the fray.)

**Letters: Trump tweets, dam controversy, handicap spots and more | Jan. 22**

**DAM CONTROVERSY NEVER-ENDING SAGA**

It is interesting that we are still debating whether to remove the Snake River dams. The four Columbia River dams below the Snake River were completed between 1937 (Bonneville) and 1971 (John Day). So they have been in place for more than 80 years. The Snake River dams were built between 1901 (Swan Falls) and 1982 (Gem State). One would think that in that time the salmon would have vanished if they were going to. The four dams being considered for removal (Ice Harbor, Dower Monumental, Little Goose and Lower Granite) were completed between 1961 and 1975. And salmon are still swimming in the river. It looks like the systems put in place for the salmon have been very effective.

If the dams are removed, the questions become where do we get the electricity to replace the lost energy and what effect will it have on the agriculture that depends entirely on the water the dams provide? The total electrical capacity of the four dams is 2,376 MW, which is approximately twice the power generated by Columbia Generating Station at Hanford, which provides enough electricity to power all of the Seattle area. *Jim Homan, Richland, WA.*



### **Hydro:**

(Pumped storage on the move.)

#### **Arizona pumped hydro project gets nod from regulator**

**The 2.2GW NESS project comprises a pumped hydro plant fed with cheap solar and wind power**

21 January 2020, HYDRO, renews.biz

The US energy regulator has accepted Daybreak Power's application for a preliminary permit for its proposed 2200MW Navajo Energy Storage Station (NESS) near Page, Arizona. The Federal Energy Regulatory Commission's (FERC) decision marks an "important early milestone" for \$3.6bn project, according to Daybreak, which will use existing transmission infrastructure at the retired Navajo



Generating Station coal plant. NESS is a pumped storage hydropower facility that will use water from Lake Powell and a new reservoir on a plateau above the lake to create a large battery, using cheap, abundant solar and wind energy to pump water to the upper reservoir.

This is then released through turbines to generate 10 hours of renewable energy each day to power cities in California, Arizona and Nevada when demand peaks late in the day and through the night.

Unlike other proposed pumped storage projects in the region, the NESS project will not dam any rivers, inundate sacred places or deplete groundwater. The project has been sited to minimize impacts on endangered species, steer clear of culturally significant sites and avoid adverse impacts on recreation, according to Daybreak. The developer is working with the Navajo Nation, other First Nations, the recreation industry and conservation groups to develop the storage project. Daybreak chief executive Jim Daly said: "Everyone knows we're going to need massive amounts of storage to integrate high levels of renewables, and we need to do it smart and cost-effectively. The Navajo Energy Storage Station does that.

"This project marks a turning point for this region to begin its transition off of coal and onto solar and wind at a scale never seen before, here or anywhere else." The NESS facility is Daybreak's second energy storage project, following its proposed 1540MW pumped Storage facility that will use water from Lake Mead and transmission infrastructure near Hoover Dam. "It's long past time to stop messing around and start building storage projects that actually work to deliver renewable

energy on-demand, around-the-clock,” Day said. Daybreak Power has a pipeline of nearly 50,000 megawatt-hours of pumped storage hydropower capacity in its pipeline.



## Environment:

(Some environmental groups see it the other way.)

### **It's Fish vs. Dams, and the Dams Are Winning**

**Thousands of dams across New York, many abandoned, are blocking fish migrations. A movement to remove them is growing.**

By Lisa W. Foderaro, Jan. 20, 2020, nytimes.com

NEWBURGH, N.Y. — For thousands of years, alewives and blueback herring have left the ocean to swim up the Hudson River to any one of scores of tributaries to lay their eggs. But in a more recent era, the fish have been literally hitting a wall as dams popped up all over the region, powering grist and woolen mills and later factories. Today, there are an estimated 2,000 dams in the Hudson River Estuary between New York City and Albany, N.Y. Many are small and obsolete, abandoned by long-shuttered factories and serving no purpose other than to thwart fish migration and harm river ecology. Now a growing band of environmentalists wants to restore the waters to their natural state. They are targeting dams for removal not only in the Hudson Valley but across New York and the United States.



“Small dams are everywhere, and many of them just persist through inertia,” said John Waldman, a biology professor at Queens College and the author of “Running Silver: Restoring Atlantic Rivers and Their Great Fish Migrations.” “Until recently, no one had the wherewithal or energy to take these things down.” While major dams were built throughout the West for hydroelectric power, many structures dating to the 1700s and 1800s in the East were built for mechanical power. A paddle wheel would turn a shaft that propelled gears that moved belts to make products like candles, felt and wire. Some people find the vestiges of that industrial past attractive. Dams can resemble waterfalls, and small ponds are formed by the water that is held back. Real estate developers have capitalized on the artificial ponds by building housing developments along their



banks. A challenge for environmental activists like George Jackman, a former New York City police lieutenant who now works for the nonprofit group Riverkeeper, is convincing people that removing a dam will have payoffs for the fish and the landscape.

“Controlling these rivers is kind of like controlling a wild animal,” said Dr. George Jackman, who works for Riverkeeper, a nonprofit group. Credit...Dave Sanders for The New York Times Dr. Jackman has identified the Quassaick Creek, an 18-mile river in

Orange County, about 60 miles north of New York City, as ripe for dam removal. He has dug through property records and talked to anyone who will listen about the wisdom of taking out the creek’s 12 dams, which range in height from 4 feet to 10 feet. With help and financing from the state’s Department of Environmental Conservation, which has committed \$5 million in recent years to dam removal, Riverkeeper will oversee the dismantling this summer of the first dam on the Quassaick. Soon after, the city of Newburgh plans to raze a second dam as part of a larger infrastructure project. And Dr. Jackman has commitments from at least one other dam owner to

greenlight its removal. "There's something unnatural about a straightened, channelized river," said Dr. Jackman, who earned a doctorate in biology after retiring from the police force.

He stepped gingerly on a late afternoon along the rushing Quassaick, its water bubbling and roaring as it churned toward the Hudson. "A river should have its own sinuosity," Dr. Jackman said. "It should bend and curve and connect with the flood plain. Controlling these rivers is kind of like controlling a wild animal." From Maine to California, environmental groups are making the case to dismantle dams as a way to improve the ecology of river systems. Allowing fish to spawn is a chief goal, but it is not the only one. The flow of nutrients and sediments vital to the food web is also stymied by even the smallest dams.

In 2012 and 2013, two enormous dams were demolished on the Penobscot River in Maine, which had seen its fishery all but collapse since the early 1800s. Now fish have returned in droves: Atlantic salmon, alewives, baby eels, shad and brook trout, to name a few. On the West Coast, four large dams on the Klamath River, which flows from Southern Oregon into Northern California, are slated for removal by 2022, streamlining some 400 miles of habitat for migratory fish. On the East Coast, efforts are underway in Connecticut to eliminate obsolete dams from rivers that connect with Long Island Sound. State officials are motivated partly by a concern for public safety, since aging dams can suddenly give way. "We have government regulations that say we are not going to let you let your dam collapse and kill people," said Stephen Gephard, a supervising fisheries biologist for the Connecticut Department of Energy and Environmental Protection. "Hazardous dams have to be inspected every other year."



Connecticut has about 4,000 dams, Dr. Gephard said, and the vast majority of those are obsolete. The state owns about 100 dams and is reviewing the list to determine which should be removed. But Dr. Gephard's team has identified 20 to 30 privately owned dams that it would like to remove to allow fish passage. It can take years, Dr. Gephard said, to educate a community or a private landowner about the merits of losing their dams, a process that often involves debunking myths. Some residents fear being left with a stinking mud flat once the dam is gone, but in fact, dormant seeds quickly become trees, shrubs and grasses. "The most bizarre myth is the notion that if you remove the dam, there won't be any water in the stream," Dr. Gephard said. "It's as if they think the water is coming from this concrete. So many Americans don't understand the concept of a watershed or flowing water." To that end, conservation groups have enlisted engineering firms to create photo renderings showing how a river would appear without a dam, Dr. Gephard said. In New Haven, Conn., stewards of a nature preserve owned by the New Haven Land Trust were confronted with the option of repairing a dam that dated to 1794 or tearing it down. Both scenarios were costly.



According to J.R. Logan, the trust's former board chairman, the cost of removal was more than \$600,000. But an environmental group, Save the Sound, worked on behalf of the trust to secure federal money available to communities affected by Hurricane Sandy, since powerful storms make dams vulnerable to collapse. After the dam was taken out in 2015, some fans of the local nature preserve were startled. "When you remove the pond, you have now exposed this big piece of land," Mr. Logan said. "There were a couple of folks who said, 'Hey, it's looking a little rough.' But we had done some homework and held a series of public meetings about what to expect. We didn't have a revolt." Today, he said, the landscape is lush, with a succession of plants and trees recolonizing the acreage where the pond had been. Save the Sound also worked to make the free-flowing West River appealing to migrating fish by

carefully arranging rocks in small pools. "Rivers were industrial powerhouses, and then they were dumps, and now they are drivers of nature again," Mr. Logan said.

There are an estimated 2,000 dams in the Hudson River Estuary between New York City and Albany, N.Y. Credit...Dave Sanders for The New York Times In New York, state officials estimate that there is one dam every 1,200 acres across parts of the Hudson River watershed. The Department of Environmental Conservation is encouraging landowners to take a hard look at dams; in November, the agency made nearly \$1 million available for dam removal, said Kelly Turturro, the department's regional director in the lower Hudson Valley. "We're not saying that all 2,000 dams should be removed," Ms. Turturro said. "We want to focus on improving habitat for fish species if a dam is no longer necessary and not worth repairing."



### Other Stuff:

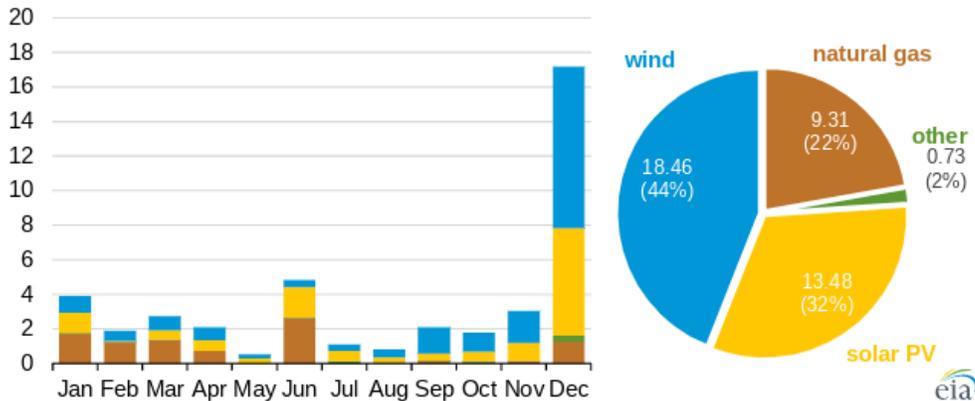
(In case you wondered.)

## **Big Data: How much energy does the US consume, and where does it come from?**

By Steve Hanley, Cleantechica,

The US Energy Information Agency said this week that it expects 42 gigawatts of new electricity generating capacity to start commercial operation in 2020. Solar and wind will account for almost 32 GW of the new capacity. Wind will account for the largest share of these additions at 44%, followed by solar at 32%, and natural gas at 22%. The remaining 2% will come from hydroelectric generators and battery storage.

**Planned U.S. electric generating capacity additions (2020)**  
gigawatts (GW)



Source: U.S. Energy Information Administration, [Preliminary Monthly Electric Generator Inventory](#)

## **Total US Energy Usage**

While that is wonderful news, it does not give a complete picture of the total energy usage in the US. The total amount of energy used in the nation — everything from lighting and heating homes to cooking meals, powering factories, driving cars, flying airplanes, and keeping data centers running — hit 101.2 quadrillion Btu in 2018 according to the EIA. One Btu is equivalent to burning a wooden kitchen match. And here's a surprising statistic from Lawrence Livermore National Laboratory. It says as of 2018, about two-thirds of all the energy used in America was wasted, mostly as heat from vehicle exhausts and industrial furnaces. Yet every bit of the energy derived from fossil fuels creates carbon emissions that contribute to global overheating whether it gets put to good use or not. Just imagine what carbon reductions we would see if all that wasted energy could be eliminated? One of the primary advantages of electric vehicles is they are two to three times more energy efficient than gasoline or diesel powered vehicles.

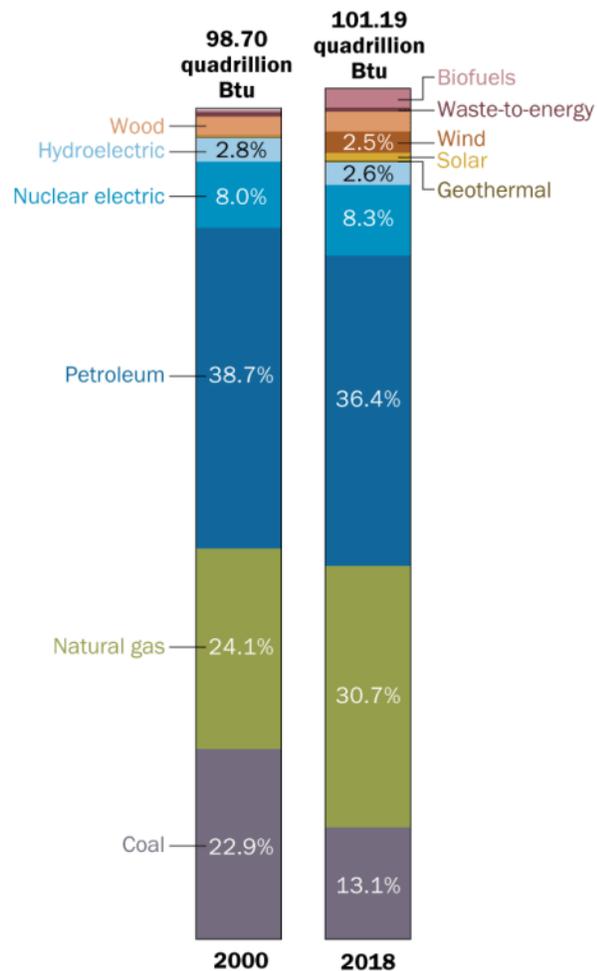
Pew Research says that as important as deriving electricity from wind and solar is, it still accounts for only about 4% of total US energy use. "As far back as we have data, most of the energy used in the U.S. has come from coal, oil and natural gas. In 2018, those fossil fuels fed about 80% of the nation's energy demand, down slightly from 84% a decade earlier. Although coal use has declined in recent years, natural gas use has soared, while oil's share of the nation's energy tab has fluctuated between 35% and 40%." 38% of total energy usage went to generating electricity. Here's another surprising statistic from Lawrence Livermore National Laboratory: Only 34.5% of the energy generated by the electric power industry reaches end users. The rest is lost in the process of generating, transmitting and distributing the power. Once again, as the environmental crisis grows, just think what would happen to global carbon emissions if the majority of the electricity generated each year was put to good use instead of wasted?

### Energy Use Per Capita Declines

Pew Research says the amount of energy used by Americans per capita has been decreasing over the past 20 years. In 2000, each US resident used about 349.8 million Btu of energy. By 2017 that had fallen to 300.5 million Btu, the lowest level in five decades. In 2018, though, per capita energy use rose to 309.3 million Btu. The highest use of energy in America per person occurred in 1979 — 359 million Btu. The decline in per capita use of energy means the US economy has become steadily less energy-intensive since the end of World War II. In 1949, it

## Sources of energy used in the U.S., then and now

Total U.S. energy consumption (quadrillion Btu)



Source: U.S. Energy Information Administration.

PEW RESEARCH CENTER

took 15,175 Btu to generate each dollar of real gross domestic product. By 2018, that number dropped to 5,450 Btu, a 64% decrease.

### How High Is Up?

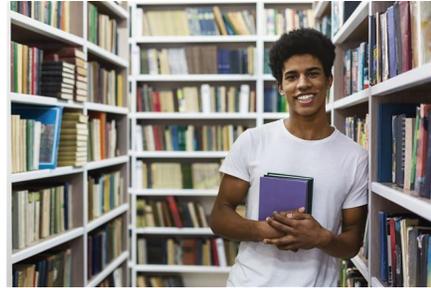
Solar energy is increasing dramatically all across the United States. In 2008, it accounted for 2 billion kilowatt-hours of electricity. In 2018 it generated 46 times more — 93 billion kilowatt-hours. Yet fossil fuels continue to be the primary source of all energy consumed in the US. In order to tackle climate change effectively, we need to not only generate more electricity from renewables, we need to convert heating, cooling, industry, and transportation to electricity as well. Failure to do so will doom us all. Business as usual will be a death sentence for the Earth and humanity.

(Don't think this is worth a hill of beans, but it's interesting.)

### The 10 Most, Least Educated US States

Massachusetts comes in at No. 1, Mississippi is last

By Jenn Gidman, Newser Staff, Jan 20, 2020, newser.com



(NEWSER) – Looking to surround yourself with brainiacs?

Some states have more of an emphasis on education than others, and WalletHub looked at the data to see which ones graduate at the top of the class. The site analyzed all 50 states in terms of educational attainment (meaning such factors as the share of adults with a high school diploma, as well as what levels of higher education others have reached) and the quality of education, including local high school graduation rates, math and reading test scores, and racial and gender gaps in getting an education. Massachusetts leads the pack, coming in first in both the "educational attainment" and "quality of education" categories. Mississippi brings up the rear.

Read on to see which other states round out the top 10.

Next: the 10 least educated states.

1. Massachusetts
2. Maryland
3. Colorado
4. Vermont
5. Connecticut
6. Virginia
7. Washington
8. New Hampshire
9. New Jersey
10. Minnesota

1. Mississippi
2. West Virginia
3. Louisiana
4. Arkansas
5. Alabama
6. Kentucky
7. South Carolina
8. Nevada
9. New Mexico
10. Tennessee

Check out how other states fared here: <https://wallethub.com/edu/e/most-educated-states/31075/>



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