

3/27/2015



Some Dam – Hydro News™ And Other Stuff



Quote of Note: *“If voting changed anything, they’d make it illegal.” - Emma Goldman*

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“Good wine is a necessity of life.” - Thomas Jefferson
Ron’s wine pick of the week: 2012 Kanonkop South African (Red Blend) “Kadette”
“No nation was ever drunk when wine was cheap.” - Thomas Jefferson



Dams:

(In the only state without a dam safety program. Mmmm!)

Concern over aging dams at Oak Mountain

By Cynthia Gould, Mar 13, 2015, abc3340.com

Some people are worried a dam breach or failure at Oak Mountain State Park would be disastrous for nearby communities. The state maintains its four earthen dams are safe, but concerns are growing in the community. The dams are 80 plus years old and showing signs of age. "Where are these officials character, integrity and their moral compass to take a chance on people's lives? Let's find out if there's nothing wrong then wonderful. Nothing would make me happier then to be wrong," explained Indian Springs Village Mayor Brenda Bell-Guercio.



Her major concerns are the homes and schools off Hwy 119 that could be impacted if the dams failed. She is taking aim at Alabama State Park Director Greg Lein. "Will you have them inspected by someone not on your payroll?" questions Bell-Guercio. She says the Army Corps of Engineers had offered to do a comprehensive study to be paid for with grant money but the offer was turned down. "You wonder what they are afraid of?" Pelham Mayor Gary Waters says Alabama is the only state that does not require inspections of earthen dams and that needs to change. But he says there is no reason to panic at this point. "I've been living in Pelham for 40 years. We've seen heavy rains. We've not had any indication those dams are subject to fail," says Mayor Waters. However, he too would like to see the dams inspected. Right now Shelby County is doing what's called an inundated study. It will not look at the actual condition or safety of the dams themselves but who would be impacted by a breach and where the water would flow. This information would help formulate an emergency plan should the dams fail. That study is due out at the end of May. In a written statement, the State Park Director said the dams at Oak Mountain are safe and are routinely inspected and maintained by staff.

(It's not dangerous unless you happen to be traveling on Highway 15 if it fails.)

Breach found in Tolna Dam; large-scale flooding not a concern

By Kevin Bonham, Mar 13, 2015, grandforksherald.com

The Tolna Dam on the Tolna Coulee, in Nelson County, ND has sustained a breach. The breach, located on the top apron on the north wing side wall, initially appeared Thursday, according to Nelson County State's Attorney Jayme Tenneson. The breach had grown to about 5 feet by midday Friday. While the breach has grown, he said residents downstream should not worry about large-scale flooding. About 10 families living downstream of the dam have been advised to be prepared to evacuate if the dam fails, he said.



In this Grand Forks Herald file photo from June 2008 construction workers repair of Tolna Dam using Bentomite Clay to repair seepage that was causing leaks for the previous five years. Grand Forks Herald file photo.

"In the case that there is a failure of the Tolna Dam, it will cause limited downstream flooding and a possible closure of N.D. Highway 15 and Nelson County rural roads," said Tenneson, who is serving as Nelson County public information officer. Officials Nelson County and the North Dakota State Water Commission are monitoring the breach and developing a plan of action for temporary and permanent repairs, he said. "If it does breach, it's not something that's going to be a large event," he said. "It shouldn't have any impact on any downstream water sources, such as the Baldhill Dam." The Tolna Dam is located about two miles east of Tolna, N.D., and about three miles south of Stump Lake. The concrete and rock structure was built in 1937 as a flood control project on the Tolna Coulee, creating a 147-acre reservoir on the tributary of the Sheyenne River. In 2008, construction crews repaired another breach in the 80-foot-wide dam. Officials had monitored the seepage from that breach for about five years. By the spring of 2007, it was leaking about 2.8 cubic feet of water per second.

That repair project cost about \$60,000. Stump Lake, located 12 miles south of Lakota, N.D., has been connected to Devils Lake since 1999, the result of a two-decade-old Devils Lake Basin flood. The two lakes essentially equalized in elevation in 2008. They reached a record elevation of 1,454.3 feet above sea level in 2011. Today, the elevation is about 1,451.6 feet.

(Too bad they can't use some of that oil money and hire some help.)

Tolna Dam Crisis Creates Restless Weekend Downstream

By: Neil Carlson, Mar 16, 2015, valleynewslive.com

It appears the crisis at the Tolna Dam is over, but it made for a restless weekend for some folks who live downstream. Officials spotted the problem at the Tolna Dam last week. Water had begun eroding through the top of the dam on this side and it was breaking apart the concrete at the bottom of the dam. On Friday, authorities were pretty sure the entire dam was going to break. But, they turned on an emergency outlet to relieve the pressure on it over the weekend. Officials say at this point, they're fairly confident the dam will hold. They're even working on a plan to try and fix it without having to drain the lake behind it." Jeff Trana, State Water Commission: "It's really slowed down over the weekend and it's getting to the point where we can get some people here and figure out how to fix it."

The Water Commission says they already had a map in place showing that if the dam broke, there wasn't enough water to cause significant flooding downstream. However, that wasn't real comforting to Doug Messner, who was out tending his cattle today. Messner says he spent a bit of a restless weekend. His farm is on the Sheyenne River, downstream from the dam and he wasn't sure how much water he could wind up facing. Doug Messner, Lives Downstream: "I spent all day moving bales, getting them off low ground and moved all the equipment out of the river valley."

Reporter: "Were you worried about your place flooding?"

Messner: "We were pretty concerned... if the water got to the buildings or something."

And while it appears the crisis is over here, there may still be some significant problems with hundreds of old dams, across the State. The State Water Commission says there are three-thousand-one-hundred dams across North Dakota. And many of them were built in the 1930's, like the one at Tolna. Officials say more and more of them will start needing significant repairs in the coming years. They plan a thorough inspection of the Tolna Dam later this week.

(A rude reminder that even a small dam failure can be disastrous.)

Lawn Lake dam break inundated Estes Park

By Kenneth Jessen, 03/14/2015, reporterherald.com

During the early part of the 20th century, municipalities and irrigation companies began a program to provide water storage in high mountain valleys. As natural lakes within what was to become Rocky Mountain National Park were expanded, wagon roads were cut into the wilderness to bring in the equipment. After its establishment in 1915, Rocky Mountain National Park inherited many of these reservoirs. As decades past, the dams were all but forgotten, and the reservoirs they created began to look like natural lakes.



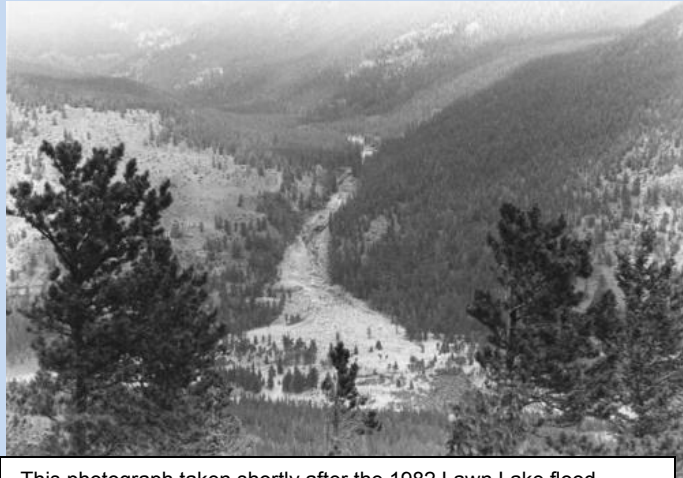
The wagon roads that once serviced the dams became overgrown. Inspection of these structures often required a long hike or horseback ride. Lawn Lake was among these reservoirs and it originally covered only 16 acres. Its capacity was increased in 1903 and again in 1931 until it was expanded to approximately 48 acres. In 1975, a Colorado dam inspector hiked the half-dozen miles to the Lawn Lake dam and reported that it was in need of a thorough inspection after the snow melted. Another inspector reported two years later that the dam was in fair condition and suggested that its owners make repairs. On Aug. 8, 1978, a third inspector reaffirmed the marginal rating for the dam and recommended that it be observed when the reservoir was full.

The caulking between the outlet pipe and the release valve started to allow water to trickle along the outer surface of the pipe. Once a small channel had eaten into the earthen dam under pressure, it rapidly expanded.

On July 15, 1982, the Lawn Lake dam failed catastrophically. The release of water was heard by campers along the Roaring River. One man below the dam was swept to his death in the churning water. The wall of water forced large boulders down 2,500 vertical feet to Horseshoe Park acting as battering rams. The forested banks of Roaring River were scoured away in a landslide of thousands of tons of material. Much of the impact of the flood was absorbed by the broad expanse of Horseshoe Park. An alluvial fan quickly formed at the mouth of Roaring River. The debris was pushed across Horseshoe Park damming the Fall River and forming a shallow lake.

Fortunately, Steve Gillette was collecting trash at the Lawn Lake trailhead. It was 6:23 a.m. when he sighted the flood coming toward him and alerted park officials. In an interview with the Loveland Reporter-Herald, he described the noise like that of a plane crashing. Gillette said that it looked like a mudslide of the type you see in the movies. The vast volume of water poured into Fall River and picked up finely divided glacial silt in the process.

Below Horseshoe Park was the Cascade Dam. The force of the water first backed up behind the dam, and



This photograph taken shortly after the 1982 Lawn Lake flood shows the alluvial fan extending into Horseshoe Park. (Kenneth Jessen / Special to the Reporter-Herald)

then suddenly toppled the 17-foot high structure at 7:42 a.m. This amplified the intensity of the flood and a wall of water raced through the Aspenglen Campground killing two people. The mud and water coursed through motels and restaurants, then hit downtown Estes Park. The entire width of Elkhorn Avenue became a river of mud-filled water combined with a great deal of debris. It did an extraordinary amount of damage as entire inventories for the summer tourist season were washed away or ruined. State inspectors were partially to blame along with the Park Service. Much of the responsibility, however, had to be borne by owners of the dam, the Farmers Irrigation Ditch & Reservoir Co. Its 16 stockholders became worried about legal action, but they were protected by their corporation. National flood insurance covered only 20 property owners out of some 275 affected by the flood. High-profile trial lawyer Gerry Spence was hired by Estes Park property owners to represent their interests. He quickly concluded that the entire assets of the ditch company consisted of little more than their \$1.4 million insurance policy. This money was turned over to the court system to be disbursed. Immunity against lawsuits was evoked by both the federal government and the state of Colorado. Damages topped \$30 million, which ultimately had to be absorbed by businesses and individuals. Low interest rate loans were made available. Other federal assistance included unemployment payments, temporary housing, up to \$5,000 for out-of-pocket living expenses and food stamps. However, very little compensation was received by anyone financially injured by the Lawn Lake flood. Less than 10 cents on the dollar was paid to flood victims, forcing the permanent closure of many businesses. The Lawn Lake disaster became the perfect opportunity for the Park Service to dismantle selected dams. Lost Lake dam was dismantled followed by the Pear, Sandbeach and Bluebird dams. Spared were Lily, Sprague, Snowbank and Copeland. Kenneth Jessen has been a Loveland resident since 1965. He is an author of 20 books and more than 1,600 articles. He served on several Loveland boards and was an engineer for Hewlett-Packard for 33 years.

(Fill 'er up!)

Reservoir behind Wanapum Dam being refilled to normal levels

The Associated Press, March 17, 2015, tri-cityherald.com

EPHRATA, Wash. — Repairs to a cracked spillway on the Wanapum Dam have progressed to the point where the reservoir can be refilled to normal levels. The Grant County Public Utility District says the refill of the reservoir began on Monday. Depending on river flows, the utility hopes to be at normal levels within seven to 14 days.

This is the last major milestone arising from last year's discovery of a crack in the dam. That resulted in the reservoir being lowered by dozens of feet to relieve pressure on the dam. The utility says all boat launches and shorelines will reopen to the public ahead of schedule.

Wanapum Dam is located on the Columbia River south of Vantage, Washington.



Hydro:

(And, three cheers for a hydro advocate!)

Letter: Hydro is non-polluting, renewable and as reliable as rain

roanoke.com/opinion, March 13, 2015

The sun does not always shine and the wind does not always blow, but water will always run down hill. Any hill, anywhere, any time of day or night, any time of the year, water will run down hill. Critics of renewable, non-polluting energy sources always dodge this. Have you noticed? Hydroelectric has been around for about 130 years. Reliable and non-polluting. Is it bad for snail darters? Well, I don't know. Is it worse for them than blazing tank cars in their river, or several thousand tons of coal ash, or fracking fluid, or coal-scrubbing chemicals? You don't need Hoover Dam, just a network of smaller dams. We have lots of hollows hereabouts too narrow and steep for cultivation or habitation. Perfect for small-scale hydroelectric. The transport of millions of gallons back to the mountaintop to run down through our turbines again is accomplished by a reliable mechanism already in place, viewable any rainy day. Just look out your window. No need to build it, it's already there. And lastly, when water quits running down hill, you will no longer be worried about energy — or anything else. I guarantee it. ERIC SUTPHIN, HILLSVILLE, VA

(Don't know if this does much good but it's neat. Guess some campers may use it!)

Blue Freedom: Yours With The World's Smallest Hydropower Plant

By Clapway | March 17, 2015, clapway.com

Of all the fixations you could have, a passion for generating eco-friendly, renewable energy from natural resources isn't half bad. Just in time for hiking, camping, and be out and all about season comes a new type of eco-design: earth element based charging product. Introducing Blue Freedom—a compact hydropower plant that's easy to use for storing portable electricity. It's the smallest and lightest hydrodynamic turbine ever created. With the power of flowing water, anyone can generate energy both economically and responsibly while preserving our precious biodiversity. It has a USB charging plug compatible with all types of devices—cameras, MP3 players, camping refrigerators, tablets, smartphones—just as long as it has a rechargeable battery.

From Munich, Germany, the powers behind Blue Freedom take strong interests in social impact, the future of the environment, and natural energy. The vision behind Blue Freedom's creation was to allow the millions of people around the world without access to the power grid the freedom to generate energy independently. There's been a wave element based charging products for the connected adventurers. Like the youngest kid with a handful of ambitious, entrepreneurial elder siblings, its successful predecessors have similar qualities. Mainly, being completely free of fossil fuels. Other similarly successful Kickstarter renewable energy based charging products includes 2013's FlameStower, which converts fire into portable energy. There was also Trinity, a tiny, portable wind turbine of the same function funded on Kickstarter last year. **Their founded success is the basis for**

With Blue Freedom, there's no need to completely disconnect on your next camping trip, outdoorsy excursion. Amazingly, just one hour of Blue Freedom in moving waters equates to 10 hours of stored power for your smartphone. A

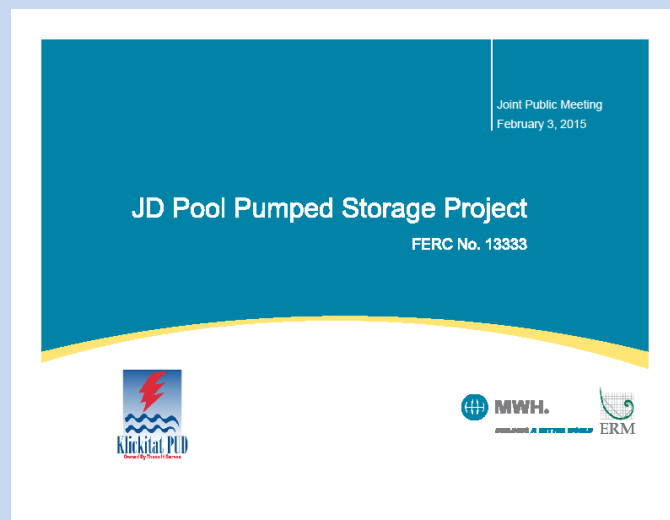
hydropower is a great alternative to solar energy because whatever the weather conditions, flowing water—however shallow—is all you need. No need to choose between the two as you can include a solar panel to its USB charging plug.

To support Blue Freedom and learn more about their eco-design and vision for a clean future, visit their Kickstarter here.



(New pumped storage proposal)

See attached powerpoint presentation sent by a friend.



Water:

(All that snow is melting!)

Ohio River to stay above flood stage for most of the week

By DAN SEWELL, Associated Press | on March 16, 2015, m.sfgate.com

CINCINNATI (AP) — The Ohio River was very slowly receding Monday after reaching its highest level in two decades, and forecasters expect it to stay above flood stage for most of the week. Melted snow and rainfalls have caused flooding that swamped roads, businesses and homes in scattered low-lying areas in the Cincinnati region that includes southeast Indiana and northern Kentucky. At least half a dozen homes were evacuated, and dozens of businesses remained closed because they had flooding or access roads were closed by high water. The National Weather Service said the river was at 57



James Fancher, Jr., of New Richmond, walks in a park Saturday, March, 14, 2015, on Front Street in New Richmond, Ohio, where a gauge measures the Ohio River level. Flood stage is 52 feet.

feet Monday morning, after cresting Sunday morning at 57.7 feet — 7 feet below the 1997 level that caused severe, widespread flooding in the Cincinnati area. Forecasters said the river will be above the 52-foot flood stage until late Thursday.

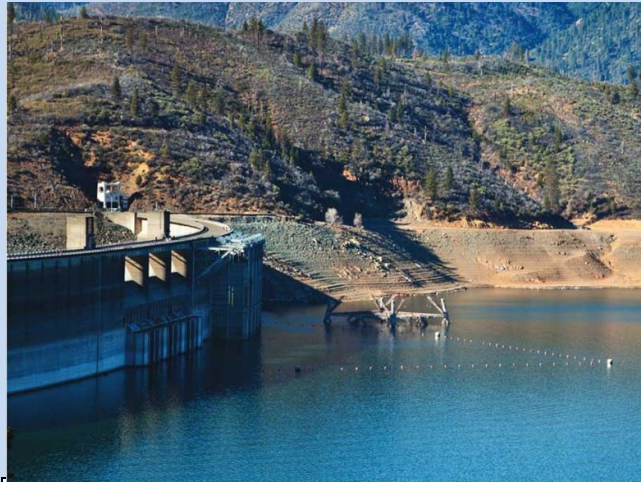
"It's a large river. It carries more water," meteorologist Brian Coniglio said. "It's going to take a long time." Officials in the village of New Richmond some 20 miles southeast of Cincinnati said at least five homes flooded, and many roads in the area had water over them, making travel difficult. Numerous basements in the Cincinnati area had water in them, too. A Hamilton County emergency management official said Monday that reports were still being compiled, but overall flooding problems appeared to be "very minimal" across the county that includes Cincinnati. Bary Lusby, operations manager for the county Emergency Management Agency, said a family was evacuated from a flooded rental home in the California neighborhood and at least one other house was flooded in that eastern Cincinnati community. "The biggest impact is to the businesses," Lusby said. "Roads are closed, and that's affected a number of businesses." The Montgomery Inn Boathouse in downtown Cincinnati was among the riverfront businesses still closed Monday. The restaurant closed Saturday night because of the rising river. "It gets in our basement," said Lisa Mikula, event manager at the restaurant, adding that they are hoping to reopen Tuesday. At least residents could clean up Monday in temperatures hitting the 70s in clear skies. The weather service said light rainfall is possible Thursday, but dry conditions are expected before and after that. "The weather conditions are going to be favorable for it to continue to drop," Coniglio said.

(Huh, they had to do a study to figure this out?)

Study: California Drought Decreases HydroPower, Increases Greenhouse Gas Emissions

By Ed Joyce, March 17, 2015 | Sacramento, CA | capradio.org

The Pacific Institute says there is less hydroelectricity and more expensive electricity, due to the diminished river flows as a result of the California drought. In its study, the Oakland, California think tank, which focuses on water issues, said with reduced hydropower, the state has increased the use of natural gas to produce electricity. Along with higher utility bills, it also means more emissions of climate-changing greenhouse gases are released. "This severe drought has many negative consequences," said Peter Gleick, Pacific Institute President and the report's author. "One of them that receives little attention is how the drought has fundamentally changed the way our electricity is produced. We hope this report prompts a lively debate on how to factor in a changing climate when we plan for electricity generation." Gleick said during the 2011- 2014 drought period, burning more natural gas to



Lake Shasta

compensate for limited hydropower led to an eight-percent increase in emissions of carbon dioxide and other pollutants from California power plants. "Between October 2011 and October 2014, California's ratepayers spent \$1.4 billion more for electricity than in average years because of the drought-induced shift from hydropower to natural gas," said Gleick. "In an average year, hydropower provides 18 percent of the electricity needed for agriculture, industry, and our homes. Comparatively, in this three-year drought period, hydropower comprised less than 12 percent of total California electricity generation." Gleick said if the current drought persists, water flowing to drive hydroelectric turbines will continue to shrink. He said this means "more expensive and polluting natural gas - compared to hydroelectricity - will become a larger percentage of California's electricity production." The study shows that, factoring in the dry years from 2007-2009, the total additional energy cost to the state's electricity users during the six years of recent drought was \$2.4 billion. Gleick said the study highlights the need to increase the use of renewable energy sources, such as wind and solar. "It's [solar, wind] still a small fraction of our total electricity production, but it's growing," said Gleick. "If we can replace natural gas with solar and wind during drought years, that's a good thing."



Environment:

(Looks like we have a difference of opinion.)

Turnabout David Doeringsfeld

Idaho needs and can maintain both its dams and fish

Imtribune.com/opinion, March 15, 2015

The Lewiston Tribune has recently provided a platform for Jim Waddell's criticism of the Army Corps of Engineers' 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement (FR/EIS) as evidence that the original study was seriously flawed. While Waddell is certainly entitled to his opinion, we cannot overlook the comprehensive review of the 2002 FR/EIS. The corps was the lead federal agency for the six-year, \$30 million study, which was intended to be a thorough review of the best science regarding the impact of the lower Snake River dams on salmon and steelhead recovery.

(Another benefit of hydro and dams.)

Consumers: Tippy Dam provided refuge for our national symbol

By Jeff Broddle, 3/17/15, cadillacnews.com

The Tippy Dam does more than supply power — the dam and others in the state also inadvertently created a refuge of sorts for the bald eagle. According to Gary Dawson, the backwater habitat supplied eagles with secluded nesting sites as well as a stock of fish that were safer to eat. Dawson is the director of environmental policy, land and water management for Consumers Energy.

“Many of the eagles soaring over Michigan today trace their roots to eagles that nested near Tippy Dam and other hydro facilities Consumers Energy operates along the Manistee, Au Sable and Muskegon rivers,” Dawson said.

According to Consumers, Tippy Dam and others blocked migrating fish from carrying toxins such as PCB and DDT all the way upstream from the Great Lakes.



From the late 1940s until it was banned in the 1970s, the insecticide DDT spread throughout the environment. Dawson said DDT is a persistent pesticide, meaning that as one fish eats another, and another, it tends to collect in the fish at the top of the food chain. Eagles then eat the fish, which comprise as much as 90 percent of their diet.

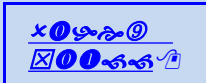
The presence of DDT in the eagles' bodies had the effect of causing the female eagles to lay eggs with fragile, thin shells. The eggs frequently broke as they were being incubated, leading to a decline in the population.

The chemical PCB also affects reproduction by causing the eggs not to hatch, or by causing the eagle to not even lay eggs. But the presence of barriers to fish migration, such as the Tippy Dam, helped create a refuge for the birds. For example, brook trout found below the dam had PCBs in their system of 93.5 parts per billion, Dawson said. Above the dam at Peterson Creek the levels were 4.1 parts per billion, according to a study by a grad student at Notre Dame who now teaches at Grand Valley State University. After the chemicals were banned the offspring of the eagles that lived near the dams were able to spread to the other parts of the state and begin growing the population. “We are at the midway point in our 40-year bald eagle management plan, and the birds have responded spectacularly,” Dawson said.



EAGLES ALSO FOUND REFUGE WHERE?

Consumers Energy also added new breeding territories that increased annual eagle productivity at the hydroelectric sites by more than 50 percent, Dawson said. Bald eagles still were an endangered species when the power company instituted a management plan to grow numbers of eagles in 1994. Since then, as many as 270 young bald eagles have fledged near Consumers Energy hydroelectric dams. The management plan included limiting cutting of mature White Pine trees. Eagles prefer the White Pine for perching and for nesting, and choosing to keep the trees in place rather than taking them down also helps to screen the bird habitat from human activity, said Consumers Energy spokesman Terry DeDoes. The utility tries to refrain from removing any trees in a 200 foot buffer zone on either side of the river, Dawson said. The dams still protect eagle breeding areas. The level of contaminants in fish below the dam have declined substantially in the course of the last 20 years, but the concentration of PCB still has not dropped below the Environmental Protection Agency's standard for protecting eagles and other wildlife. Bald eagles came off the federal List of Endangered and Threatened Wildlife in 2007.



Other Stuff:

(Energy picture, except he separates hydro from renewables.)

Roth: Trends to keep America illuminated

By: Jim Roth Guest Columnist March 13, 2015, journalrecord.com

Jim Roth

New federal statistics released by the U.S. Energy Information Administration shed light on the growth of electric generation that will keep America's lights on. The EIA forecasts that U.S. electricity generation will grow by an average 1.3 percent in 2015 and 0.6 percent in 2016.

Evaluating the trends in new electricity generation, the EIA noted the following holistic projections across America. As the result of a recent decline in fuel costs, combined with upcoming coal plant retirements, the EIA forecasts an increase in natural gas-fired generation. In fact, the EIA expects the share of total generation fueled by natural gas to average 29.2 percent during 2015, an increase from 27.4 percent in 2014.

However, in contrast, the share of generation provided by coal is expected to fall from 38.7 percent in 2014 to 37.2 percent in 2015. In the coming years, as these trends continue, natural gas generation is projected to surpass coal generation. By 2040 the coal share is projected to drop to 32 percent, with the natural gas share increasing to 35 percent. Evaluating new electric generation produced by nuclear power plants, the EIA noted 5-percent growth between 2013 and 2014. Furthermore, according to the 2014 Annual Energy Outlook, there is a projected increase in generation from 769 billion kilowatt-hours in 2012 to 811 billion kWh in 2040, accounting for about 16 percent of total generation in 2040. Evaluating renewables, according to the EIA, increased generation with renewable energy, excluding hydropower, accounts for 28 percent of the overall growth in electricity generation from 2012 to 2040.

Focusing on the EIA's domestic, regional projections by source, an overall decrease is observed in net generation via coal from 2014 to 2016, with exception to increased production via coal in Western states. With respect to natural gas and renewables, net generation by these sources is projected to increase in all regions. Furthermore, it is noteworthy that though all regions indicate an increased use of renewables to generate electricity, according to the EIA, the least production per day has occurred in the Northeast. With respect to hydropower, all U.S. regions appear to remain steady in production and projected productions between 2014 and 2016.

The world will need immensely increased energy supply in the next 20 years, especially cleanly generated electricity. Electricity demand is increasing twice as fast as overall energy use and is likely to rise by more than two-thirds from 2011 to 2035. Evaluating the breakdown of international electric generation by source, in 2012, 40 percent of generation was by coal, 23 percent by gas, 17 percent by hydropower and 5 percent from renewables. Ultimately, continued advancement and support of renewables is crucial to keeping on our lights and the lights of our neighbors, both domestically and internationally, as pollution doesn't respect state boundaries or ocean shores. *Jim Roth, a former Oklahoma corporation commissioner, is an attorney with Phillips Murrah PC in Oklahoma City, where his practice focuses on clean, green energy for Oklahoma.*

(Is this a good deal for the consumer or stockholders?)

Editorial: Divestiture is a win for New Hampshire

concordmonitor.com, March 15, 2015

It took nearly two decades, but the upcoming sale of the 12 power plants owned by Public Service of New Hampshire and its successor, Eversource Energy, was inevitable. We applaud it. The divestiture will save PSNH customers an estimated \$300 million over five years and create a fully competitive market for electricity. The deal also spares the state what could be years of costly

litigation. But it won't come without pain in the plants' host communities, which could see the value of a major property plummet. The plants, nine hydroelectric and three fossil fuel, include 55-year-old Merrimack Station in Bow and Schiller Station in Portsmouth, which opened in 1952. Those plants in particular are inefficient and ancient. They cannot produce competitively priced power, save for the few dozen days per year when natural gas prices spike, a phenomenon that will end when gas pipeline capacity increases, as it's expected to do.

The plants were worth owning, and even upgrading, as the utility did by agreeing to install a \$422 million mercury scrubber on the Bow plant, because as a state-regulated power producer, the company was guaranteed a 10 percent return from ratepayers. The landmark deal brokered by Republican Sen. Jeb Bradley and Democratic Sen. Dan Feltes between the utility, regulators, the governor's office of energy and planning, and lawmakers changes that. The Public Utilities Commission, in an assessment agreed to by Eversource, places the value of the plants at \$660 million. They are expected to sell for about \$225 million, according to an estimate by the Boston consulting firm La Capra Associates, which studied the issue at the behest of the PUC. The bulk of the value lies with the hydroelectric plants, \$69 million, and Newington Station, \$90 million. La Capra valued the Bow plant at just \$10 million, though it's on the town's tax rolls for \$82.5 million. Any shock that occurs with its devaluation will be delayed, however. The agreement includes a three-year property tax stabilization provision for host communities if their plants sell for less than its assessed value.

The savings for customers, Eversource spokesman Martin Murray said, is equivalent to refinancing the mortgage on a \$425 million home with a 10 percent interest rate at 3 percent interest or less. At that price, paying off the stranded costs will add less than half a cent per kilowatt hour to electric rates. The final figure will depend on what the power plants actually bring on the open market. Hydroelectric plants are very desirable, coal plants are not, and many are closing for failure to compete. Utilities also face the possibility – one we hope for – that increased regulation or a tax on carbon could make coal an even more expensive fuel. On Friday, Bow's Merrimack Station was the only coal-fired power plant operating in New England, and it was in idle mode. Opinion differs on its long-term future. The agreement requires that the buyer of any of the facilities operate them for a minimum of 18 months after purchase. After that, who knows? Sen. Bradley is confident that the Bow plant will continue to operate as a coal plant. It's in a great spot with access to cooling water, transmission lines and rail. Others are less sure. Eversource customers pay some of the highest electric rates in the nation, about 12.5 cents per kwh. Meanwhile, wind farms in Maine are producing power at an unsubsidized rate of 5 cents or less. The age of coal is coming to an end. Mines are closing, and the fuel is likely to become more, not less, expensive as efforts to combat climate change increase. Count us among those who look forward to the day when the last coal train rolls into Bow.

(Interesting! Can't imagine what this will cost or how it won't be an easy target.)

Scientists make strides in beaming solar power from space

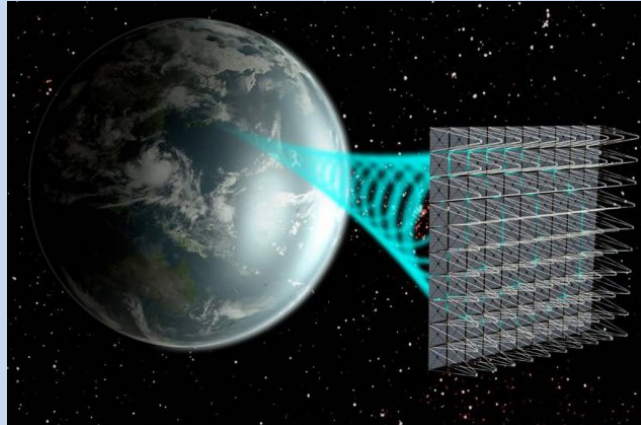
By Andrew Tarantola | March 12th 2015, engadget.com

The idea of powering humanity by gathering an endless supply of solar energy from space has taken a huge step towards becoming a reality. Scientists working for JAXA, Japan's space administration, have announced a major breakthrough in wireless power transmission ... in that they've actually been able to do it with a high degree of accuracy for once. The team reportedly beamed 1.8 kilowatts, enough juice to power an electric tea kettle, more than 50 meters to a small receiver without any wires. Up next: scaling the technology for use in tomorrow's orbital solar farms.

The researchers were able to do so by first converting the electrical signal to microwaves, then beaming them to a remote receiver, and finally converting them back into electrons. This successful experiment is the first time scientists have been able to move electrons over any appreciable distance with such a high degree of accuracy, one JAXA researcher explained to the AFP.

JAXA has been diligently working on this technology for years as part of the agency's SSPS (Space Solar Power Systems) effort. The program aims to harness the constant supply of solar energy directly from space using orbital solar farms, then beaming it back to Earth (and into a global grid) via microwave transmission. What's more, these orbital arrays would never have to deal with obscuring cloud cover or darkened nights as their terrestrial counterparts do.

Of course, the SSPS is still far closer to science fiction than science fact but JAXA's latest success clears one of the biggest and most fundamental hurdles facing the program: delivering power from space without having to run an extension cord out to Low Earth Orbit.



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