



CHIEF ENGINEER

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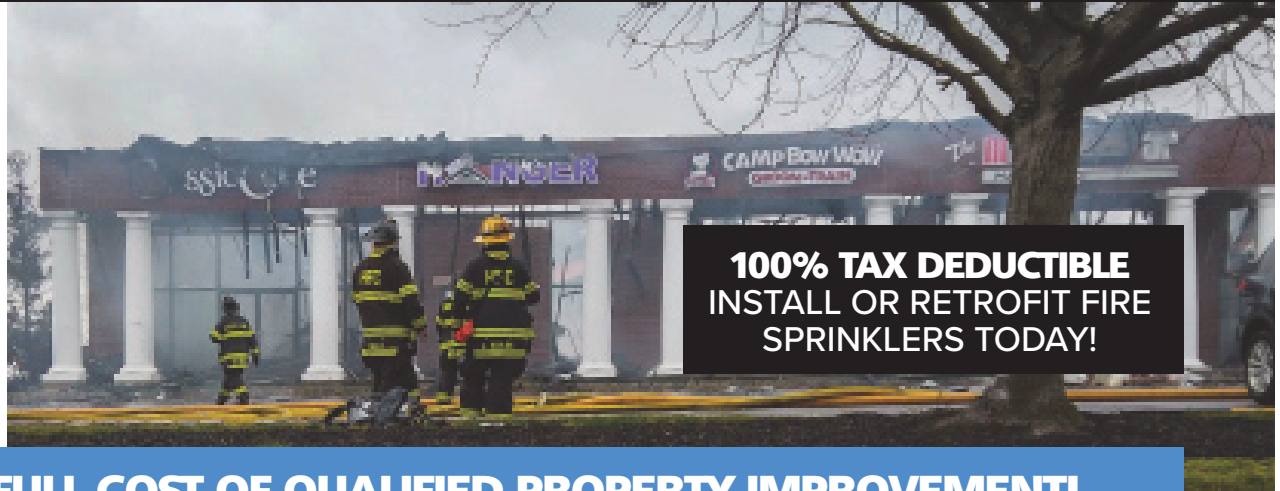
CHRISTOPHER GLASS

WORKS ITS MAGIC AT 801 S. CANAL ST.

Kleen Air Service Corp. Among NADCA 2022 Safety
Award Winners

Making Chiller Tube Cleaning a Top Priority
Improves Overall Efficiency

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CARES ACT

The Coronavirus Aid, Relief, and Economic Security (CARES) Act closed a loophole that was included in the TCJA by making QIP 15-year property. This change made businesses of all sizes, regardless of the amounts spent on equipment, eligible to deduct the full cost of commercial fire sprinkler systems using bonus depreciation.

The time is now to upgrade your building's fire safety with a fire sprinkler system or a sprinkler retrofit. Under the new Section 179 guidelines, the one year deduction period phases out after 2022. Any new sprinkler system or retrofit completed between September 27, 2017 and December 31, 2022 will be able to be fully expensed in one year. After 2022, the allowed deduction percentage is as follows:

2021: 100%	2023: 80%	2025: 40%
2022: 100%	2024: 60%	2026: 20%

2027 and after: The depreciation schedule becomes permanently set at 15 years.

WHAT IS QIP?

The Tax Cuts and Jobs Act (TCJA), passed in December, 2017, gave small businesses the ability to deduct the full cost of Qualified Improvement Property (QIP) up to \$1.04 million in the year of installation using Section 179.

QIP is defined as improvements to the interior of an existing building that is not residential property. Commercial fire sprinkler systems, including upgrades of existing systems or retrofitting in existing structures, are considered QIP.

The Section 179 deduction is not phased out over time. However, there is a phase out of the amount allowed as a deduction based on a maximum spending amount of \$2.59 million on equipment in a year. Businesses that spend over that amount will see a dollar for dollar reduction of their eligible deduction. So a business that spends \$3.63 million or more on equipment in a given year would not be allowed any Section 179 Deduction.

WHAT HAS CHANGED?

Prior to the TCJA allowing Section 179 on qualified improvement property, including sprinkler systems, property of this type was only allowed a deduction on a straight line basis over a period of 39 years. In other words, a company spending \$390,000 on a commercial sprinkler system prior to the TCJA would only deduct \$10,000 per year for 39 years.

While many believe that the intention of Congress was to make Qualified Improvement Property 15-year property, which would have made this property eligible for bonus depreciation, the TCJA left the life of this property at 39 years. So, a taxpayer who did not elect to use the Section 179 Deduction or who has that deduction phased out would have been left to depreciate the remaining balance of the assets over a 39-year period.

Neither of these deductions is currently available for fire sprinkler systems installed in residential high rises. The National Fire Sprinkler Association (NFSA) continues to fight to obtain incentives for residential structures.

For more information on how these tax incentives might impact the business of your contractors, we would recommend that they contact their tax professionals, as situations differ based on the facts and circumstances for each business. As a general rule, we would not recommend that the Local provide tax advice to the contractors.



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COVER STORY:

Christopher Glass Works Its Magic at 801 S. Canal St.



A full glass replacement at 801 S. Canal St. has Christopher Glass developing new innovations to get the job done.

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Kleen Air Service Corp. Among NADCA 2022 Safety Award Winners



The National Air Duct Cleaners Association honored CEAC Associate Member organization Kleen Air Service Corp. among its NADCA 2022 Safety Award honorees.

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Making Chiller Tube Cleaning a Top Priority Improves Overall Efficiency



Prioritizing chiller maintenance reduces the risk of breakdowns and dreaded downtime. By following best practices, you can increase efficiency and avoid costly future repairs.

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Dear Members,

It was great to see so many of you in attendance at this year's Vendor Fair out at Chicago Gaelic Park. For those of you who couldn't make it, it was a great night out full of exciting ideas, talk and products, and great food and drink to go with it. A big thank-you to all of our Associate Member organizations who took part and made this event such a success. We really do appreciate everything you do for the Chief Engineers Association of Chicagoland. Without you, this organization wouldn't be what it is. And to show you our tangible appreciation, we will, of course, be inviting you to our Vendor's Appreciation Dinner May 10th at the Morgan Art Center, 3622 W. Morgan, Chicago.



I look forward to seeing you all at the Barbecue Picnic event at Local 399 on Wednesday, May 17th. We're looking forward to seeing everyone for some excellent pulled pork, beans, cornbread and all the rest out in the back lot. One of the first and best cookouts of the season, you won't want to miss this.

In June, our Associate Members can look forward to seeing our White Sox in action on June 23rd vs. Boston Red Sox at our annual outing to Guaranteed Rate Field. Check your email inboxes soon for full details.

Then, of course, after the two-month summer break, September will usher in the new year of CEAC events with the biggest event of the year, our annual Golf Outing. This year is the 83rd Annual Golf Outing for the Chiefs, taking place once again at Cog Hill in Lemont. Check the website at chiefengineer.org this summer to register. Sponsorship opportunities will be available by reaching out to Brock Sharapata (bsharapata@chiefengineer.org).

As always, let's keep in mind the men and women of our military and our first responders who sacrifice to protect us and keep us safe. And let's also be sure to remember those in the services who have made the ultimate sacrifice by observing an appropriately thoughtful Memorial Day.

I look forward to seeing you at the May Barbecue Picnic.

Sincerely,

Ken Botta

IN BRIEF

Wisconsin's Only Oil Refinery to Reopen After 2018 Explosion

SUPERIOR, Wis. (AP) — Wisconsin's only oil refinery is on track to be fully operational in June after a \$1.2 billion effort to rebuild the facility five years following an explosion that injured three dozen workers.

The 2018 explosion and subsequent fires at the facility then-owned by Calgary-based Husky Energy in Superior also produced fears of a hydrofluoric acid leak, causing 2,500 people in the city to evacuate.

No acid leaked but a tank containing hot asphalt spilled 17,000 barrels into the facility. The asphalt caught fire, sending up a plume of black smoke that released thousands of pounds of flammable hydrocarbon vapor. The explosion caused about \$550 million in damage to the refinery.

The refinery is now owned by Calgary-based Cenovus Energy. Cenovus said Wednesday, April 19, that the refinery is on track to resume full operations by the end of June, Wisconsin Public Radio reported.

The cost to rebuild the refinery tripled from initial projections, and it took years longer than expected due to the COVID-19 pandemic.

Maine Fish Hatchery Will Work to Reduce Discharge to Lake

ORONO, Maine (AP) — A Maine fish hatchery will make changes to reduce the amount of phosphorus it discharges under the terms of a federal government settlement.

The U.S. Environmental Protection Agency said Tuesday, April 25, it has reached the agreement with the U.S. Fish & Wildlife Service for the Craig Brook National Fish Hatchery in Orland. The settlement deals with phosphorus discharged to Alamoosook Lake.

The hatchery raises salmon to try to restore their populations. However, the hatchery has not met the required limitations on the amount of phosphorus liquid waste that is discharged into the water, EPA officials said. Those regulations are in place to prevent negative environmental consequences such as algal blooms and fish kills.

Fish farming operations often create emissions because fish waste contains phosphorus, as well as nitrogen.

The terms of the agreement state that the wildlife service will make operational changes that result in less phosphorus discharge. If the hatchery can't meet the limitations by 2025, it will need to make more changes, the EPA said in a statement.

Judge to Weigh Limits for Aerial Fire Retardant in Wildfires

MISSOULA, Mont. (AP) — A federal judge is weighing whether to severely limit the government's use of aerial fire retardant to combat wildfires following arguments Monday, April 24, by environmental-

ists who are concerned about water pollution.

At a recent hearing in Missoula, Montana — home of the Forest Service's famous smokejumpers, who parachute into remote fires — U.S. District Judge Dana Christensen said he planned to issue his ruling soon. He said he was cognizant of the potential for a blaze erupting while the case winds its way through the legal process.

"I'm envisioning fire season just around the corner somewhere in the western United States," Christensen said.

Over the last two decades, wildfires across North America have grown bigger and more destructive. Experts say climate change, people moving into fire-prone areas, and overgrown forests are creating more catastrophic megafires that are harder to fight.

But the Forest Service Employees for Environmental Ethics, the advocacy group, argued Monday that by continuing to use retardant without taking adequate precautions to protect streams and rivers, the Forest Service is disregarding a federal clean water law.

The group has asked the court to issue an injunction blocking officials from using aerial retardant until they get a pollution permit — which Forest Service officials say could take years.

In the meantime, the agency says the retardant is a necessary firefighting tool and that the environmental damage from fires can exceed the pollution from the aerial retardant.

European Leaders to Commit to More Wind Energy Production

BRUSSELS (AP) — As of April 24, nine Western European leaders are committing to ramp up the production of clean energy from wind turbines in the North Sea to both meet climate targets and reduce their strategic energy dependence on Russia.

The leaders will also seek to improve security around the growing underwater electricity grid so it cannot fall victim to hybrid threats. Fears of such attacks have increased since the Russian invasion of Ukraine last year.

The leaders said in a joint op-ed contribution in Politico that they need more wind turbines and grid infrastructure "to reach our climate goals, and rid ourselves of Russian gas, ensuring a more secure and independent Europe."

To underscore their commitments, the Netherlands, Britain, Norway and the European Union all announced new projects to boost the production of such green energy and move toward greater strategic independence.

The summit in Belgium's North Sea port of Ostend is the second one to address the ever more pressing issue, and has expanded to take in nine leaders, from Belgium, the Netherlands, Luxembourg, France, Germany, Britain, Ireland, Norway and Denmark.

Maine Takes Railroad to Task Over Cleanup After Derailment

SANDWICH ACADEMY GRANT TOWNSHIP, Maine (AP) — The Maine Department of Environmental Protection is taking Canadian Pacific Kansas City to task over the cleanup following a freight train derailment and fire.

Commissioner Melanie Loyzim sent a letter April 20 telling the railroad that its good faith efforts have failed to meet the agency's expectations with regards to response and timing "to effectively mitigate impacts to the environment and public health."

Two concerns are a failure to move a pair of rail cars containing hazardous material farther away from the site in a timely manner, and the failure to remove diesel fuel from the locomotives' saddle tanks, causing a diesel fuel spill, the agency said. An estimated 500 gallons of fuel spilled.

Three locomotive engines and six train cars carrying lumber and electrical wiring went off the tracks Saturday in Somerset County, sending three people to the hospital.

Canadian Pacific Kansas City, created by a merger of Canadian Pacific and Kansas City Southern that was completed the day before the derailment, is leading cleanup, salvage and repair.

Derailments and railroad safety have been a growing concern nationwide since the fiery Feb. 3 Norfolk Southern derailment outside East Palestine, Ohio released chemicals, that forced evacuations and creating lingering health concerns.

The Maine derailment happened near Rockwood, a town of about 300 people on Moosehead Lake, about 90 miles northwest of Bangor.

UK Says Russian Hackers Aim to Attack Key Infrastructure

LONDON (AP) — Russian hackers are seeking to "disrupt or destroy" Britain's critical infrastructure and not enough is being done to stop them, U.K. government officials said Wednesday, April 19.

Britain's National Cyber Security Centre issued an official threat notice to operators of Britain's electricity, water and other critical systems, telling them to boost their defenses.

"I don't think we are yet doing enough to protect our infrastructure from the cyber threats emerging from Russia-aligning groups," the center's chief, Lindy Cameron, said.

Cabinet Minister Oliver Dowden said the threat comes from hackers sympathetic to Russia though not necessarily directed by the Russian state. He described them as the cyber equivalent of the Wagner Group, the private Russian company with mercenaries fighting in Ukraine.

He said that while the alleged hackers currently lack the capacity to

do widespread damage to U.K. systems, the threat is growing.

Minnesota Utility Will Keep Stake in North Dakota Coal Plant

MINNEAPOLIS (AP) — A Minnesota utility has reversed its decision to divest from a large North Dakota coal-fired power plant, citing new risks in the Midwest electricity market and new customers.

Fergus Falls-based Otter Tail Power announced in 2021 that it would sell its minority stake in the Coyote Station Power Plant in Beulah, North Dakota, and end its involvement with the plant by 2028. At the time, Otter Tail said the plant had become too costly and would become unnecessary as it added more renewable energy.

But Otter Tail has now told Minnesota regulators that it still needs Coyote Station, the Star Tribune reported April 6. The utility said in a recent filing that it has added some large customers, increasing its need for generation capacity. It specifically cited a cryptocurrency operation in Jamestown, North Dakota, that has become its second-largest customer.

The company also cited concerns about future costs and availability of electricity on the regional power grid, and price volatility for natural gas.

"We don't want to do anything that can't be undone that we would regret," Nate Jensen, Otter Tail's manager of resource planning, told the newspaper.

Clean energy and environmental groups had praised the plan to exit Coyote Station, calling it one of the "dirtiest coal-fired plants in the country." They plan to fight the company's new proposal before the Minnesota Public Utilities Commission.

Natural Gas Line Leak Beneath River Interrupts Service

HASTINGS, Mich. (AP) — Several thousand natural gas customers recently had their service interrupted due to a leak in a gas line beneath a river in western Michigan.

Consumers Energy said it was trying to determine what caused the leak in a 6-inch steel gas main under the Thornapple River in Barry County.

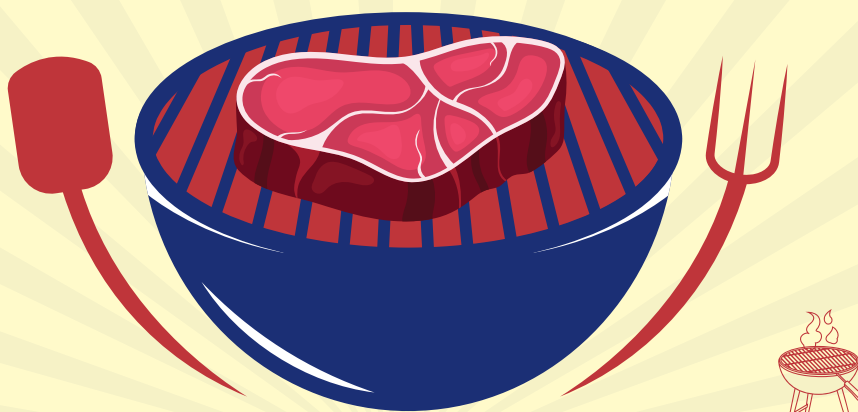
The Jackson-based utility used a temporary natural gas pipeline to restore service while it repairs the permanent line. The loss of pressure affected about 4,500 customers in the Hastings area, southeast of Grand Rapids.

Those customers will have to be disconnected from the permanent line and then connected to the temporary pipeline over the river, according to Consumers Energy. ❧

CEAC PRESENTS



BBQ



MAY MEETING



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**MAY
17**

**FROM
5 PM**



Who doesn't like a good barbecue? It's time again for the Chief Engineers' annual May BBQ Picnic at Local 399. Come on out to the back lot, where you can partake in great food and drinks, mix with your fellow professionals, and enjoy some music. We will be holding a raffle for the Ernest K. And Lois R. Wulff Scholarship at this event, so if you know of someone worthy who could benefit from a scholarship assist from the CEAC, visit chiefengineer.org/scholarship to download an application form today!

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NEWS

10 Expert Tips to Ensure Safe Sewer Cleaning

Municipalities must safely clean and maintain many miles of sewer line annually to eliminate blockages and prevent sanitary sewer overflows, which are regulated by the EPA. However, the use of high-pressure equipment in underground sewers can be dangerous unless operators are well trained and fully understand the hazards.

Understanding and correcting some of the most common operator mistakes in sewer cleaning can go a long way toward keeping them safe. So, safety expert Dan Story, Operations Manager at KEG Technologies, who has instructed operators for decades, provides 10 tried-and-true sewer cleaning safety tips that address the most common errors that he has observed. The Spartanburg, S.C.-based company is a manufacturer of sewer and storm line products including Tier 1 to Tier 3 nozzles, chain cutters, floor cleaners and camera nozzle systems.

As a national trainer of best-practice techniques, the company is a member of NASSCO, the National Association of Sewer Service Companies, and its Tier 3 High Efficiency nozzles, such as the Torpedo, Royal and OMG, provide up to 98-percent efficiency.

Tip #1 – Properly set up the area around the sewer vacuum truck to ensure operator safety in street traffic.

“To start sewer cleaning, when you park the vacuum truck in the middle of the road, you need to block off the traffic so it can pass in a safe manner. Set safety cones in front and behind the work zone and make sure the hazard flasher lights are functioning correctly,” says Story.

Tip #2 – Keep equipment noise levels low enough to hear traffic.

Revvng the sewer truck engine and running its vacuum pump can be noisy. So, Story advises keeping RPMs low enough so operators can hear and avoid approaching vehicles, and so they can converse with co-workers as needed.

One way to lower sewer vacuum truck RPMs during engine operation is by only using the vacuum when needed, and allowing the water to pass through as the solids remain.

“You can put the nozzle in the bottom of the sewer pipe and let the water run around it. The solids remain to vacuum as needed. You do not need to run continuously high RPMs,” says Story.

Another method is using more efficient nozzles, which enable sewer cleaning with lower pressure water, reducing engine RPMs.

Tip #3 – Understand how your specific sewer truck boom operates.

There are differences in how every sewer truck manufacturer configures, deploys, and extends the booms that control the vacuum hose. Some deploy rapidly, some articulate, some telescope. Operators must understand these differences before operating a boom in the field around their co-workers.

“Because you may go out in different vehicles from day to day with different crew members, it is important that you understand your boom equipment,” Story says. “For everyone’s safety, do not rush the job because the boom can cause injuries if it is not used with full understanding and control.”

Tip #4 – Use Personal Protective Equipment (PPE) and practice good hygiene.

“Protect your hands and feet with waterproof gloves and work boots,” Story says. “Protect your eyes with goggles or a face shield. Of course, protect your head with a hard hat to avoid injury from a swinging boom or a falling object.”

When cleaning sewers, operators exposed to sewage or human

(Continued on pg. 10)



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NEWS

(Continued from pg. 9)

waste may be at increased risk of becoming ill from waterborne diseases. To reduce this risk and protect against illness, operators should wash hands with soap and water immediately after cleaning sewers, and before eating or drinking. Avoid touching the face, mouth, eyes and nose while handling sewage, and cover any open cuts, sores, or wounds with clean, dry bandages.

In addition, Story points out that the CDC advises vaccination against Hepatitis A and B and other contagious diseases that could put operators at risk when exposed to sewage or human waste. The CDC, in fact, also recommends vaccinations for tetanus, polio, and typhoid fever in these environments. (See www.cdc.gov/healthywater/global/sanitation/workers_handlingwaste.html.)

Tip #5 – Open the upstream sewer manhole first.

In underground sewers, operators can be at risk from toxic inhalation. High concentrations of methane in enclosed areas can lead to hazards as large amounts of methane decrease the amount of oxygen in the air. Oxygen deficiency can cause headache, nausea, dizziness and even unconsciousness.

Story says that one of the first things that operators must do is open the upstream manhole as a precaution to enable drawing in clean

air. "For safety in sewer pipes, the first thing you always want to do is open your upstream sewer manhole," Story offers. "That will allow the system to draw in fresh air. On the other hand, if the air were to be drawn directly from the homes, it could fill them with sewer gas, which is unsafe and unpleasant for homeowners."

Tip #6 – To avoid injury, do not start hydro jetting outside a pipe.

With hydro jetting, sewer cleaning nozzles are designed to direct water at exceedingly high rates of pressure. For typical cleaning, 1,000-1,500 PSI is normal. To remove a blockage, pressures as high as 5,000 PSI may be reached.

"Sewer cleaning nozzles at extremely high pressures should only be used in a pipe," cautions Story. "If a nozzle is used outside of a pipe, it can whip around like a fire hose. I have seen sewer nozzles and hose go up and wrap around telephone wires. I have seen nozzles over 60 feet in the air."

Tip #7 – Use a hose with a robust safety factor to prevent bursting.

Since hose and nozzle pressures can be so high, it is important to utilize only robust hose of sufficient strength to ensure safe use over time, according to Story.

"Most operators and municipalities overlook the possibility of burst



Sewer cleaning nozzles at extremely high pressures should only be used in a pipe - or the nozzle could whip around like a fire hose.

hoses," he says. "However, hose is gradually cut going in and out of sewer pipe. The braided nylon weave remains, but every layer that is cut reduces hose strength and the corresponding PSI that can be run."

Tip #8 – Properly size the nozzle-to-hose connection to prevent nozzle "ricochet."

If the nozzle-to-hose connection is not sized properly, it can lead to dangerous, high-pressure "ricochet," where the nozzle and hose can suddenly turn around and come back at the operator.

One way to prevent nozzle "ricochet" is to size the nozzle-to-hose connection properly, according to Story.

"As a rule of thumb, the distance from the tip of the nozzle to where the hose connects needs to be approximately one-and-a-half times the size of the pipe diameter you are cleaning. Sizing it in this way can help to prevent the nozzle from turning around and coming back at you," he says.

He also advises against "free spooling" a nozzle up the sewer line.

"Any time you free-spool a nozzle up the line, you lose control of the nozzle — and it can ricochet back at you," he says. "To prevent this, use a nozzle skid and hold the nozzle back."

Tip #9 – Choose the right nozzle for the job to reduce turbulence and wear.

As is known throughout the industry, there are several tiers of nozzles, rated for water efficiency from Tier 1 (about 30-percent efficient), Tier 2 (50-60-percent efficient), to Tier 3 (75-98-percent efficient).

What sets the most efficient Tier 3 nozzles apart from others in the category is fluid mechanics engineering on a par with the aerodynamics of race cars or jet fighters. In the case of KEG Technologies' Tier 3 nozzles, the high-performance fluid mechanics design leaves little room for power losses and excessive turbulence.

By more effectively containing, controlling and directing high-pressure water with less turbulence, a Tier 3 nozzle can deliver more

cleaning power at lower PSI. This eliminates the need for operators to compensate for the lack of power from Tier 1 or 2 nozzles by increasing the pressure to higher PSI on the way back through the line. Ultimately, less PSI (with a better, faster result) makes for safer sewer cleaning, as outlined in many of the tips above.

Tip #10 – Slow and steady wins the race — and is safer for operators.

The number one mistake of most sewer cleaning operators that puts them at risk is rushing through the process, according to Story.

"Most operators run their nozzles way too fast," he declares. "Rushing to clean more footage of sewer pipe is dangerous. To clean safely, keep the nozzle slow and steady and let it do its job."

To stay safe and productive, Story advises contractors to never outrun their water, or they risk losing control of the process and will eventually run into a blockage.

"Sooner or later operators will run into a blockage of roots, grease, mineral deposits or cave-ins that will plug up their front jets," he says. "Then they no longer have a penetrating tool but a battering ram — a nozzle with no forward jets trying to feed its way through the blockage."

He advises, "For greater operator safety, slow down even more to remove a blockage and let the nozzle do the work. The reason we put forward jets on the nozzles is to safely open the blockage before the nozzle arrives. Slow down and the water will open the blockage before the nozzle ever gets there."

While there is much more to the practice of sewer cleaning, following these 10 tips will go a long way toward keeping operators safe and productive on the job for many years to come. Those seeking a more comprehensive understanding of best-in-industry safety practices can train in person or virtually with KEG Technologies in the timeframe most suitable for them.

For more information: call (866) 595-0515; fax: (866) 595-0517; visit www.kegtechnologies.net; or write to KEG Technologies Inc. at 6220 N. Pinnacle Drive, Spartanburg, S.C. 29303. ☎



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NEWS

US Invests in Alternative Solar Tech, More Solar for Renters

By Isabella O'Malley and Jennifer McDermott | Associated Press

The Biden administration announced more than \$80 million in funding Thursday, April 20, in a push to produce more solar panels in the U.S., make solar energy available to more people, and pursue superior alternatives to the ubiquitous sparkly panels made with silicon.

The Department of Energy announced the investments in the morning and Energy Secretary Jennifer Granholm plans to visit a community solar site in Washington in the afternoon. Community solar refers to a variety of arrangements where renters and people who don't control their rooftops can still get their electricity from solar power. Vice President Kamala Harris recently announced what the administration said was the largest community solar effort ever in the United States.

Now it is set to spend \$52 million on 19 solar projects across a dozen states, including \$10 million from the infrastructure law, as well as \$30 million on technologies that will help integrate solar electricity into the grid.

The DOE also selected 25 teams to participate in a \$10 million competition designed to fast-track the efforts of solar developers working on community solar projects.

The Inflation Reduction Act already offers incentives to build large solar generation projects, such as renewable energy tax credits. But Ali Zaidi, White House national climate advisor, said the new money focuses on meeting the nation's climate goals in a way that benefits more communities.

"It's lifting up our workers and our communities. And that's, I think, what really excites us about this work," Zaidi said. "It's a chance not just to tackle the climate crisis, but to bring economic opportunity to every ZIP code of America."

The investments will help people save on their electricity bills and make the electricity grid more reliable, secure, and resilient in the face of a changing climate, said Becca Jones-Albertus, director of the energy department's Solar Energy Technologies Office.

Jones-Albertus said she's particularly excited about the support for community solar projects, since half of Americans don't live in a situation where they can buy their own solar and put in on the roof.

Michael Jung, executive director of the ICF Climate Center agreed. "Community solar can help address equity concerns, as most current rooftop solar panels benefit owners of single-family homes," he said.

In typical community solar projects, households can invest in or subscribe to part of a larger solar array offsite. "What we're doing here is trying to unlock the community solar market," Jones-Albertus said.

The U.S. has 5.3 gigawatts of installed community solar capacity currently, according to the latest estimates. The goal is that by 2025, five million households will have access to it — about three times as many as today — saving \$1 billion on their electricity bills, according to Jones-Albertus.

The new funding also highlights investment in a next generation of solar technologies, intended to wring more electricity out of the same amount of solar panels. Currently only about 20 percent of the sun's energy is converted to electricity in crystalline silicon solar cells, which is what most solar panels are made of. There has long been hope for higher efficiency, and the recent announcement puts some money towards developing two alternatives: perovskite and cadmium telluride (CdTe) solar cells. Zaidi said this will allow the U.S. to be "the innovation engine that tackles the climate crisis."

Joshua Rhodes, a scientist at the University of Texas at Austin said

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Employees of NY State Solar, a residential and commercial photovoltaic systems company, install an array of solar panels on a roof, Aug. 11, 2022, in the Long Island hamlet of Massapequa, N.Y. (AP Photo/John Minchillo, File)

the investment in perovskites is good news. They can be produced more cheaply than silicon and are far more tolerant of defects, he said. They can also be built into textured and curved surfaces, which opens up more applications for their use than traditional rigid panels. Most silicon is produced in China and Russia, Rhodes pointed out.

Cadmium telluride solar can be made quickly and at a low cost, but further research is needed to improve how efficient the material is at converting sunlight to electrons.

Cadmium is also toxic, and people shouldn't be exposed to it. Jones-Albertus said that in cadmium telluride solar technology, the compound is stable and encapsulated in glass and additional protective layers.

The new funds will also help recycle solar panels and reuse rare earth elements and materials. "One of the most important ways we can make sure CdTe remains in a safe compound form is ensuring that all

solar panels made in the U.S. can be reused or recycled at the end of their life cycle," Jones-Albertus explained.

Recycling solar panels also reduces the waste from solar and can provide materials for new panels. Eight of the projects in the April 20 announcement focus on improving solar panel recycling, for a total of about \$10 million.

Clean energy is a fit for every state in the country, the administration said. One solar project in Shungnak, Alaska was able to eliminate the need to keep making electricity by burning diesel fuel, a method sometimes used in remote communities that is not healthy for people and contributes to climate change.

"Alaska is not a place that folks often think of when they think about solar, but this energy can be an economic and affordable resource in all parts of the country," said Jones-Albertus. ☰

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NEWS

Dragonfly Energy and Airstream Announce Battery Partnership

RENO, Nev. (GLOBE NEWSWIRE) — Dragonfly Energy Holdings Corp., maker of Battle Born Batteries and an industry leader in energy storage, recently announced that it has partnered with Airstream, the manufacturer of the iconic riveted aluminum travel trailers, to provide Battle Born Batteries as standard equipment in the Pottery Barn® Special Edition Travel Trailer and Classic Travel Trailer models and as an optional upgrade on the REI Co-op Special Edition Basecamp Travel Trailer. Battery anxiety has long been a pain point amongst consumers in the RV Industry. However, with this power upgrade from Dragonfly Energy, Airstream customers now have access to a solution that allows them to enhance their camping experience.

“Our mission has always been to provide high-quality products that allow people to follow their dreams and explore the world in comfort,” said Bob Wheeler, Airstream President & CEO. “By including Battle Born Batteries as standard equipment in these models, we’ve strived to improve the way our customers can use our travel trailers, in an effort to give them the ability to go further, stay longer, and have the comforts they’re used while camping off-grid. We’re excited about this partnership with Dragonfly and the ways it will continue

to deliver innovative improvements for our customers.”

Additionally, Dragonfly Energy was recently named an Airstream Five Rivet Supplier and was awarded the Top Improvement Score Designation as a result of their comprehensive service and support program.

There are four criteria that Airstream suppliers are measured on to achieve Five Rivet status. These criteria include: quality (meaning products should minimize warranty impacts); delivery (providing delivery within quoted lead times); cost (recognizing suppliers who deliver a competitively priced product); and service (asking suppliers to provide an excellent customer service experience, identifying and solving issues quickly). Airstream's Five Rivet Supplier program aims to not only recognize excellence in the supply chain but encourages excellence in the industry, leading to more business opportunities across the board.

“We are honored to see our lithium power solutions as both standard and factory-installed upgrades on such an iconic brand,” Dr. Denis Phares, CEO of Dragonfly Energy, said. “We are excited about the collaborative opportunities that our expanded partnership will enable in the future. And I would also like to thank Airstream for recognizing all of the hard work put forth by our employees and suppliers by naming us a Five Rivet Supplier.”

Dragonfly Energy has a strategic partnership with THOR Industries, the parent company of the Airstream brand, supplying lithium-ion batteries for several of the THOR family of companies.

To learn more about Dragonfly Energy, visit DragonflyEnergy.com.



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Battle Born batteries are now standard across multiple Airstream models.

NEWS

Abandoned Oil, Gas Wells Get Plugged in New Mexico

By Susan Montoya Bryan | Associated Press

ALBUQUERQUE, N.M. (AP) — More than 200 inactive oil and natural gas wells in New Mexico have been plugged as land managers have tried to crack down on producers as part of an accountability and enforcement program in one of the top producing states in the U.S., officials said Wednesday, April 19.

The State Land Office estimates it has saved taxpayers at least \$20 million in cleanup costs over the past few years by having the industry pick up the tab.

The Land Office's efforts are separate from work elsewhere that's being funded by the federal government.

Congress in 2021 committed \$4.7 billion in infrastructure spending to plug and reclaim orphaned wells and associated sites. The Bureau of Land Management awarded its first contracts last summer for work in Utah and California, while New Mexico and other states were awarded multimillion-dollar grants.

In New Mexico, the State Land Office says its work has resulted in a nearly 20 percent decrease in the number of abandoned wells on state trust lands, property that was allocated to New Mexico by the federal government more than a century ago so it could be used to raise revenues for public schools, hospitals, colleges and other public institutions.

Several inactive wells dated to the 1980s, including one that hadn't produced anything since 1982. Another well that went on the inactive list in 2020 had been drilled in 1925.

Land Commissioner Stephanie Garcia Richard said the idea is to keep the state — and ultimately taxpayers — from having to pay for any messes that companies create on state trust lands.

"This program has proven that we can require companies to clean up after themselves and still deliver billions of dollars in record revenues for our schools and other institutions," she said in a statement, adding that environmental compliance has been a priority for the office amid booming production in the state.

Home to a portion of the Permian Basin, New Mexico has become the No. 2 oil producing state in the U.S. Much of the development has been on federal land, but state officials have been using a new satellite imagery program to identify spills on state trust lands. They also have ramped up auditing of royalties that are owed by producers.

Under the Land Office's plugging program, officials contact producers first to give them an opportunity to plug inactive wells and remediate any contamination on state leases. Litigation is possible if operators fail to meaningfully respond.

Ari Biernoff, general counsel at the State Land Office, said the agency

will continue to use all available tools to bring companies into compliance.

"While many lessees and operators act responsibly, this program exists for those who don't," Biernoff said.

Plugging and cleanup costs can vary widely, ranging from \$40,000 for one site to more than double that depending the depth of a well and contamination levels, according to the State Land Office. Although the number of inactive wells fluctuates, agency officials have identified just over 1,000 chronically inactive wells on state trust land. That total has accumulated over several decades. ■■



Pumpjacks work in a field near Lovington, N.M., on April 24, 2015. Land managers in one of the top oil and gas producing states in the U.S. have plugged more than 200 inactive wells on state trust lands. New Mexico officials announced Wednesday, April 19, 2023, that the cleanup costs are being shouldered by the industry as part of the State Land Office's accountability and enforcement program. (AP Photo/Charlie Riedel, File)

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NADCA Recognizes 2022 Safety Award Winners, Including CEAC Associates Kleen Air Service Corp.

MT. LAUREL, N.J. — The National Air Duct Cleaners Association (NADCA) recently announced the recipients of its 2022 Safety Awards. As the world's most respected authority on the inspection and cleaning of heating, ventilation, and air conditioning (HVAC) systems, NADCA presents its Safety Awards to contractors who have shown a verifiable commitment to employee, customer and community safety throughout the year. The awards were announced on March 28 at the association's 34th Annual Meeting & Exposition in New Orleans, La.

Companies recognized with NADCA's 2022 Outstanding Safety Award:

- AFTERDISASTER, Greensboro, N.C.
- Chemiclene, Inc., Linden, N.J.
- Clean Air Systems of LA, Inc., Shreveport, La.
- Coit Services of Modesto, Modesto, Calif.
- Cross Environmental Services, Inc., Crystal Springs, Fla.
- Duct & Vent Cleaning of America, Inc., Springfield, Mass.
- Ductworks, Inc., Arvada, Colo.
- Ductz of Greater Portland & Vancouver, Clackamas, Ore.
- Guardian Services, Dallas, Texas
- Hughes Environmental, Inc., Louisville, Ky.
- *Kleen Air Service Corporation, Chicago, Ill.*
- Power Vac America, Inc., Houston, Texas
- Providet Service Associates, Inc., Millington, N.J.
- RHP Mechanical Systems, Reno, Nev.
- Sani-Vac Service, Inc., Warren, Mich.
- SMS Indoor Environmental Cleaning, Inc., Medway, Mass.
- Superior Air Duct Cleaning, New Brighton, Pa.
- Doc's Super Vac, Inc., Fort Collins, Colo.
- K-tech Kleening Systems, Inc., Weston, Wis.

Companies recognized with NADCA's 2022 Safety Award:

- Chuck's Heating & Air Conditioning, Inc., Colchester, Vt.
- Cochrane Ventilation, Wilmington, Mass.
- CORE California, National City, Calif.
- CORE Virginia, Norfolk, Va.
- Duct Doctor of Raleigh-Durham-Chapel Hill-Fayetteville, Raleigh, N.C.
- Duct Doctor USA of Charlotte, Charlotte, N.C.
- EnviroVantage, Epping, N.H.
- Hoover's Air Duct Cleaning, Inc., Albuquerque, N.M.
- LSS Life Safety Services, LLC, Louisville, Ky.
- Mavo Systems, White Bear Lake, Minn.
- Professional Abatement & Remediation Technologies, Fenton, Mo.
- Service-Tech Corporation, Cleveland, Ohio
- Service-Tech Corporation, Vandalia, Ohio.
- Ventilation Power Cleaning, Inc., Seattle, Wash.
- Wiz Team, Inc., Lake Forest, Ill.

"Each year, NADCA's Safety Awards recognize HVAC inspection and cleaning contractors who adhered to best-in-class safety practices throughout the year," said NADCA Chief Executive Officer, Jodi Araujo, CEM. "We're thrilled to recognize our 2022 award winners. Safety is a top priority for NADCA members, and is an important part of their commitment to adhering to the highest standards in HVAC system cleaning. The Safety Awards honor those companies that have gone above and beyond this commitment, ensuring safety for their employees and customers."

The criteria for NADCA's Safety Awards are based on regulations and recommendations from the U.S. Occupational Safety & Health Administration (OSHA). The awards are presented annually. Recipients of the Outstanding Safety Award are companies who have been recognized with the NADCA Safety Award for at least three consecutive years. ■■



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NEWS

Making Chiller Tube Cleaning a Top Priority Improves Overall Efficiency

STAMFORD, Conn. — Cleaning chiller tubes now can help make everything go more smoothly in a few months when you are getting your chillers back online. Goodway Technologies, a global leader in industrial maintenance and cleaning/sanitation solutions, is sharing tips and best practices to make it even more effective and efficient.

The Importance of Cleaning Chiller Tubes

Taking the time to properly clean and maintain equipment can help reduce the risk of breakdowns and downtime. Chillers make up a large portion of a facility's energy costs, which is why maintenance is critical for efficient operations and productivity. While it can be easy to defer maintenance and cleaning, it can cost more in the end due to larger repairs or loss of efficiency.

Chiller tubes are prone to scale accumulation and buildup of other sediments and residue. The accumulation of contaminants occurs in every chiller no matter how frequently the chiller is serviced or how clean the water inside is. This buildup in the pipes is called "fouling" and as it becomes thicker the overall system loses capacity and uses more energy compared to a clean chiller.

Routine cleaning can help reduce fouling, and also control the growth of harmful microorganisms, such as Legionella, the bacteria that causes Legionnaires' disease, which can cause potential health risks and result in poor indoor air quality.

Tools for Efficiently Performing Chiller Tube Cleaning

There are solutions and equipment for chiller tube cleaning that are simple to use, portable, and that easily can be operated by one person. Water treatment alone will not keep tubes clean. Even the smallest amount of scale can impact a chiller's efficiency. Routine cleaning and visual inspections should be implemented in addition to water treatment.

Here are a few tools that help optimize chiller cleaning:

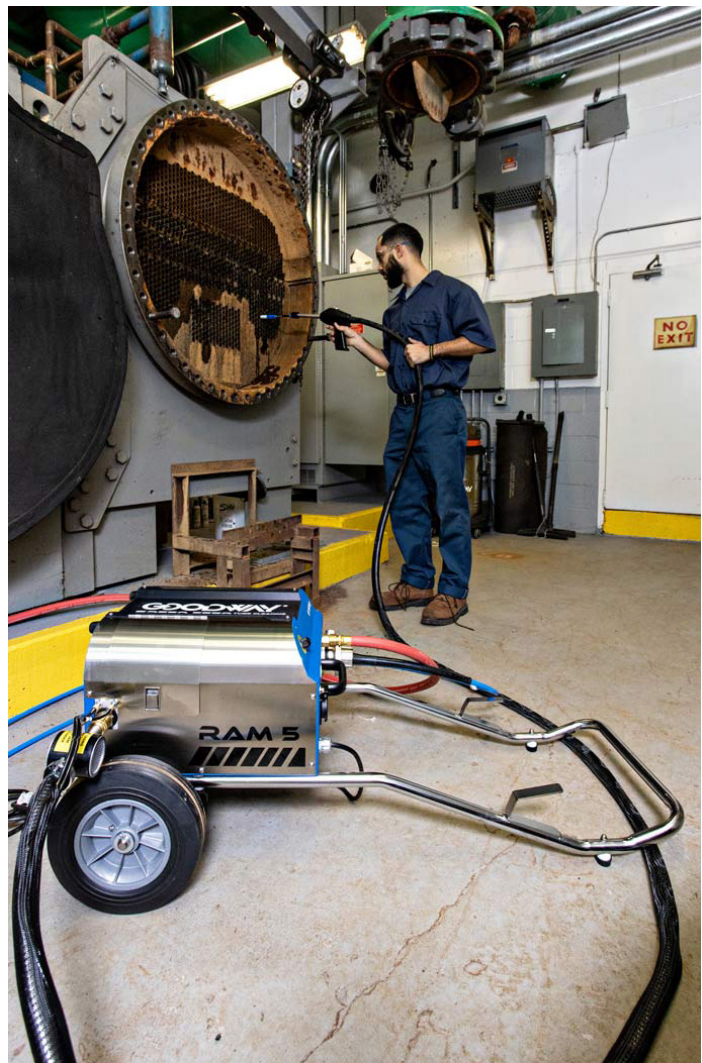
- Rotary Tube Cleaner – Ideal for cleaning the tubes, these units feed water to the brush at the end of the shaft, flushing out deposits as they are loosened.
- Chemical Descaler – Chemical descalers can dissolve calcium, lime, rust, lithium carbonate and other types of deposits from passages that come into contact with hot water. Make sure to review the label to see with what materials the descaler can be used.
- Brushes – Attaching brushes to the tube cleaner can help remove soft and light scale deposits.

Make Maintenance a Top Priority

Tube cleaning is a necessary preventative maintenance task for chillers and failure to clean the tubes leads to scaling, corrosion, and reduced heat transfer through the system. As heat transfer efficiency goes down, operating and maintenance costs go up.

Finding the right equipment can make chiller tube cleaning easier and more effective. Goodway Technologies recently launched its newest line of tube cleaners that feature increased maneuverability and an intuitive design, including the RAM-5-ID which showcases the exclusive "Speed Feed" gun system that automatically inserts and removes the shaft into tubes, cleaning them up to four times faster than other tube cleaning systems.

Visit Goodway Technologies' online Chiller Tube Cleaner Buying Guide for additional information on how to choose the right chiller tube cleaning solutions. 📄



The RAM-5-ID features an exclusive "Speed Feed" gun system that automatically inserts and removes the shaft into tubes, allowing them to be cleaned at up to four times faster than other tube-cleaning systems.

Western Specialty Contractors Restores Façade of Historic Armory at U of I Urbana-Champaign

ST. LOUIS — Western Specialty Contractors – Springfield, IL Branch has restored the brick and stone façade of the historic Armory at the University of Illinois at Urbana-Champaign — home to the Fighting Illini track and field team.

The Armory was originally designed by William Carbys Zimmerman as a military drill hall, athletic facility and assembly hall. Constructed in 1912-14, the building was once the largest free-span, no-center-support-system structure in the world. In 1927, a multistory addition designed by Charles A. Platt was built around the building adding classroom and office space. Its facade matches the Georgian Revival style found in nearby university buildings such as the Main Library and Huff Hall. Today, the Armory is an anchor point for the university's south campus and used for track and field meets and other events.

Western contracted with project general contractor Grunloh Con-

struction of Effingham, Ill., to tuckpoint the Armory's east elevation as well as portions of its north and south elevations. The scope of work also included the demolition and rebuilding of an existing parapet wall using block masonry, salvaged stone and fabricated stone that closely matched existing stone. The severity of deterioration on the upper areas of some masonry walls required a change in scope to completely rebuild additional parapet locations. Due to irregular dimensions of the parapet wall, additional demolition and rebuild work had to be completed in order to maintain the structural integrity of the masonry walls.

Western's craftsmen also replaced damaged brick on the façade discovered during tuckpointing with salvaged brick from the parapet demolition and installed custom-blend brick in other locations where salvaged brick could not be used.

Approximately six tuckpointing mockup locations were completed in order to match the existing facade as closely as possible and maintain the historic nature of the building. In order to match the existing mortar, additional sand was added per the petrographic testing results, and the mortar was brushed with special care while still damp to expose additional aggregate.

The restoration team also included White & Borgognoni Architects of Carbondale, Ill., and Rubinos & Mesia Engineers of Chicago, Ill. The project was completed within a year, and on budget.

For more information about Western's masonry restoration services, visit westernspecialtycontractors.com/masonry-services.



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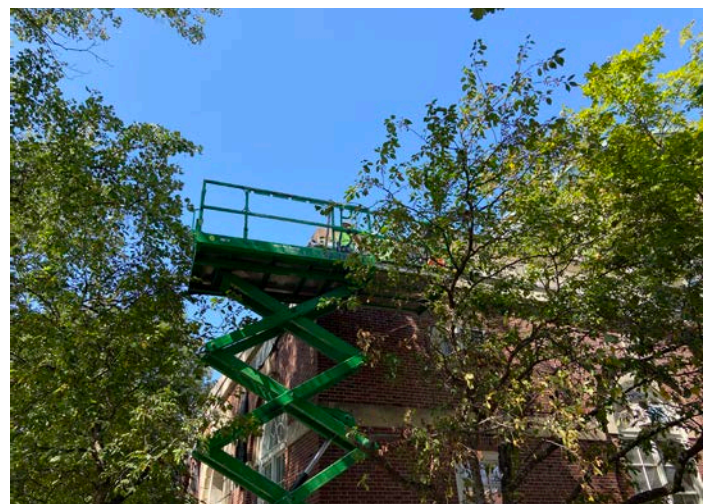

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Workers with Western Specialty Contractors tuckpoint the historic Armory at the University of Illinois at Urbana-Champaign. (Photo: Josh Woolard/Western Specialty Contractors)

NEWS

Company Seeks First-Time Restart of Shuttered Nuclear Plant

By John Flesher | AP Environmental Writer

TRAVERSE CITY, Mich. (AP) — A company that tears down closed nuclear power plants wants to do in Michigan what has never been done in the U.S.: restore a dead one to life.

Holtec Decommissioning International bought the Palisades Nuclear Generating Station last June for the stated purpose of dismantling it, weeks after previous owner Entergy shut it down. Fuel was removed from the reactor core. Federal regulators were notified of “permanent cessation of power operations.”

But with support from Democratic Gov. Gretchen Whitmer and leaders in the Lake Michigan community where Palisades was an economic driver for 50 years, Holtec soon kicked off a campaign to bring the plant back. The 800-megawatt facility had generated roughly 5 percent of the state’s electricity.

“Keeping Palisades open is critical for Michigan’s competitiveness and future economic development opportunities,” Whitmer said in a letter to Energy Secretary Jennifer Granholm, herself a former Michigan governor, requesting federal funding for the restart.

Activists who long criticized Palisades as poorly maintained and dangerous don’t want it resurrected.

They note its years of mechanical problems, including what the Nuclear Regulatory Commission described as among the nation’s worst cases of nuclear fuel container weakening. A degrading seal on a device controlling the atomic reaction led Entergy to close the plant nearly two weeks earlier than planned in May 2022.

“This is uncharted risk territory,” said Kevin Kamps, radioactive waste specialist for a group called Beyond Nuclear, who vowed to “fight this proposal at every turn” after Holtec pitched it during a March 20 NRC meeting.

Holtec says a primary reason for its about-face on Palisades was a \$6 billion federal initiative to prolong older nuclear facilities, part of President Joe Biden’s infrastructure law.

Nuclear is key to his goal of an economy with net zero carbon emissions by 2050. Fission generates no carbon dioxide, the primary global warming gas, although fossil fuels can be used in mining and refining uranium ore for reactors. Its waste remains lethally radioactive for thousands of years.

“Nuclear reactors support energy independence by ensuring the reliable availability of clean, resilient and affordable power,” the Energy Department said in March, announcing a second funding application period for aging plants.

The department awarded up to \$1.1 billion last fall to spare the Diablo Canyon plant in California, scheduled for decommissioning in 2024 and 2025.

Palisades was turned down. But the department emphasized that recently shuttered plants would be eligible in the next round. Instead, Holtec is applying for about \$1 billion in federal loans under a different program that’s “a better fit,” spokesman Patrick O’Brien said.

The company also wants \$300 million from the state, said state Rep. Joey Andrews, a Democrat whose district includes the plant.

Holtec Decommissioning President Kelly Trice told the NRC that government assistance was vital, along with regulatory exemptions and finding a utility to buy the power. He didn’t disclose the expected Palisades restart cost.

Resurrecting the plant would be “a massive challenge,” said Jacopo Buongiorno, a Massachusetts Institute of Technology nuclear engineering professor.

In addition to hiring and training hundreds of operators and engineers, the company would have to check thousands of parts — making repairs or replacements as needed — and order more uranium fuel.

Palisades’ license now prohibits reactor operation, so Holtec would need a revision or rule exemptions for a restart. The NRC would agree only if convinced the plant “has been brought back to working order,” Buongiorno said.





This June 24, 2010, file photo shows the Palisades Nuclear Generating Station in Covert, Mich. Holtec Decommissioning International, a company that tears down closed nuclear power plants wants to do in Michigan what has never been done in the U.S.: restore a dead one to life. Activists who long criticized Palisades as poorly maintained and dangerous don't want it resurrected. (John Madill/The Herald-Palladium via AP, File)


No significant steps have been taken toward dismantling the plant, company Vice President Jean Fleming said during the March meeting. Some 380 employees departed after closure while about 220 remain, handling site and security upgrades and preparing to transfer spent fuel from a cooling pool to dry cask storage.


Holtec hopes to get funding and NRC approval by October. Even then, the restart probably would take a couple of years, Trice said.

Andrews, the legislator who supports state funding, said he previously worked in renewable energy and prefers wind and solar. Yet a reliable supplier is needed for when wind doesn't blow or sun doesn't shine, he said, and nuclear beats carbon-spewing coal and natural gas.

But the potential comeback is a nightmare for those who opposed the plant and were relieved it shut down.


"If there's an accident at Palisades, it could make it so we can't live here anymore," said Kraig Schultz, whose home is 50 miles away but close to Lake Michigan, where he swims and his son surfs. "We're playing a losing game when we keep running something until it fails." ☒







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NEWS

Las Vegas-to-California Bullet Train Gets Bipartisan Backing

By Ken Ritter | Associated Press

LAS VEGAS (AP) — A bipartisan congressional group from Nevada and California asked the Biden administration Monday, April 24, to fast-track federal funds for a private company to build a high-speed rail line between Las Vegas and the Los Angeles area.

All six of Nevada's elected federal lawmakers and four House members from California sent the letter to U.S. Transportation Secretary Pete Buttigieg. They said they're on board with a proposal from Brightline West to spend more than \$10 billion to lay tracks along the Interstate 15 corridor.

Traffic jams on the interstate often stretch for 15 miles near the Nevada-California line as motorists head home after weekend or holiday travel to Las Vegas.

The Mojave Desert is largely open space, and the electric-powered trains could potentially cut the four-hour trip in half, carrying passengers at speeds of nearly 200 mph.

"This project is a major priority because it will make southern Nevada more accessible to millions of visitors each year," said U.S. Sen. Jacky Rosen, the Nevada Democrat leading the group. She said it "will boost our economy and create more good-paying jobs."

Union labor will be used during construction, the company and the Southern Nevada Building Trades Union recently have announced.

Brightline West is seeking \$3.75 billion in federal funding from the Biden administration-backed federal infrastructure law.

The project could be "the blueprint for how we can connect major city pairs that are too short to fly and too far to drive," said Mike Reininger, CEO of Florida-based Brightline Holdings LLC, the only privately owned and operated intercity passenger railroad in the United States.

The lawmakers' letter pointed to company projections of 35,000 construction jobs, 1,000 permanent jobs and reduced planet-warming



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This undated illustration provided by Brightline West shows an illustration of the Brightline West High Speed Rail project train from Las Vegas to Rancho Cucamonga, Calif. A bipartisan congressional group from Nevada and California asked the Biden administration on Monday, April 24, 2023, to fast-track federal funds for a private company to build a high-speed rail line between Las Vegas and the Los Angeles area. (Brightline West via AP)

greenhouse gas emissions from vehicles.

A draft environmental assessment of the Nevada-California project was made public last October 2022, and the Federal Railroad Administration is expected to finalize permits in July. The company said about 70 percent of funding will be private, using a combination of debt and equity.

Amtrak passenger service to Las Vegas ended in 1997 with the demise of a train called the Desert Wind. The concept of building a bullet train through the Mojave Desert dates back to at least 2005 under various names. It has seen starts and stops over the years and became sidetracked during the COVID-19 pandemic.

In Florida, Brightline West's sister company began sharing the Florida East Coast freight line between Miami and West Palm Beach in 2014 and is building an extension to Orlando. High-speed trains running through urban areas have drawn criticism for numerous crashes with vehicles at rail crossings. Investigators found deaths were not the railroad's fault, determining that many were suicides or drivers or pedestrians trying to beat the trains.

Other places where high-speed trains have been proposed include the 240 miles from Dallas to Houston in Texas, and a 500-mile system linking Los Angeles and San Francisco.

The California line depends on funding and other unknowns.

A 2023 report by the California High-Speed Rail Authority says environmental clearance has been obtained for 422 miles and construction is underway for 119 miles in California's Central Valley.

Cost estimates have swelled to more than \$100 billion — far greater than the \$33 billion that voters approved in 2008.

In Texas, a study published last month by Reason Foundation, a libertarian think tank, concluded the state's fast rail project is stalled by climbing costs, lack of legislative support and opposition from farmers, ranchers, and other landowners "who objected to having

their land bisected by a train traveling at 200 miles per hour over 30 times each day." It noted the Texas Legislature passed a law prohibiting spending any funds on the project.

Brightline West trains would connect Las Vegas, Victorville, California, and Rancho Cucamonga — a city in San Bernardino County with a passenger station on a suburban Los Angeles light rail line.

U.S. Sen. Catherine Cortez Masto, a Democrat, and Nevada's four House members including Republican Mark Amodei signed the letter with Rosen seeking federal-state partnership funding through the Federal Railroad Administration's Intercity Rail Grant Program.

California Democratic House members Nanette Barragan and Jimmy Gomez from the Los Angeles area and John Garamendi of the East Bay area signed on, along with Republican Jay Obernolte, who represents the Victorville and San Bernardino County area.

"This bipartisan delegation from Nevada and California are pleased to support the federal resources necessary to develop essential transportation access between this highly trafficked corridor," the lawmakers said. ☐☐

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NEWS

Planned Senate Bill Would Counteract Mining Law Ruling

By Scott Sonner | Associated Press

A Nevada Democratic U.S. senator is looking to Congress to ensure mining companies can use established mineral claims to dump waste on neighboring federal lands as they always had before a federal appeals court adopted a stricter interpretation of a 150-year-old law.

Environmentalists widely praised the 9th U.S. Circuit Court of Appeals' more restrictive ruling, which blocked the Rosemont copper mine in southern Arizona last year because the company hadn't proven it had mineral rights on the adjacent land where the waste rock was to be buried.

The ramifications of the ruling are worrisome, however, for President Joe Biden's clean energy agenda and for key projects to mine lithium, cobalt and other materials needed to manufacture batteries for electric vehicles.

In response, Nevada U.S. Sen. Catherine Cortez Masto drafted and introduced a bill that would amend a 1993 budget reconciliation act but primarily clarifies definitions of activities and rights central to the 1872 Mining Law.

The language is intended to insulate mines from the more onerous and likely most expensive standards imposed on the industry by the 9th Circuit ruling, which was a significant departure from long-established mining practices that environmentalists have fought for decades.

Without congressional action, Cortez and other senators say critical mineral projects across the West are threatened, including those needed to expedite the transition from fossil fuels to renewable energy and to bolster national defense.

"This misguided decision would force all mining activities, even the storage of waste, to happen on mineral-rich land, which could impede critical mineral production all across the country," Cortez Masto said in a statement emailed to AP.

Nevada is the biggest gold-producing state and home to some of the nation's largest lithium deposits.

Republican Sen. Mike Crapo of Idaho and Sen. Kyrsten Sinema of Arizona, an independent, have signed on to the bill as co-sponsors.

The measure is sure to meet staunch opposition from conservationists who consider the Rosemont ruling and its ripple effects one of their biggest victories in years.

While they generally embrace Biden's efforts to speed the transition to renewables, they continue to challenge even so-called green energy projects with lawsuits accusing the government of violating laws protecting endangered species, water resources and cultural and historical sites.



Melissa Boerst, a Lithium Nevada Corp. geologist, points to an area of future exploration from a drill site at the Thacker Pass Project in Humboldt County, Nev., Sept. 13, 2018. Another judge has adopted a U.S. appellate court's stricter interpretation of a century-and-a-half-old mining law in a new ruling that blocks a metals mine in Nevada. And it could have ramifications for a huge lithium mine near the Nevada-Oregon line, and other future mines on public lands across the West. (Suzanne Featherston/The Daily Free Press via AP, File)

The Rosemont ruling upended the government's long-held position that the 1872 Mining Law — the nation's premier regulation of mining since the Civil War — conveys the same rights established through a valid mining claim to adjacent land for the disposal of tailings and other waste.

The 9th Circuit held that instead, the company must establish — and the government must validate — that valuable minerals are present under such lands for a claim to exist.

Based largely on that ruling, U.S. District Judge Miranda Du in Reno ruled in February that the Bureau of Land Management had violated the law when it approved Lithium Americas' plans for the Thacker Pass mine near the Nevada-Oregon line. But she allowed construction to begin in March while the bureau works to bring the project into compliance with federal law.

The 9th Circuit has scheduled oral arguments June 26 on environmentalists' appeal of Du's refusal to halt the mine even though she found it was approved illegally.

In March, U.S. Judge Larry Hicks in Reno also adopted the Rosemont standard in his ruling that nullified Bureau of Land Management approval of a Nevada molybdenum mine and prohibited any construction.

"BLM cannot skirt the Mining Law requirement that valuable mineral deposits must be found in order to occupy the land," he wrote March 31. ■■

Harris Promotes Huge Community Solar Deal in Georgia Visit

By Matthew Daly | Associated Press

WASHINGTON (AP) — Continuing its efforts to promote renewable energy, the Biden administration on Thursday, April 6, announced what it says will be the largest community solar effort in U.S. history — enough to power 140,000 homes and businesses in three states.

Vice President Kamala Harris announced the deal during a visit to the Qcells solar panel factory outside Atlanta. The South Korean company's corporate parent, Hanwha Solutions Corp., said in January it will invest \$2.5 billion to expand its Dalton, Georgia plant and build another plant in nearby Cartersville. Qcells projects it will supply about 30 percent of total U.S. solar panel demand by 2027, including making solar panel components usually manufactured outside the United States.

A deal announced by Harris calls for Qcells and Virginia-based Summit Ridge Energy to deploy community solar projects capable of generating 1.2 gigawatts of electricity in Illinois, Maine and Maryland. Community solar projects allow people to tap into solar power generated at a shared site rather than on individual rooftops and are a way for renters and those without access to rooftop solar panels to receive the benefits of clean energy.

Community solar results in an average of 10 percent in annual

savings for customers, the White House said. The new plan will require the manufacturing of 2.5 million solar panels at Qcells' plant in Dalton, Georgia — the largest community solar order in American history, officials said.

The solar project is made possible by tax credits in the Inflation Reduction Act, the landmark climate and health law Congress approved last year, Harris and other officials said.

"Since taking office, our administration has made the largest investment in solar energy in our nation's history," Harris said in a speech at the Qcells plant. "We strengthened domestic supply chains to make sure America has reliable access to parts and materials to build a clean energy technology and economy. We provided tax credits to encourage companies to buy solar panels made in America. And we invested billions more to build and expand factories like this one."

The huge order by Summit Ridge Energy "was made possible by the investments that we have made to expand American manufacturing and increase demand for clean energy," Harris said. "There is a nexus there. When we talk about the relationship between supply and demand, it is real."

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Vice President Kamala Harris speaks during a ceremonial promotion of Jacob Middleton to Brigadier General in the U.S. Space Force in the Eisenhower Executive Office Building on the White House campus, Tuesday, April 4, 2023, in Washington. (AP Photo/Patrick Semansky)

NEWS

Panel: Climate Change, Not Wind Prep, Is Threat to Whales

By Wayne Parry | Associated Press

LONG BRANCH, N.J. (AP) — Climate change, spurred by the burning of fossil fuels, is the biggest danger to marine life including whales, a panel of Democratic officials and environmental groups said Monday, April 24.

The gathering, held in an oceanfront conference room as a half-dozen dolphins frolicked in the ocean behind them, also strongly criticized a bill in the House of Representatives containing numerous incentives for oil and gas companies, and which eliminates several environmental protections currently in effect.

It also was a retort to opponents of offshore wind development, who claim that preparation for wind farms off New Jersey and New York are killing whales along the U.S. East Coast. Numerous federal and state agencies say there is no evidence that the deaths are related to offshore wind survey work.

The event came a week after U.S. Rep. Frank Pallone Jr. and other New Jersey Congressional Democrats wrote to the White House

Council on Environmental Quality “demanding real solutions in response to the death of marine mammals off New Jersey’s coast.”

But the letter did not seek pause in offshore wind projects as many Republicans demand. Chris Smith and Jeff Van Drew, two Republican Congressmen from New Jersey, want the work stopped at least temporarily. Neither responded to a request for comment. No Republican elected officials were at the April 24 event.

Earlier in April, Republican New Jersey state senators Declan O’Scanlon and Ed Durr introduced a resolution calling on the federal and state governments to enact a moratorium on offshore wind preparation, saying “We cannot ignore the surge in marine life deaths that has occurred while offshore wind project preparation activities have been conducted along the coast.”

At the April 24 event, Pallone said, “The science has not linked the whale deaths to offshore wind activities. Climate change is the biggest threat to marine mammals.”



Workers walk near a dead whale that washed ashore in Seaside Park N.J. on March 2, 2023. On April 24, 2023, a panel of Democratic federal officials and New Jersey environmental groups said climate change is the biggest threat to marine life in the ocean, not preparatory work for offshore wind farms, which some people believe are harming or killing whales on the East Coast despite government agencies’ statements that the two are not related. (AP Photo/Wayne Parry)

Pallone and others said that as water temperatures rise, fish species that whales prey upon have been moving into different areas, bringing whales more frequently into the path of heavily traveled shipping lanes off the East Coast.

Shawn LaTourette, New Jersey's environmental protection commissioner, said the migrating bait fish are "bringing marine life into direct contact with the shipping superhighway that sits off our coast."

As Ed Potosnak of the New Jersey League of Conservation Voters put it, "They're having a picnic in the Parkway; they're getting hit."

Of the 32 whales that have died off the East Coast since Dec. 1, many have shown signs of being struck by ships or being entangled in discarded fishing gear, according to the National Oceanic and Atmospheric Administration.

In an April interview with The Associated Press after a speech at Monmouth University, NOAA's administrator, Richard Spinrad, said ship strikes are a common cause of recent whale deaths.

"We study the fisheries, where the fish are, what the populations are, and there is some thought as to the whales following a change, a shift in where the prey is that the whales feed on, which may be a consequence of a change in the ocean itself," Spinrad said. "By moving further inshore, these whales are then more vulnerable to things like ship strikes. The science that we have conducted suggests there is not a link between the activities of offshore wind and the strandings we've seen along the East Coast."

U.S. Sen Cory Booker said burning fossil fuels "is causing our house to be on fire, and we have been supplying the matches."

Capt. Paul Eidman, of the group Anglers for Offshore Wind Power, said climate change is already affecting commercial and recreational fishing by changing where bait fish — and their predators — travel.

"Offshore wind energy offers a clean, economical, beneficial opportunity to combat the climate crisis and an alternative to continuing to burn fossil fuels," he said. "We cannot ignore the fact that the impacts of climate change are disrupting species migration and holding patterns, posing serious risks to the long-term future of recreational fishing and the species we rely on."

Panelists sharply criticized HR1, a bill being pushed by House Republicans to lower energy costs by giving incentives to fossil fuel industries, rolling back many environmental laws and protections, and limiting the power of a president or government agency to limit or prevent energy projects on federal land.

The bill has been attached to legislation the Republicans support in return for increasing the nation's debt limit and avoiding a government financial default. ☐



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NEWS

Climate Solution: Green Hydrogen Company Ohmium Raises \$250M

By Jennifer McDermott | Associated Press

In what could prove a milestone for an industry that hopes to help address climate change, the Silicon Valley company Ohmium announced Wednesday it has raised \$250 million to increase production of machines that can make clean hydrogen and displace fossil fuels.

Some climate experts say burning hydrogen can substitute for burning coal, oil or gas, for example in making steel or cement — without contributing to climate change. That's been largely theoretical, but real-world examples are now growing.

Just four or five years ago, a company working on clean hydrogen from water would not have been able to raise several hundred million dollars, said Daryl Wilson, executive director of the Hydrogen Council. But now there's rapid growth and demand for it, and a broader recognition that it's key to addressing climate change.

Mark Viehman, a hydrogen and clean fuels expert at the consulting firm Capgemini, called \$250 million a "very impressive" fundraising, and said its own recent research found that 64 percent of energy and utility companies plan to put money into low-carbon hydrogen efforts by 2030.

Ohmium's role is to make electrolyzers, the devices that take water and split it into hydrogen and oxygen.

CEO Arne Ballantine said the company will use the \$250 million to scale up its plant in Chikkaballapur, outside Bengaluru, India, continue research at the Fremont, California headquarters to reduce the cost of production, and add to its 400-person workforce. Private equity group TPG's Rise climate fund is the lead investor.



An engineer works in the research and development area at the Ohmium manufacturing facility in Chikkaballapur, outside Bengaluru, India, Tuesday, April 25, 2023. The company announced Wednesday, April 26, it has raised \$250 million to expand production of machines that can make clean hydrogen and displace fossil fuels. Ohmium's role is to make electrolyzers, the devices that take water and split it into hydrogen and oxygen. (AP Photo/Aijaz Rahi)

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Ballantine said he plans to make enough electrolyzers each year to supply 2 gigawatts' worth of hydrogen — enough for a few steel or fertilizer plants or several refineries.

Countries and industries are setting ambitious targets to cut carbon dioxide from heavy manufacturing using hydrogen. There are also plans to use it in power generation and transport. The United States, European Union, Canada and India are offering tax credits and production incentives for clean, or green, hydrogen.

The International Energy Agency said in September that global hydrogen demand reached 94 million tons in 2021. Nearly 200 million tons will be needed by 2030 to get on track for net zero emissions by 2050, it said. There are about two dozen major electrolyzer manufacturers.

An electrolyzer produces clean hydrogen if it draws electricity from a grid that's powered by renewable energy, such as wind and solar. Ballantine said Ohmium clients are completely focused on this method. This will be a major change, because less than 1 percent of hydrogen produced globally now comes from renewable energy, according to the IEA.

It will take a significant ramp-up in electrolyzer manufacturing and in zero-carbon electricity to meet the demand for low-emissions hydrogen, said Emily Kent, the U.S. director for zero-carbon fuels at the Clean Air Task Force. That's because it requires massive amounts of electricity to run the electrolyzers.

Most hydrogen today is made from natural gas, which means greenhouse gases are released to get it out of the ground, and then more can leak as it travels through pipelines. Then to crack the hydrogen from natural gas, companies burn more fossil fuel to make steam, releasing more planet-warming greenhouse gases, unless carbon capture technology is used. This common method does not require an electrolyzer and the hydrogen then goes on to be used mainly in the refining and chemical sectors.

Some U.S. power plants plan to use Ohmium's "Lotus" electrolyzer as a partial substitute for natural gas. Ohmium is also collaborating with Spanish energy company Cepsa and renewable energy developer Amp Energy India on green hydrogen projects. It announced an agreement last week to send an electrolyzer to a liquified natural gas import terminal in Andalusia, Spain.

Each electrolyzer can generate up to 50 tons of hydrogen per year, costs a few hundred thousand dollars and comes in a cabinet 8 feet high by 5 feet wide by 6 feet long, according to Ohmium. They're interlocking and modular, in case more than one is needed.

Ballantine said it can be difficult to grasp exactly what hydrogen gas is and how it is useful in lessening climate change. But if he shows someone a piece of steel and says it was made releasing far less greenhouse gases, because we burned hydrogen made from water instead of burning coal to heat it up, then they get it, he said. ☰

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NEWS

Thousands of Manufacturing Professionals Flock to Nashville for 1st Annual Assembly Show South

NASHVILLE, Tenn. — The 1st Annual Assembly Show South brought together 3,000+ manufacturing professionals to the Music City Center in Nashville, TN to source products from 150 exhibiting companies, share knowledge in the education program and network. The trade show and conference, produced by BNP Media's *Assembly* magazine, took place Tuesday, April 4 to Thursday, April 6, 2023, and featured emerging trends and technologies related to assembly equipment and products including solutions for autonomous & electric mobility, robotics, automated assembly, fastening tools, pressing & riveting, and Industry 4.0 throughout a robust show floor. Photos of The Assembly Show South are available at this link.

"We worked closely with our charter exhibitors over the last 18 months to bring this event to Nashville and were thrilled to receive such positive feedback from the exhibitors, attendees and our partners, especially the Tennessee Manufacturers Association, University of Tennessee and SMTA," said Bill DeYoe, Publisher, *Assembly* magazine, producers of the event. "With all of the factories being built up and down the I65 corridor we were confident the Southeast needed a focused event exclusively on assembly and look forward to building upon the foundation we have created. We know this region will continue to expand with hundreds of thousands of manufacturing jobs, and we look forward to doubling the size of our event next year."

Highlights of the event included:

- The sold-out Exhibit Hall featured 150+ leading vendors with working machinery and live demonstrations for attendees to interact with, including Gold Sponsor Promess; Silver Sponsors Desoutter Industrial Tools and Bosch Rexroth; and Bronze Sponsors Schmidt Technology, Tutelar Technologies, and Weiss North America. Many of the exhibitors renewed their booth space on-site for the 2024 Show which will be double in size. The 2024 event will be co-located with The Quality Show and held April 30 – May 2, 2024 back at the Music City Center in Nashville, TN.
- That Thursday morning, the Best in Show Award winners were announced. The program featured new products which were selected by the editors of *Assembly* magazine. Attendees voted and during the Morning Mingle Breakfast on the show floor and the following companies were announced the winners:
 - 1st place winner: MS Automation for their High-Speed Automation Assembles Connector.
 - 2nd place winner: BalTec Corp., for their Roller Forming with Servo-Controlled Articulation.
 - 3rd place winner: Epson Robots for their Fast Scara Robots for High Payloads.

- Kenneth Engel, Senior Vice president of Global Supply Chain, North America, Schneider Electric explored the supply chain resilience and risk management strategies in the wake of numerous shortages plaguing manufacturers during his keynote presentation on Rethinking the Supply Chain.
- The four pre-conference workshops attracted hundreds of attendees to sessions held in partnership with the University of Tennessee Center for Industrial Services; Surface Mount Technology Association (SMTA); and the editorial staff of *Assembly* magazine. Topics included A Lean Journey to I4.0, Reliability in Electronics, Automated Assembly and Vehicle Electrification.
- Over a dozen exhibitors demonstrated their company's expertise related to the latest technological advances in assembly in Learning Theaters in the Exhibit Hall. Subject matter experts shared their knowledge on automation, robotic precision, Industry 4.0, supply chain, scalability, industrial automation and a special workshop on Collaborative Robots Technology.
- Attendees and exhibitors enjoyed two networking receptions including the opening night welcome reception and a reception in the Exhibit Hall sponsored by Bosch Rexroth. On Thursday morning, Desoutter sponsored the Morning Mingle & Breakfast in the Exhibit Hall, where additional connections were made.
- It was announced at the Show that in 2024 The Quality Show South will be co-located with The Assembly Show South April 30-May 2. For additional information, visit <https://www.qualitymag.com/quality-show>.

The Assembly Show South will take place on April 30-May 2, 2024, at the Music City Center in Nashville, TN and The Assembly Show will take place on Oct. 24-26, 2023, at the Donald E. Stephens Convention Center in Rosemont, Ill., are sponsored by *Assembly* (www.assembly-mag.com), the leading brand covering the processes, technologies and strategies for assembling discrete parts into finished products. *Assembly* offers an integrated portfolio of products including the industry's leading trade show. The trade show and conference are produced by BNP Media, one of the country's leading business-to-business media companies serving industry professionals across 60+ industries through magazines, custom media, e-newsletters, webinars, events, and market research.

For more information, visit www.bnppmedia.com. ☰

Kelly Roofing Goes Global With First International Tesla Solar Roof

NAPLES, Fla. (SEND2PRESS NEWSWIRE) — Kelly Roofing has completed the first-ever international Tesla Solar Roof installation, marking a significant milestone in green energy innovation. The Florida-based company managed negotiations, logistics and operations to extend its services into the international field, starting on the island of Nevis in the West Indies. This installation has opened up worldwide possibilities for the next steps in solar roofing installations for Kelly Roofing.

“This job is the payoff of years of work and innovation, it’s incredible to watch it come to life,” said Kelly Roofing President Ken Kelly. “Our team has been working with Tesla on building the solar roof deployment process from the ground up since they began developing it in 2019. Roofing innovation is what we do. It’s what we’ve been known for for the last 50 years at Kelly Roofing. This client, and this job have brought us to a new level and let us begin to really see the fruit of that labor.”

Installing a Tesla Solar Roof internationally required an intricate, multi-faceted, and carefully honed system to complete. Kelly Roofing worked with the customer to understand their goals and negotiated a general price for the raw job. They then navigated duty and tariffs, shipping fees, customs fees, holding fees, and transportation fees. The company’s prior experience in these logistics laid the groundwork for the job in Nevis and made the job seamless for the customer.

“We had the advantage of having solid shipping partners in place and a tested process, it was a matter of fitting the pieces together strategically for what this client needed,” Ken Said.

The Kelly Roofing team’s extensive experience in navigating Florida’s stringent roofing codes allowed them to navigate the legal hurdles of Nevis’s roofing regulations. The team also partnered with a local contracting team to ease relations with the government and the

local community, providing on-the-job training and bringing the job to life.

The Tesla system is unique in its durability and innovation as well. It is connected to an app that is designed to be intuitive for the homeowner, helping control power consumption and usage. The roofs are also designed to last over time, making them hurricane-force-wind resistant and impact resistant to hail. Each tile is independent, allowing for expansion and contraction in extreme temperatures.

“The Tesla system gives peace of mind to our clients. We saw roofs come out of Hurricane Ian basically untouched and the Powerwall system kept up. There were entire blocks where neighbors were charging their phones at the only house with a Tesla Solar Roof because no one else had power,” Ken added.

For the homeowner, the Tesla Solar Roof came with a host of benefits, including ease of use and unmatched durability that provide an excellent return on their investment. In Nevis, the homeowner was able to take their home off-grid without interfering with the quality of their day-to-day life.

Kelly Roofing is now vetting and accepting new international Tesla Solar Roof jobs and is thankful and honored to have been a part of building this customer’s home.

Contact us today at 239.228.3276 or by email at: mail@kellyroofing.com for more information. ☎

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The Tesla solar roof system installed by Kelly Roofing offers an intuitive interface that allows the user to control power consumption via an easy-to-use app, yet is durable enough to resist hurricane-force winds and hail.

NEWS

Biden Offers \$450M for Clean Energy Projects at Coal Mines By Matthew Daly | Associated Press

WASHINGTON (AP) — President Joe Biden’s administration is making \$450 million available for solar farms and other clean energy projects at the site of current or former coal mines — part of his efforts to combat climate change.

As many as five projects nationwide will be funded through the 2021 infrastructure law, with at least two projects set aside for solar farms, the White House said Tuesday, April 4.

The White House also said it will allow developers of clean energy projects to take advantage of billions of dollars in new bonuses being offered in addition to investment and production tax credits available through the 2022 Inflation Reduction Act. The bonuses will “incentivize more clean energy investment in energy communities, particularly coal communities,” that have been hurt by a decade-plus decline in U.S. coal production, the White House said.

The actions are among steps the Biden administration is taking as the Democratic president moves to convert the U.S. economy to renewable energy such as wind and solar power, while turning away from coal and other fossil fuels that produce planet-warming greenhouse gas emissions. Biden has set a goal to cut greenhouse gas emissions in half by 2030 and achieve a net-zero emissions economy by 2050.

The projects are modeled on a site Biden visited last summer, where a former coal-fired power plant in Massachusetts is shifting to offshore wind power. Biden highlighted the former Brayton Point power plant in Somerset, Mass., calling it the embodiment of the transition to clean energy that he is seeking. But he has struggled to realize that goal in the first two years of his presidency.

“It’s very clear that ... the workers who powered the last century of industry and innovation can power the next one,” said Energy Secretary Jennifer Granholm, whose agency will oversee the new grant program.

Mining areas in Appalachia and other parts of the country have long had the infrastructure, workforce, expertise and “can-do attitude” to produce energy, Granholm told reporters April 3. The new investments “can help them bring this new energy economy to life,” she added.

Treasury Secretary Janet Yellen said the bonuses will add new credits of up to 10 percent for clean energy production in struggling energy communities. Solar farm operators “can get an extra dime on the dollar for your investment in a new facility,” she said.

To take full advantage of the bonus, developers must pay workers prevailing wages and use a sufficient proportion of apprentices on the job, Yellen said. “These provisions will ensure that workers in energy communities reap the benefits of the clean energy economy they are helping to build,” she said.

Up to five clean energy projects will be funded at current and former mines, Granholm said. The demonstration projects are expected to be examples for future development, “providing knowledge and experience that catalyze the next generation of clean energy on mine land projects,” the Energy Department said.

Applications are due by the end of August, with grant decisions expected by early next year.

In a related development, the Energy Department said it is awarding \$16 million from the infrastructure law to West Virginia University and the University of North Dakota to study ways to extract critical minerals such as lithium, copper and nickel from coal mine waste streams.

Rare earth elements and other minerals are key parts of batteries for electric vehicles, cellphones and other technology. Biden has made boosting domestic mining a priority as the U.S. seeks to decrease its reliance on China, which has long dominated the battery supply chain.



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President Joe Biden speaks about climate change and clean energy at Brayton Power Station, July 20, 2022, in Somerset, Mass. The Biden administration is making \$450 million available for solar farms and other clean energy projects across the country at the site of current or former coal mines. (AP Photo/Evan Vucci)

One of the two universities that will receive funding is in the home state of one of Biden's loudest critics, West Virginia Sen. Joe Manchin, a fellow Democrat who has decried what he calls Biden's anti-coal agenda. Manchin complained on Friday about new Treasury Department guidelines for EV tax credits that he said ignore the intent of last year's climate and health care law.

The new rules are aimed at reducing U.S. dependence on China and other countries for EV battery supply chains, but Manchin said they don't move fast enough to "bring manufacturing back to America and ensure we have reliable and secure supply chains."

Manchin, who chairs the Senate Energy Committee, also slammed Biden last year after the president vowed to shutter coal-fired power plants and rely more heavily on wind and solar energy.

The powerful coal state lawmaker called Biden's comments last November "divorced from reality," adding that they "ignore the severe economic pain" caused by higher energy prices as a result of declining domestic production of coal and other fossil fuels. The White House said Biden's words in a Nov. 4 speech in California had been "twisted to suggest a meaning that was not intended" and that the president regretted any offense caused.

Abigail Ross Hopper, president and CEO of the Solar Energy Industries Association, said the bonuses offered by Treasury will help solar projects move forward in underserved communities and "will funnel new jobs, cleaner air and low-cost electricity to tens of millions of Americans in disadvantaged communities." ☐☐

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NEWS

Developers Have Right to Finish \$1B Power Line, Jury Says

By David Sharp | Associated Press

PORTLAND, Maine (AP) — A jury that heard complicated testimony about construction schedules and constitutional rights delivered a victory Thursday, April 20, for a \$1 billion transmission project, concluding developers had a constitutional right to proceed despite being rebuked by state voters in a referendum.

Jurors ruled 9-0 in favor of developers when asked to decide whether enough work was completed in good faith before the referendum for developers to have a vested right to complete the project.

Based on the outcome, a state judge is expected to issue a judgment that the referendum can't be applied to the project.

That decision could be appealed to the state Supreme Judicial Court for the final say.

At stake is a project touted as a bold effort to combat climate change by supplying up to 1,200 megawatts of Canadian hydropower to the New England power grid — enough electricity for about 1 million homes.

Supporters say electricity supplied by the 145-mile (233-kilometer) power transmission line would lower energy costs in all of New England as well as reduce carbon pollution. Critics contended that the benefits were overblown and that it would've destroyed woodlands along a new, 53-mile section carved through the woods to reach the Canadian border.

Despite winning all regulatory approvals, the project — to be fully funded by Massachusetts ratepayers — was met with pushback each step of the way. Ultimately, state voters voted against it in a referendum and work was halted.

The Natural Resources Council of Maine, which opposes the power line, said in a statement on Thursday that it was disappointed in the outcome and remains "sharply focused on achieving a just and equitable clean energy future that works for all Mainers."

"We're pursuing home-grown clean energy sources, like utility-scale solar, offshore wind, and the King Pine wind project in Aroostook County that will deliver new and verifiable reductions in pollution rather than a shell game that shifts existing energy for maximum corporate profit," the council said.

Justice Michael A. Duddy could have made the fact-finding determination himself. But he took the unusual step of ordering a jury trial, putting the fate of the trial in the hands of nine regular folks.

Central Maine Power's parent company and Hydro Quebec teamed up on New England Clean Energy Connect and construction started in January 2021, about 10 months before the referendum in which 59 percent of voters rejected the project.



Central Maine Power utility lines are seen on Oct. 6, 2021, in Pownal, Maine. A Maine jury concluded on Thursday, April 20, that developers have a constitutional right to proceed with a \$1 billion transmission project, despite being rebuked by state voters in a referendum. (AP Photo/Robert F. Bukaty, File)

Scott Mahoney, senior vice president and general counsel at Avangrid, CMP's parent company, said Thursday that the jury's conclusion "affirms the prior rulings of the Maine Supreme Judicial Court" that the project may proceed.

Opponents contended the developers acted in bad faith, speeding up the construction schedule to try to thwart the will of the people in the referendum. Developers said they were keeping to a schedule set years earlier.

The matter is one of two lawsuits to go before the Supreme Judicial Court.

The other lawsuit challenged leases for a 1-mile portion of the proposed power line that crossed state land. The high court ultimately ruled there was nothing improper with the lease.

The operator of the regional power grid expressed support for the project.

"We are pleased that this project can continue to move forward," said Anne C. George, chief spokesperson for ISO New England. "The New England states' ambitious climate goals will require building significant amounts of new infrastructure in a region where building infrastructure has been difficult." ☰

APTIM Honors Commitment to Global Community With 2022 Environmental, Social and Governance Report

Baton Rouge, La.(GLOBE NEWSWIRE) — In celebration of Earth Day and the company’s commitment to environmental, social, and governance (ESG), APTIM — a recognized leader in environment, resilience, and sustainability services — has released its annual ESG Report. Titled “Honoring Our Commitments,” the report highlights APTIM’s ongoing efforts to foster a clean and efficient energy economy, build a sustainable future for the natural world and surrounding communities, and create a more inclusive and equitable environment that celebrates diversity.

“At APTIM, ESG is not just the acronym of the day; it is deeply embedded in the principles of our culture and heavily informs the path we take as a company,” said APTIM Enterprise Director of ESG Monica Thilges. “We look forward to accelerating our pace in 2023 by continuing to increase our engagement with global standards, reduce our environmental footprint, and increase the diversity of our company and subcontractors.”

The report outlines APTIM’s ESG-related priorities, objectives, and progress with reference to Global Reporting Initiative’s standards and the United Nations (UN) Sustainable Development Goals. In 2022, APTIM joined the UN Global Compact, the largest corporate sustainability initiative in the world, and committed to set company-wide emission reduction targets in line with the Paris Agreement through the Science Based Targets initiative. The report also highlights APTIM’s efforts to reduce its consumption of single-use plastics and a new philanthropic partnership with Louisiana State University’s College of the Coast & Environment.

ESG is a core part of APTIM’s mission and the services it offers, focused on rebuilding communities for resilience against climate change, ensuring the reliability and integrity of critical energy infrastructure, and creating a cleaner and safer environment. For

example, APTIM’s projects in 2022 included Hurricane Ian response in South Florida; remediation of the Colorado Smelter Superfund site in Pueblo, Colo.; collaboration on the Atlas of Disaster; and management of the Climate Action Rebate program in Denver, Colo.

“Sustainability is about following through on our commitments to our teammates, communities, clients, partners and planet,” said APTIM Chairman and CEO Mark Fallon. “We take great care in the way we engage each of these stakeholders because we are driven to build an equitable and sustainable future.”

The 2022 ESG Report is available for free download on APTIM’s website at www.aptim.com/environmental-social-and-governance/. For inquiries about the report or how APTIM can help your business or community become more sustainable, please contact Sustainability@APTIM.com.

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VENDOR FAIR

THE VENDOR FAIR WAS AN EXCITING AND DYNAMIC SUCCESS THIS YEAR OUT AT CHICAGO GAEIC PARK. IN SPITE OF THE VERY IRISH WEATHER, MANY OF YOU CAME OUT TO SUPPORT OUR ASSOCIATE MEMBERS AND TO SEE AND HEAR WHAT NEW IDEAS AND PRODUCTS THEY HAVE TO SHOWCASE. WE CERTAINLY OWE A MAJOR DEBT OF GRATITUDE TO ALL OF OUR ASSOCIATE MEMBER ORGANIZATIONS FOR THEIR SUPPORT AND FOR BRINGING THEIR ALL TO THE FLOOR.

WE ALSO MUST THANK EVERYONE WHO HELPED TO BRING THIS EVENT TOGETHER, INCLUDING THE PERSONNEL AT CHICAGO GAEIC PARK FOR THEIR CONSIDERABLE ASSISTANCE IN COORDINATING ALL OF OUR NEEDS, AND FOR PROVIDING AN INCREDIBLE SPACE AND A DELICIOUS DINNER. THANKS ALSO ARE OWED TO FANNING COMMUNICATIONS FOR THEIR ADMINISTRATIVE ASSISTANCE AND FOR THEIR CONSIDERABLE HELP AT CHECK-IN.

WE LOOK FORWARD TO SEEING EVERYBODY AT THE MAY BARBECUE PICNIC EVENT BEING HELD IN THE BACK LOT AT LOCAL 399 (2260 N. GROVE ST., CHICAGO) ON WEDNESDAY, MAY 17. REGISTRATION IS AVAILABLE VIA THE EVENT PAGE AT CHIEFENGINEER.ORG. THOSE LOOKING TO SPONSOR THIS OR ANY OTHER EVENTS ARE ENCOURAGED TO REACH OUT TO KEN BOTTA AT KBOTTA@SBCGLOBAL.NET.





CHRISTOPHER GLASS WORKS ITS MAGIC AT 801 S. CANAL ST.



BY KARL J. PALOUCEK

It's a daunting job by any standard. When Christopher Glass won the contract to replace all the windows at the building at 801 S. Canal St., they knew it wasn't going to be easy. Not only were they replacing the glass, but they were asked to expand the size of the windows and the spaces into which they were fixed — a job necessitating cutting into its 8-inch-thick walls and removing precast concrete from no fewer than 326 windows on each of its elevations. We talked to Matt Madiar, Ironworker 63 – Director of Field Operations, and Ranferi Flores, Project Manager for the 801 S. Canal job about how they planned and executed it, and about the technological advances they employed.

Projects like this require incredible forethought by industry experts like those at Christopher Glass. Their team worked to offer the potential new owners an innovative plan to reimagine

and revitalize the building envelope. They literally thought outside of the box with an unconventional decision to expand each window opening to allow for more natural light to penetrate the interior and install unitized curtain wall from the exterior. This modern approach won Christopher Glass the contract.

According to Madiar, “By being able to do it at the outside — that nobody else was going to do — that affected us being able to do this job, because it would have necessitated the general contractor removing the entirety of the floor. That's a lot of expense just to put it back in after the stuff gets dem'd. This methodology allowed it to just stay in place, so we do it this way.”

All the usual Pre-Con [pre-construction] steps were handled by Christopher Glass, their affiliates, and vendors. Estimating, shop drawings, calculations, safety and logistic plans, mock-ups, thermal modeling, sequencing and more were all part of their Pre-Con planning. Christopher Glass worked closely with Grif-



fin Glass & Metal Werks, EFCO, P & G Crane Rental, Viracon and others to bring their vision to fruition.

“It’s been two years in the making, as far as planning goes,” Flores says. “It’s 326 openings. There are about 40 that are not typical, so we try to home in on one elevation, get that one down, and then just repeat the process for all 300. That was kind of our strategy — one elevation, see what it takes to complete it from material and manpower, logistics, equipment, and once we get that one done, we can repeat the process for all of them, and it’s been working so far on all of the atypical ones.”

INNOVATING TO RISE TO THE CHALLENGE

In terms of equipment, it took a good bit of innovation to get this job underway. Before even touching the building itself, the experts at Christopher Glass built a true-to-scale, steel-frame mockup of one of the window openings to rehearse their remov-

al and installation plans. Built on casters so it could easily be moved, the mockup was outdoors when we saw it. “Anything on here that’s steel, for the head and the sill and the jambs, there’s precast in place,” Madiar explains. “Then we had a typical-size set of windows made, and we installed it in here to test the means and methods that we were going to use on the job.”

The mockup also enabled them to perform proper water testing of their install. “We did the [ASTM E] 1105 — a chamber test,” Madiar says, contrasting it with the test they would be performing onsite. “It’s a hose test that’s being done on the job site — it’s two different styles, two different levels of performance. We use [the ASTM E 1105] because it’s a very good diagnostic tool. It’s a more difficult test versus the one that’s getting done out there, so we could get everything worked out. ... So if anything appeared that it was out of order, we could get that corrected now, and get the drawings updated and the procedures updated. So that’s what we did, and it has proven very successful.” The Pre-Con procedures at Christopher Glass follow the adage that practice makes perfect.

Necessity has also led to inspiration on the jobsite. Among their original ideas is a jacking system that enables the union trades members from Christopher Glass to safely enlarge the openings for the windows by cutting sections of precast concrete from the edifice and transferring the weight to the lower portion of the window’s structure, also supported by the floor. “Once those jacks go in, that’s the unitized board that we have out there, along with the heavy sill perimeter,” Madiar says. “It’s bigger than the original opening, so it actually is oversized beyond what we’re cutting out. None of that even has to come out when it gets saw-cut or removed. It all just stays.

“The next step, as that all gets saw-cut out, the top 2’ 6” of that precast, it’s like a 7,800-lb. precast panel, so that’s now cut,” he continues. “We also have custom rigging and a custom crane that’s up on the roof, to lower it.”

As we stood at the corner of S. Canal and W. Polk Streets, we were in time to watch the whole process in action. With the jacking system in place, a concrete precast slab was cut from the front of the building. Drops affixed beneath each window reasonably protected the edifice from the inevitable flow of slurry. The slab’s 7,800-lb. weight was absorbed by the jacking system, redistributing the weight down to the sill. With the precast held in place by the brace at the top of the jacking system, and the line from the custom-designed crane atop the building ready to take on the weight, the bolts affixing that brace to the rest of the jacking system were removed, allowing the crane to gingerly lower it to the ground. Beautifully choreographed, the process was executed with great care and with safety the foremost concern.

(Continued on pg. 40)

(Continued from pg. 39)

UNAVOIDABLE HURDLES

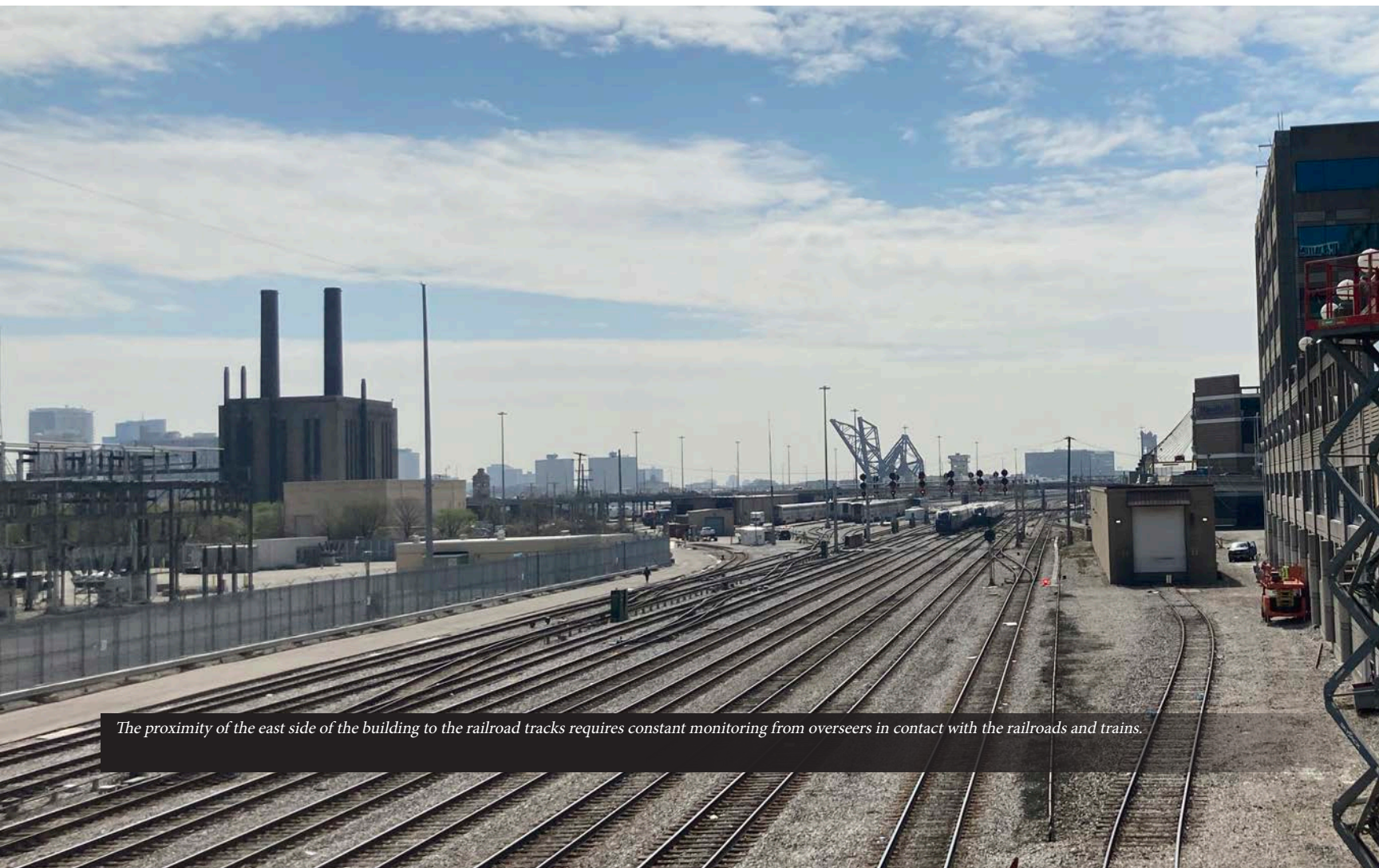
Apart from the problems that could be solved through innovation, there were a few obstacles at 801 S. Canal St. with which they simply had to cope and work around. Not least, the east side of the building directly faces a series of railroad tracks that run only a matter of yards from the wall. This situation required the involvement of a rail and transit consultancy, RailPros, to monitor the work being done in proximity to the tracks, and to communicate with all the relevant parties. “A BNSF and an Amtrak guy overwatch and are in communication with the train,” Madiar explains. “Nobody can work out here without them being here, monitoring and in communication with both of the rail companies on everything that goes through there.”

Complicating matters even further, the City of Chicago began bearing down on the contractors to complete work on the west side of the building so they could start maintenance work on Canal St. “That’s why we sequenced it differently,” Madiar says of the changing logistics to which they had to adapt in approaching the work on the building. “We were going to track around the building, but then instead of going west, south, east and north, west, we had to switch it to where we started, because when we

started this building, it was too warm to get back here [on the rail side to the east], so we made the schedule so that we could hit this when it got colder, and then go around, because they’re going to lose some of their permitting on Canal — because they’re going to rebuild Canal. So we had to jump, and now we’re doing east and west kind of around the same time, at the same speed, because we’ve got to get out of both areas. But south and north — they own this property, and we’re good to go on the north, so we’re fine.”

But the biggest challenges, according to Madiar, have been dealing with the logistics of swing-stage moves. “You’ve got to demo from the inside of the building, then do the board-ups, and then you’ve got to get through — because it’s all on the outside from there on out,” he says. “Once that precast comes down, you don’t transition directly into any window operation. There still is the cleaning, the rebar painting, [the] resetting of the windows, and then you’ve got to get the caulkers out there. You’ve got to get the trim on out there, and you’ve got to do all the finishing. All of that is swing-stage work. ... the windows aren’t, probably, going into that space for another two weeks. So it lags behind for a bunch of other little processes to get done.”

Except for the lobby and storefront on the west face of the building, the work to replace the windows at 801 S. Canal St. follows



The proximity of the east side of the building to the railroad tracks requires constant monitoring from overseers in contact with the railroads and trains.

a steady rhythm that is strictly measured and careful due to the inherent safety issues. But before long, the team at Christopher Glass — along with their collaborating contractors, which include Hard Rock Concrete Cutters and F.E. Moran — will be in place to get started on the north and south sides of the building, bringing them closer to completing yet another incredible challenge.

As with many other buildings in Chicago, Christopher Glass provides post-warranty services once initial construction is complete. Their excellent services to building owners, engineers, managers, and management companies include repair and/or replacement of doors, glass, seals, pulls, hardware, hinges, hand-rail, and any other glass or metal throughout an entire building. The team of professionals at Christopher Glass take a holistic approach to working with their clients, taking into account all aspects of a building's lifecycle, and ensuring that it stays in great working condition for as long as possible.

The Christopher Glass project presentation can be viewed on their YouTube channel at <https://youtu.be/fBRVORxN-Yk>

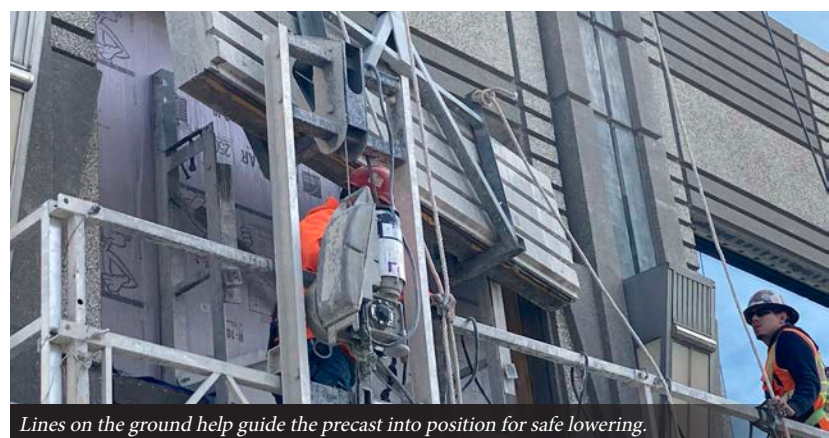
Anita Forte contributed to this story.



Once the precast is cut from the building and its weight transferred to the jack system, bolts are removed to free the brace from the side of the building, enabling the crane on the roof to begin lowering it to the ground.



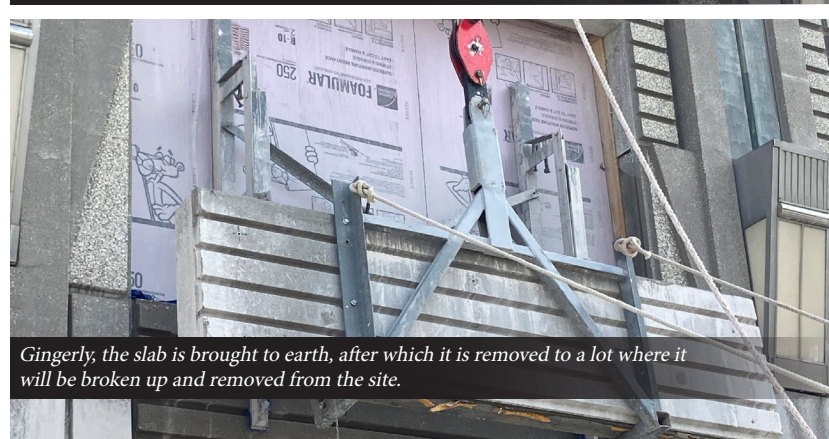
The precast is gently coaxed out of place.



Lines on the ground help guide the precast into position for safe lowering.



Once the scaffolding is removed, the precast begins its journey to the ground.



Gingerly, the slab is brought to earth, after which it is removed to a lot where it will be broken up and removed from the site.



NEWS

Earth Day 2023: 10.9 Million lbs. of Waste Recycled at DaVinci® Roofscapes in 11 Years

HOUSTON — During the past 11 years, DaVinci® Roofscapes, a division of Westlake Royal Building Products™ USA Inc. has reprocessed more than 10.9 million lbs. of polymer scrap materials. In conjunction with Earth Day on April 22, the composite slate and shake roofing manufacturer announced that its operations successfully recycled 1,697,249 pounds of polymer waste in 2022 ... the most ever recycled by the company in a single year.

“This is more than half a million pounds of scrap in excess of what we reprocessed in 2021,” according to Mark Pagel, general manager at DaVinci Roofscapes in Lenexa, Kan. “For the sixth consecutive year we have contributed to net zero landfill scrap. Our waste is repurposed and reused, making this plant an exceptionally environmentally friendly operation.”

Zero Waste Always a Top Goal

At DaVinci, every pound of polyethylene scrap generated by the company's expansive manufacturing operation goes into repurposed product. Green initiatives are always being enhanced to assure scrap from making roofing tiles is recycled. The first priority is to reuse the product at the Lenexa operations.

“We make our composite roofing and siding tiles with virgin polymers,” says Pagel. “Our products are created in dozens of colors and color blends. When we switch from one color to another, there's a natural transitioning period between the colors during the change. Those transition tiles are 'off spec' and cannot be used, so we recycle them.”

Pagel relates that the transition tiles are carefully pulled off the product line. They're segregated into specifically colored scrap bins. In the past year, 635,941 pounds of these colored tiles were ground up and repurposed into starter roofing tiles, which are generally unseen on the roof. The reground product was also inserted into the underside cavity on solid accessory roofing parts, with virgin resins used on the top visible portion of the product.

The remainder of the recycled product was shipped out of the DaVinci facility for use by other companies. One of those companies, Dimex, used 539,414 pounds of recycled DaVinci product to make landscaping materials for consumer use. The remaining 521,894 pounds were shipped to additional companies that turn them into pallets.

Why Recycled Polymers Are Valuable

DaVinci slate and shake tiles are made of virgin resins, UV and thermal stabilizers. A highly specialized fire retardant is added to the mix, making them fire resistant. DaVinci products are warranted to



DaVinci Roofscapes recycled more than 1,697,000 lbs. of polymer waste last year — more than in any other year.

last decades on homes and commercial projects. However, after their lifespan, they are also 100-percent recyclable. These same features make the recycled polymers advantageous when they are used in recycled products.

Made for realistic beauty, high performance and low maintenance, DaVinci products resist splitting, cracking, curling and fading. Each polyethylene tile has been crafted to resist high winds, mold, algae, fungus and insects. DaVinci composite products are Class A fire and Class 4 impact rated. They are certified by ASMD 3161 to straight line winds up to 110 mph and hurricane-high-velocity winds up to 180 mph. DaVinci products meet the code restrictions for use by Miami-Dade County, FL NOA, HVSH (TAS 125, up to 180 mph) CA Title 24, Texas Dept. of Insurance, WUI 4175 and CCMC14094-R.

Manufactured at the DaVinci Roofscapes facility in Kansas, the composite shake siding and roofing tiles are made with color throughout each piece and require no painting. The composite tiles serve as an environmentally friendly alternative to real wood shakes, natural slate tiles and plastic siding. ❧



Your building's fire sprinkler system must be inspected, tested, and maintained to ensure it will operate properly during a fire.

INSPECT TO PROTECT

Fire sprinklers provide the greatest fire protection for your building. They control a fire while it's still small and allow occupants to safely escape.

However, just like other systems in your building, it's essential that a fire sprinkler system is inspected, tested, and maintained (ITM), especially since lives and your investment are dependent on it.

Don't let a devastating fire happen in your building. Comply with state requirements by incorporating a regular fire sprinkler system ITM program in your building.

Illinois state code, NFPA 101: Life Safety Code (2015 edition), requires all automatic fire sprinkler systems, standpipe systems, and fire pumps to follow ITM procedures according to the NFPA 25 standard.

And in accordance with state law (225 ILCS 317/17), **building owners must utilize an inspector who is employed by a state-licensed fire sprinkler contractor and has appropriate credentials** through completion of a certified sprinkler fitter apprenticeship program approved by the U.S. Department of Labor and/or certification through NICET III, ASSE 15010, or NFPA Water-Based ITM (WBITM).



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NEWS

Low Tech Makes Cleaner Water in Iowa; So What's Stopping It?

By Scott McFetridge and Michael Phillis | Associated Press

SLATER, Iowa (AP) — Nick Helland's central Iowa farm looks much like every other nearby farm on this chilly March day, with corn stubble stretching from a gravel road up over a low hill to the northern horizon.

But look closely, and you can see patches of muddy ground where a few months ago crews buried low-tech systems called bioreactors and streamside buffers that filter fertilizer-borne nitrates from water as it drains from Helland's field into nearby Big Creek and eventually the Des Moines River.

The underground devices work. The question is whether one Iowa county's promising new approach to an old problem can be expanded enough to finally address nitrate pollution that, for years, has endangered drinking water, made more than half the state's waterways unfit for fish or humans, and fueled a giant dead zone nearly 1,000 miles away in the Gulf of Mexico.

Polk County is doing it by making it painless for farmers — handling all the logistics and arrangements for the systems — and throwing in payments of \$1,000 per site. Installations have exploded in the past two years, to 104, after only a handful were installed the eight years before that.

"They paid me and they paid the cost of all the installation," Helland said. "That's sort of a no-brainer to me that with very little lift, very little time, I can have this installed on my farm and it will ensure better water quality for everyone else downstream."

The big challenge now is encouraging counties to launch and fund similar efforts to reduce runoff from Iowa's 10 million acres of tile-drained farmland and combat the state's multi-billion-dollar problem with nitrogen pollution.

Nitrogen-based fertilizers and manure can lead to excessive nitrates in groundwater that can be toxic to livestock and humans. High levels have plagued waterways in Iowa and throughout the Midwest for decades from chemical fertilizers and animal manure sprayed on fields. Modern tractors let farmers assess their soil and apply only as much fertilizer as needed, but it's still common to overspray.

It's easy to see why. Yields of corn — the king crop in these parts, and planted on about 90 million acres nationwide — are at least doubled by fertilizer, and farmers want to be sure their crops have enough nutrients. Adding to the problem are the quick drainage systems that lie beneath so many fields — known as tiles, but actually plastic pipes — that whoosh excess water away and into streams.

Numerous studies have found the low-tech systems remove half the nitrate or more from runoff before it reaches waterways. In bioreac-

tors, the water passes through a buried mound of wood chips that break down much of the nitrate. In the buffers, it moves through a grassy area parallel to a stream.

Too much nitrate and phosphorous in rivers and streams makes great food for algae and other plant growth that cuts oxygen in the water and blocks sunlight. Combined with industrial farming practices that have altered waterways by straightening streams and removing wetlands, that's bad news for fish that need clear water and slower currents.

It hurts humans, too. Nitrate-contaminated drinking water can cause blue baby syndrome where an infant's blood doesn't have enough oxygen. More than half of Iowa's rivers, streams and lakes are too polluted to properly support aquatic life or fishing and swimming, according to the state.

Iowa is among the largest contributors of nitrate runoff that flows to the Gulf, leading to the so-called dead zone by depleting oxygen necessary for marine life across several thousand square miles.

Pressure to reduce the dead zone led Iowa's agriculture and natural resources departments to join in 2008 with Iowa State University for a strategy to address the problem. The effort has focused on voluntary actions; Iowa's legislature has consistently rejected proposals to require farmers to reduce runoff.

Fifteen years into the program, Iowa hasn't significantly reduced nitrogen runoff, according to a 2019 estimate. The problem in some ways has worsened as strong commodity prices encouraged farmers to plant corn and soybeans on more land. Meanwhile, Iowa's giant hog industry has grown to about 24 million pigs — roughly triple the number in any other state — which means more manure gets spread over farmland.

In Polk County, exasperation with nitrate pollution came to a head in 2015, when the agency that provides drinking water to 600,000 people in the Des Moines area went to court over the millions of dollars it was being forced to spend to filter unsafe levels from drinking water taken from the Des Moines and Raccoon rivers. A judge ultimately dismissed the lawsuit against three northwest Iowa counties, ruling the issue was one for the Legislature to address.

Without hope of state mandates, local officials in Polk County sought to work cooperatively with agricultural groups. Part of that was studying why so few farmers were installing bioreactors and streamside buffers. They found an inefficient system for installation that made it expensive and bothersome for farmers, who had to arrange contractors and then seek reimbursement. ■■



Nick Helland walks near a bioreactor system outflow pipe draining in a nearby stream, Thursday, March 2, 2023, near Slater, Iowa. Simple systems called bioreactors and streamside buffers help filter nitrates from rainwater before it can reach streams and rivers. (AP Photo/Charlie Neibergall)

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NEWS

Methane Big Part of ‘Alarming’ Rise in Planet-Warming Gases

By Isabella O’Malley | Associated Press

Methane in the atmosphere had its fourth-highest annual increase in 2022, the National Oceanic and Atmospheric Administration reported, part of an overall rise in planet-warming greenhouse gases that the agency called “alarming.”

Though carbon dioxide typically gets more attention for its role in climate change, scientists are particularly concerned about methane because it traps much more heat — about 87 times more than carbon dioxide on a 20-year timescale.

Methane, a gas emitted from sources including landfills, oil and natural gas systems and livestock, has increased particularly quickly since 2020. Scientists say it shows no sign of slowing despite urgent calls from scientists and policymakers who say time is running out to meet warming limits in the Paris Agreement and avoid the most destructive impacts of climate change.

“The observations collected by NOAA scientists in 2022 show that

greenhouse gas emissions continue to rise at an alarming pace and will persist in the atmosphere for thousands of years,” NOAA Administrator Rick Spinrad said in a statement accompanying the report. “The time is now to address greenhouse gas pollution and to lower human-caused emissions as we continue to build toward a climate-ready nation.”

Methane rose by 14 parts per billion to 1,911.9 ppb in 2022. It rose slightly faster in 2020 (15.20 ppb) and 2021 (17.75 ppb).

Methane gas leaks from wells and natural gas lines and wafts from manure ponds, decomposing landfills, and directly from livestock.

“Ruminant animal herds like goats, sheep and cows in particular are one of the largest human-driven sources of methane,” said Stephen Porder, a professor of ecology and assistant provost for sustainability at Brown University.



A person picks through trash for reusable items as a fire rages at the Bhalswa landfill in New Delhi, April 27, 2022. Rising methane levels in the atmosphere in 2022 again played a big part in an overall increase in the greenhouse gases that cause climate change, according to the National Oceanic and Atmospheric Administration. (AP Photo/Manish Swarup, File)

Scientists continue to discover that methane emissions from both the fossil fuels industry and the environment are largely underestimated.

“We are confident that over half of the methane emissions are coming from human activities like oil and gas extraction, agriculture, waste management, and landfills,” said Benjamin Poulter, NASA research scientist.

The exact amounts of methane that have come from human activity versus natural environments over the past few years is not currently known, but scientists say that humans have little control over ecosystems that start emitting more methane due to warming.

“If this rapid rise is wetlands and natural systems responding to climate change, then that’s very frightening because we can’t do much to stop it,” said Drew Shindell, Duke University professor and former climate scientist at NASA. “If methane leaks from the fossil fuels sector, then we can make regulations. But we can’t make regulations on what swamps do.”

Scientists are also investigating how the stubborn three-year La Niña pattern could have influenced methane emissions due to higher

levels of rainfall in tropical wetlands.

Shindell said methane emissions caused by humans account for about 26 percent of the warming caused by human activities. Porder said transitioning away from fossil fuels and reducing the number of ruminant animals being raised are “sure-fire ways to reduce methane in the atmosphere and limit warming.”

The International Energy Agency estimates that 70 percent of 2022’s methane emissions could be reduced with existing technology.

The NOAA report also said carbon dioxide and nitrous oxide saw significant growth in 2022.

Carbon dioxide levels rose to 417.06 ppm in 2022 and is now 50 percent higher than pre-industrial levels. Nitrous oxide, which NOAA stated is the third-most significant greenhouse gas emitted by humans, rose to 335.7 ppb, largely due to fertilizers and manure from the expanding agriculture sector.☞

Associated Press climate and environmental coverage receives support from several private foundations. See more about AP’s climate initiative here. The AP is solely responsible for all content.

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MEMBER NEWS

Western Specialty Contractors' George Justice, Jared Osterman Among 2023 SIUE Construction Leadership Institute Graduates

ST. LOUIS — Western Specialty Contractors would like to congratulate Peoria, Ill., Assistant Branch Manager Jared Osterman and St. Louis Concrete Branch Sales/Project Manager George Justice on graduating from the 2023 Construction Leadership Institute (CLI) at Southern Illinois University Edwardsville. Four Western employees have graduated from the program over the past two years.

CLI recognized 43 graduates of its program on March 10 as part of the CLI Graduation celebration. CLI is an executive education program jointly developed by SIUE's School of Business and its School of Engineering's Department of Construction. The program brings together professionals from many sectors of the building industry. "The CLI program is designed to align with leadership development needs of the rapidly changing construction industry," said Chris Gordon, Associate Dean of the SIUE School of Engineering and Co-Director of the program. "The CLI Advisory Board takes an active

role in helping us continuously update this unique and innovative leadership development program to develop future building industry leaders."

Since CLI's creation, over 500 emerging leaders and executives have benefitted from the nine-week program that strengthens leadership, strategic thinking, communications and key management skills.

"Continuing education is a vital part of Western's people-first culture," said Western Manager of Learning & Organizational Effectiveness Meredith Bousman. "Our employees are our greatest assets, and we want them to continue to grow and succeed in their careers at Western. We congratulate Jared and George and the other Western CLI graduates for expanding their leadership knowledge, skills and strategies by completing this outstanding program." 🎓



Peoria, Ill., Assistant Branch Manager Jared Osterman and St. Louis Concrete Branch Sales/Project Manager George Justice recently graduated from the 2023 Construction Leadership Institute (CLI) at Southern Illinois University Edwardsville.

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TECHLINE

Fujitsu Announces New Mini-Split and VRF Control Purdue Researchers Combine Electric Poling, 3D Printing Into Single Step

WEST LAFAYETTE, Ind. — Manufacturers of smart medical devices, smart robots and other products with smart sensors could simplify their device design and fabrication using a patent-pending Purdue University method that combines piezoelectric poling of filament and 3D printing in a single process.

Traditional sensor materials have piezoelectric properties that make them suitable to create smart sensors. Applying stress in one direction produces voltage in another direction. Although these materials measure how much stress is applied, which is among the basic properties of sensors, they cannot be used in 3D printing.

Additive manufacturing, also known as 3D printing, has several advantages over traditional manufacturing, including customizing parts' shapes and geometries beyond planar options. However, the polyvinylidene difluoride (PVdf) filament used in 3D printing doesn't have strong piezoelectric properties. Its dipoles are randomly oriented, which produces less voltage. As a result, traditional PVdf filament isn't a good indicator of stress, and electric poling must be conducted in a post-processing treatment, increasing time and cost.

Purdue researchers in the Purdue Polytechnic Institute have combined 3D printing and electric poling into a single process called electric poling-assisted additive manufacturing, or EPAM. It aligns the dipoles in PVdf filament during the print, which leads to a better indication of stress that is being applied. This allows 3D-printed parts to have both strong sensing abilities and customized shapes. Importantly, it saves time and money.

Robert Nawrocki, assistant professor in the School of Engineering Technology in the Purdue Polytechnic Institute, said the EPAM process accomplishes stretching and poling simultaneously, which are necessary conditions for the polarization.

"During the EPAM process, stretching the molten PVdf rod rearranges the amorphous strands in the film plane, and the applied electric field aligns dipoles toward the same direction," Nawrocki said. "The EPAM process can print free-form PVdf structures and induce the formation of β -phase, which is primarily responsible for the piezoelectric response."


Jose M. Garcia-Bravo and Brittany Newell, associate professors of in the School of Engineering Technology, Nawrocki and PhD candidate Jinsheng Fan successfully printed PVdf force sensors with a fused deposition modeling 3D printer with a corona electric poling setup.

"The piezoelectric activity, measured in picocoulombs per newton, or pC/N, was calculated based on the piezoelectric output voltage," Nawrocki said. "The average piezoelectric activity of EPAM-printed PVdf films was 47.76 pC/N, or about five times higher than unpoled 3D-printed films, at 9.0 pC/N. The piezoelectric activity of unpoled 3D-printed PVdf films indicated that 3D printing in the absence of an electric field did not result in dipole alignment."

Nawrocki disclosed the innovation to the Purdue Research Foundation Office of Technology Commercialization, which has applied for patent protection on the intellectual property. Industry partners interested in further developing the technology should contact Dhananjay Sewak, dsewak@prf.org, about 2022-NAWR-69857.

The next steps to commercialize the EPAM method are to build a single 3D-printing machine that can print all of the sensor components, including live-poled PVdf, electrodes and also the structure.

The research was published in the July 2022 issue of *Advanced Engineering Materials* and the December 2022 issue of *Additive Manufacturing*. Nawrocki and the research team received funding and other support from Purdue University. ■■



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Kyocera AVX Antenna Simulation Models Now Available In Ansys HFSS 3D Electromagnetic Simulation Software

FOUNTAIN INN, S.C. (GLOBE NEWSWIRE) — Kyocera AVX, a leading global manufacturer of advanced electronic components engineered to accelerate technological innovation and build a better future, is proud to announce that direct links to simulation models for its most popular embedded antennas are available in the latest release of the globally renowned Ansys HFSS 3D electromagnetic simulation software, Ansys 2023 R1.

Engineers use Ansys HFSS software to design high-frequency, high-speed electronics optimized for use in applications including communications systems, ADAS, satellites, and IoT devices. The latest release, Ansys 2023 R1, empowers users to run large jobs and overcome hardware capacity limitations with new high-performance computing and cloud capabilities, enhanced solver algorithms, and powerful graphical processing units. It also supports new collaborative, model-based systems engineering workflow capabilities and integrated more AI and machine learning capabilities to further improve engineering efficiency and accelerate innovation.

Ansys 2023 R1 features direct links to simulation models for 13 of the most popular Kyocera AVX antennas, including embedded FR4 and ceramic GNSS, ISM, BLE, Wi-Fi, LPWA, 5G/LTE antennas widely employed in IoT, medical, and automotive applications. When users click on the 13 Kyocera AVX antenna components featured in the Ansys 2023 R1 software, they will be transported to the Kyocera AVX website to download the simulation files.

These 13 embedded antenna models are also available on the Kyocera AVX website for Ansys HFSS versions 2019 R3 to 2022 R2. In addition, a complete range of Kyocera AVX embedded antenna models designed for use with all of these versions will be available in Q2 2023.

“Many of our customers utilize Ansys HFSS software, and they used to have to contact us for compatible antenna simulation files. So, we’re very proud that our 13 most popular embedded antennas are featured in Ansys 2023 R1 and available for direct download on our website,” said Carmen Redondo, Director of Global Marketing Antennas, Kyocera AVX. “We’re committed to providing our customers with a comprehensive suite of tools and resources engineered to make antenna integration as easy as possible and ensure optimal performance. So, we’re also proud to offer an increasing array of electromagnetic simulation model downloads compatible with Ansys versions 2023 R1 and 2019 R3 through 2022 R2 on our product pages.”

“We’re pleased to offer a selection of Kyocera AVX’s embedded antennas in our new Ansys 2023 R1 software,” said Matt Commens, Senior Manager – Electronics Product Management, at Ansys. “The new products, technologies, and tools available in 2023 R1 enable



The latest release of the globally renowned software, Ansys 2023 R1, features direct links to simulation models for 13 of Kyocera AVX’s most popular embedded antennas. These models are also available for Ansys versions 2019 R3 to 2022 R2, and a complete range of Kyocera AVX embedded antenna models will soon be available for all of these versions.

engineering teams to simulate and rigorously examine products and systems under varying conditions, gain precise insights, and optimize designs at every stage of the product development process, regardless of application.”

For more information about Kyocera AVX’s embedded antennas, antenna solutions portfolio, and antenna design tools, or Ansys HFSS 3D electromagnetic simulation software and the new 2023 R1 release, please click the embedded links. For more information about Kyocera AVX, please visit <https://www.kyocera-avx.com/>, email inquiry@kyocera-avx.com, follow them on LinkedIn, Twitter, and Instagram, like them on Facebook, call (864) 967-2150, or write to One AVX Boulevard, Fountain Inn, S.C. 29644. ☒



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TECHLINE

TikTok's Parent Has a New App: What to Know About Lemon8

By Haleluya Hadero | Associated Press

NEW YORK (AP) — As lawmakers debate whether to ban TikTok nationwide, its Chinese parent company has introduced a new app that's already getting some traction.

The app, called Lemon8, is likely to face some of the same scrutiny as TikTok, which has been dogged by claims the Chinese government could force its parent company ByteDance to hand over U.S. user data or push misinformation on the platform.

TikTok maintains that hasn't happened. And it's attempting to convince lawmakers it can keep user data safe.

Meanwhile, ByteDance is pressing ahead with its expansion plans. Here's what you need to know about the company's new app:

What Is Lemon8?

Lemon8 is a photo-based app that resembles a mixture of Instagram and Pinterest, and is sprinkled with videos that look like the ones posted on TikTok. Social marketing experts say the app is also reminiscent of the Chinese social media and e-commerce giant Xiaohongshu, which translates to "little red book."

Like TikTok, Lemon8's main feed features a "following" section that lets users look at content from creators they follow, as well as a "For You" section that recommends other posts. It also segments posts under different categories, like fashion, beauty and food, and allows users to explore content in other ways.

Similar to TikTok and other social media sites, Lemon8 collects user data, such as IP address, browsing history, device identifiers and other information.

Both the Apple and Google Play app stores list its owner as Helio-philis Pte. Ltd., a Singapore-based company that shares the same address as ByteDance and TikTok.

How Popular Is It?

Lemon8 was first launched in Asian markets in 2020 and has already made headway in countries like Thailand and Japan, with roughly 7.4 million and 5 million downloads respectively, according to the app analytics company data.ai.

It was introduced in the U.S. in February with little fanfare, but all that changed when media organizations started paying closer attention and some TikTok influencers began promoting it.

As of April 2, the app had 290,000 downloads in the U.S., the vast majority of which happened in late March, according to data.ai. It's also listed as one of the most popular apps on Apple's app store.

Nicla Bartoli, the vice president of sales at Influencer Marketing Factory, said ByteDance reached out to her company in late February and gave a lengthy presentation about the app and how influencers can use it. She said the agency, which connects brands with influencers, is recommending that influencers try out the app but isn't doing



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the same with brands since Lemon8's user base is still relatively small.

It also remains to be seen if the app will take off more organically or flop. The last five years have been littered with social media platforms that got a lot of hype, only to vanish in the end, said Brendan Gahan, partner and chief social officer at the creative agency Mechanism. He pointed to examples like BeReal and Clubhouse, which garnered a lot of attention in the past two years before users turned their attention elsewhere.

"Social app success is difficult to achieve and harder to maintain," Gahan said.

What Has ByteDance Said About the App?

ByteDance did not reply to a request for an interview about how it plans to grow Lemon8. But the company's general counsel Erich Andersen noted in an interview with the Associated Press at a recent cybersecurity conference that it will continue to develop the app.

"We're obviously going to do our best with the Lemon8 app to comply with U.S. law and to make sure we do the right thing here," said Andersen, who also serves as TikTok's general counsel. "But I think we got a long way to go with that application — it's pretty much a startup phase."

As part of that work, ByteDance is already seeking job applicants for a few U.S.-based roles that will help grow the app's partnerships with influencers on beauty, food, health and other topics.

What Else Is ByteDance Doing?

Another app owned by ByteDance, called CapCut, is also listed on Apple's app store as one of the most popular apps in the U.S.

CapCut markets itself as an "all-in-one" video editing tool that allows users to cut or speed up their content, and do other things like add filters and music.

Data.ai, the app analytics company, said that app was released globally in April 2020, roughly a year after it was introduced in China. As of April 2, the group said the editing tool had been downloaded 60 million times in the U.S. and 940 million globally.



This photo shows the logo and application page for the social media site Lemon8, in New York, Wednesday, April 5, 2023. Lemon8 is a photo-based app that could be described as a mixture of Instagram and Pinterest with sprinkles of videos that resemble those posted on TikTok. It launched in Asian markets in 2020 and has already made headway in countries like Thailand and Japan. (AP Photo/Richard Drew)

Are Lawmakers Also Concerned About the Other Apps?

There is support for a bipartisan bill in the Senate, called the RESTRICT Act, that does not call out TikTok but would give the Commerce Department power to review and potentially restrict foreign threats to technology platforms. But it has faced some pushback from privacy advocates and ring-wing commentators who argue the legislation is too vague and could be abused.

Senate Intelligence Committee Chairman Mark Warner, who sponsored the bill along with Republican Sen. John Thune, said in a prepared statement that the legislation would make it easier to go after other risky apps like Lemon8.

"For too long, our government has been playing a game of Whac-A-Mole when it comes to addressing the various foreign technology threats popping up all around us," said Warner, D-Va. "The RESTRICT Act would establish a risk-based, intelligence-informed process to evaluate and mitigate the risks posed by tech from adversarial nations, whether that be Huawei, TikTok, Lemon8, or the next viral technology product pushed by an authoritarian nation." 🇺🇸

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TECHLINE

Robotaxis Aim to Take San Francisco on Ride Into the Future

By Michael Liedtke | AP Technology Writer

SAN FRANCISCO (AP) — Two trailblazing ride-hailing services are heading toward uncharted territory as they seek regulatory approval to transport passengers around the clock throughout one of the most densely populated U.S. cities in vehicles that will have no one sitting in the driver's seat.

If Cruise, a subsidiary of General Motors, and Waymo, a spinoff from Google, reach their goal before year's end, San Francisco would become the first U.S. city with two totally driverless services competing against Uber, Lyft and traditional taxis — all of which depend on people to control the automobiles.

But Cruise and Waymo still must navigate around potential road-blocks, including complaints about their vehicles making unexpected, traffic-clogging stops that threaten to inconvenience other travelers and imperil public safety.

Cruise already has been charging people for driverless rides in less congested parts of San Francisco during night-time hours since last June. Waymo has been giving free driverless rides in a broader swath of the city while awaiting clearance to begin charging passengers in robotic vehicles that Google secretly began working on 14 years ago.

The effort to unleash dueling driverless services throughout San Francisco is shaping up to be just the first step in a far more ambitious expansion centered in California — a state where more than 35 million vehicles driven by humans are currently registered.

Cruise recently applied for permission to begin testing its robotic vehicles throughout California at speeds of up to 55 miles per hour — 25 miles per hour above the maximum speed for its robotaxis in San Francisco. Waymo is already testing its driverless cars in Los Angeles — the second largest U.S. city.

The California push comes on top of Cruise starting to test its robotaxis in Austin, Texas, as well as Phoenix, where since 2020 Waymo's

driverless ride-hailing service has been carrying passengers on Arizona roads that are far less congested and challenging than the streets of San Francisco.

"We still have work to do, but it's improving at a pretty rapid rate," Cruise CEO Kyle Vogt told The Associated Press. "As it gets fine-tuned, it will get really elegant over time, but also the safety continues to improve."

Saswat Panigrahi, Waymo's chief product officer, expects the company's past experience to pay off as it transplants what it has learned from operating a driverless ride-hailing service in Phoenix to more heavily trafficked cities like San Francisco and Los Angeles.

"The uncertainty is definitely now far lower, having operated a fully autonomous service with real riders," Panigrahi said.

Both Cruise and Waymo recently announced their driverless fleets each have covered more than 1 million miles without a major accident. But their robotaxis also have experienced nagging problems in San Francisco that have caused traffic headaches and other nuisances that threaten to inconvenience people or, worse, block emergency vehicles rushing to a fire or other urgent calls for help.

"The expected things are easy, but it's the unexpected things that humans react to in real time that are a concern," said transportation expert Nico Larco, who is director of the Urbanism Next Center at the University of Oregon. "Best case, it will just cause confusion, havoc, congestion if the cars stop in the middle of the road. But the worst cases could actually be harmful to someone."

Meanwhile, dozens of other technology companies and automakers have joined in a race to develop self-driving car technology at a collective cost of more than \$100 billion. Their ultimate goal is to make money off robotic drivers that are safer and less expensive than human drivers. Robotaxis could also lower prices for passengers,

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although Vogt believes consumers may be willing to pay more for rides without a stranger behind the wheel.

The investments so far have produced a mixed bag of successes, flops and hyperbole from the likes of Tesla CEO Elon Musk, who predicted nearly four years ago that the electric automaker would be running a huge robotaxi service by the end of 2020 but still hasn't come close to realizing that ambition.

Concerns about robotaxis operating in ways that cause headaches for the people outside the vehicle was raised in a cautionary letter sent to California regulators in January by the San Francisco County Transportation Authority.

The letter cited at least 92 reported incidents of Cruise robotaxis making sudden stops in the street through Dec. 31. At least three of the incidents blocked the right of ways for public transportation for periods ranging from nine to 18 minutes.

Within the past year, driverless Cruise vehicles have also obstructed firefighters rushing to a three-alarm fire and or illegally entered into areas where there were ongoing efforts to douse a fire, according to the authority, which is asking regulators to hold off on unleashing robotaxis throughout San Francisco at all hours until there is more information about why and how often the cars periodically clog traffic. The abrupt braking and stops by Cruise's robotaxis have also been under investigation by federal regulators since late last year.

"We are just very wary," said Tilly Chang, the executive director for the San Francisco transportation authority. "We want to be supporters and help facilitate (driverless rides), but we have to make sure it's safe."

A pair of Associated Press reporters witnessed the potential problems that robotaxis can cause in mid-February after a Waymo vehicle safely transported them on a trip through San Francisco that required navigating hilly terrain, turning in rush-hour traffic and yielding to pedestrians darting out into the crosswalks.

During one ride, the robotaxi stopped in the middle of the street after the AP reporters got out, and remained there for several minutes while a line of human-operated cars stacked up behind it. It turned out that a back door on the driver's side hadn't completely closed. In another glitch involving Cruise last September, an AP reporter took a roughly five-mile ride in a robotaxi nicknamed "Peaches," which



A Waymo driverless taxi drives on the street during a test ride in San Francisco, on Feb. 15, 2023. (AP Photo/Terry Chea)

repeatedly bypassed the designated destination. The reporter finally had to use the Cruise app to contact a dispatcher in a remote center so the car could be stopped — in the middle of the street.

Vogt noted that a number of improvements have been made since then, and indeed two different Cruise robotaxis — one named "Cherry" and the other named "Hollandaise" — dropped off the same reporter and his colleague at their designated designations on a follow-up trip, although Cherry stopped at a bus stop that briefly prevented the arrival of an oncoming bus.

Cruise's owner, the nearly 125-year-old General Motors, is nonetheless so confident robotaxis will drive more responsibly than humans and be able to expand its driverless service into more U.S. markets that it made the bold prediction last fall that Cruise would generate \$1 billion in revenue by 2025 — a big jump from Cruise's revenue of \$106 million last year when it also lost nearly \$2 billion.

That optimism is in sharp contrast to the disheartening experience of another storied automaker, Ford Motor, which paid \$1 billion in 2017 to acquire driverless startup Argo AI, only to shut down the division last October and swallow a \$2.7 billion loss after failing to find a buyer for the technology.☒



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The ENHANCE-ION is available through HVAC wholesale distributors. For more information on the Fresh-Aire UV products, please visit www.freshaireuv.com, call 800-741-1195 or email sales@freshaireuv.com.



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Transtector Releases Outdoor, 10 GbE, PoE++ Data Surge Protector

IRVINE, Calif. — Transtector Systems, an Infinite Electronics brand and a leading provider of end-to-end power and signal integrity solutions, has released a new outdoor, 10 GbE, PoE++ data surge protector.

The new industrial surge protector is designed for use with 10 Gigabit Ethernet and PoE++ networks, telecom base stations, WISP/ISP, IT and data centers, point-to-point links, control lines and sense loops, and other applications. It meets IEEE 802.3 standards for 10 GbE and IEEE 802.3bt standards for PoE++.

The new outdoor, 10 GbE, PoE++ data surge protector uses SASD technology to protect critical equipment in Gigabit Ethernet/PoE++ protocol data networks while remaining transparent to data throughput. It protects against electrical transient surges that are generated by both lightning strikes and internal switching events. The commercial device supports long-term system reliability by absorbing high amounts of transient energy while maintaining a low clamping voltage.

The new surge protector mounts to a pole or a wall and has several features to protect it from the elements. It has a dielectric lube to

weatherize the shielded RJ-45 connections, a patented weatherized wiring grommet, a conformal coating on the printed circuit board assembly to protect the PCBA from moisture and corrosion, and configurable weep holes. With NEMA 3R and IP65 environmental protection ratings, it is suitable for both indoor and outdoor use.


The data surge protector has a maximum data rate of 10,000 Mb/s and handles up to 100 watts of PoE power. It is compatible with Cat6/6A STP and Cat7 STP cables.

“We have expanded our high-speed surge protection line with a model that can guard equipment and peripherals using the highest available data rate and PoE power levels, in outdoor conditions which are much more extreme,” Transtector Product Line Manager Dan Rebeck said. “It utilizes our patented enclosure for user-friendly installation and provides the highest performance surge protection technology that Transtector products are known for.”

Transtector’s new outdoor, 10 GbE, PoE++ data surge protectors are in stock and available for same-day shipment. ■■



Transtector has expanded its high-speed surge protection with a model rated for outdoors.



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NEW PRODUCTS

Taco Introduces 0026e[®] ECM High-Efficiency Circulator

Taco Comfort Solutions has expanded its family of easy to use, high-efficiency ECM circulators with the addition of the 0026e. With a maximum of 26 feet of head and 44 GPM, the new variable-speed circulator offers up to 85 percent energy savings over a conventional circulator.

The 0026e circulator is available with cast-iron or NSF/ANSI 61 & 372 certified stainless-steel volutes, ideal for either closed-loop heating systems or domestic hot water systems. It also offers a convenient, rotatable control box for a professional look, no matter the orientation of the installed circulator.

The easily installed, easily programmed 0026e circulator features five simple settings: low, medium, high, Taco's exclusive activeADAPT[®] self-adjusting proportional pressure, and 0-10v control. Its variable-speed performance curves are equivalent to Taco's 0010, 0011, 0012, 0012 and 0014 models.

Hydronic system designers and installers will find that the new circulator is ideal for large residential and light commercial heating, chilled water cooling and domestic hot water systems. The 0026e



Taco's new 0026e high-efficiency ECM circulator offers up to 85 percent energy savings over conventional circulators.

is dual-voltage 115V/230V, and the 6.5" rotated flange-to-flange dimension retrofits most circulators in its class.

The new circulator includes exclusive features that make Taco's ECM high-efficiency circulators easy to use, including SureStart[®] automatic unblocking and air purging, BIO Barrier[®] black iron oxide protection, dual electrical knockouts, and recessed flange nut-grabbers for easier fit up.

For more information, visit www.TacoComfort.com

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Modular International, Inc., Introduces New High Efficiency LED Modules

Modular International, Inc., recently launched a new product line of high output, compact and energy-efficient LED modules. The 579e series of LED modules achieves industry leading energy efficiency across a wide range of lumen outputs and is being offered in 50mm, 70 mm and 90 mm sizes.

Tony Madonna, Modular's Vice President, Business Development, said that the 579e modules were developed by Modular to respond to the needs of lighting professionals seeking an energy efficient lighting product that can achieve high delivered lumen levels for a reasonable price.

According to Madonna, the 579e series offers superior color rendering properties and high lumen outputs at lower wattages than products previously available to buyers and specifiers of commercial and residential lighting fixtures. For example, the 579e modules has a range of 7-35 watts, 758-5, 224 delivered lumens, with 108-156 lm/w efficiencies at 90+ CRI and exceptional R9 values. Madonna said that the 579e series are available in 2700k, 3000k, 3500k and 4000k in order to accommodate a wide range of lighting conditions.

"With our new 579e modules, both homeowners and developers can drastically reduce their total energy consumption as compared to similar products in the industry. This is great news for restorations of historic buildings, higher education, medical institutions, corporate office environments, and the push for energy reduction in smart buildings and homes," Madonna said.

The 579e modules can be used within Modular International's line of Modular Multiples® fixtures. This includes Trimless or Trimmed retrofit fixtures for lighting upgrades to pre-existing spaces or for new construction applications. This means greater energy savings can be made right away if you are looking to upgrade your lighting.

The 579e LED modules offer filter rings and shielding cylinders which can hold up to two 1/8" filter media for a more focused and balanced lighting performance. With its comprehensive product line, and the



Modular International's new high-efficiency LED modules are designed to respond to the needs of lighting professionals seeking an energy efficient lighting product that can achieve high delivered lumen levels for a reasonable price.

ability to customize to meet nearly any ceiling condition, Modular International is well-positioned to continue as a leader in helping lighting professionals achieve brilliant results.

Founded in 1987, Modular International Inc. is the premier source for innovative architectural lighting solutions, producing a broad spectrum of products for interior and exterior applications. In its 36-year history, Modular has held more than 40 patents and trademarks. The new line of 579e modules is the latest example of Modular's ingenuity in the lighting industry.

The company will showcase the new 579e LED Modules at LEDucation in New York City this week, LightFair in New York City in May, and at AIA's Conference on Architecture in San Francisco in June 2023.

To get information and learn more, visit modularinternational.com or reach out to Tony Madonna directly at tmadonna@modularinternational.com or call (412) 352-8828.



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EVENTS

2023 ASHRAE Annual Conference

June 24-25, 2023
Tampa, FL

ATLANTA — Registration is now open for the 2023 ASHRAE Annual Conference, which will take place June 24-28, at the JW Marriott Tampa Water Street in Tampa. Early bird registration ends April 30.

"ASHRAE's Annual Conference is the perfect place for built environment professionals to learn new concepts to help improve the design, construction and operation of buildings and systems," said 2022-23 ASHRAE President Farooq Mehboob, Fellow ASHRAE. "It is always wonderful when our members are able to come together to share experiences and ideas. We look forward to an exciting conference in beautiful Tampa."

The conference will include tours, social events, award recognitions and a technical program featuring more than 90 sessions on seven conference tracks. Technical sessions will focus on the urgency of addressing the climate crisis, including measures to reduce human impact on the natural environment and strategies for making the built environment more resilient and sustainable.

Conference tracks addressing climate change include the following:

- *Pathway to Net Zero and Decarbonization* – Highlights case studies, research, tools, and strategies to reduce carbon impact and achieve net zero energy communities.
- *Future Proofing the Built Environment* – Focuses on innovative technologies and strategies to reimagine the relationship with the built environment in the wake of weather extremes affected by climate change, as well as energy supply disruptions and shortages, methods of designing, constructing and operating buildings and HVAC&R systems for resilience and sustainability.
- *Research Summit* – Features active research, and the exchange of research findings, critical to the development of the HVAC&R industry and built environment. The track includes a partnership with ASHRAE's archival journal, *Science and Technology for the Built Environment*.

Remaining tracks include:

- *Building Automation and Control Systems*
- *Professional Development and Education*
- *Fundamentals & Applications*
- *HVAC&R Systems and Equipment Fundamentals & Applications*

The plenary session will feature a keynote presentation from David Dylan Thomas, author of *Design for Cognitive Bias* and creator and host of *The Cognitive Bias Podcast*.

During the President's Luncheon, on Monday, June 26, incoming 2023-24 ASHRAE President Ginger Scoggins, P.E., Fellow ASHRAE, will present her inaugural address and share the Society theme for the coming year, "*Challenge Accepted: Tackling the Climate Crisis*." The 2023-24 officers and directors will also be installed.

ASHRAE Learning Institute (ALI) will offer full-day seminars and half-day courses and ASHRAE certification exams will be administered during the week. The Society will conduct business, committee and technical meetings in the weeks leading up to, and during the conference.

For complete information and registration for the 2023 ASHRAE Annual Conference, visit ashrae.org/2023Annual.

Process Heating & Cooling Show
May 24-25, 2023
Donald E. Stephens Convention Center
Rosemont, Ill.

ROSEMONT, Ill. — The 2023 Process Heating & Cooling Show will be held May 24-25 at the Donald E. Stephens Convention Center in Rosemont, Ill. The show is a place for anyone involved with industrial heating and cooling processes. The effective application of heat, or the removal of it via cooling, involves critical, transformative steps during the manufacturing processes of many products. This event will bring together industrial cooling and heating equipment makers with plant and process personnel from numerous companies in the process industries, including those working in oil and gas, electronics, pharmaceuticals, food, beverages, packaging and plastics, to name a few.

Those attending will connect face-to-face with like-minded peers, learn from business thought leaders, and uncover emerging trends and technologies. With a vibrant exhibit hall, exceptional education, and dynamic networking functions, the 2023 Process Heating & Cooling Show is the place to find opportunities to help grow your business and your career. The event once again will offer a vibrant exhibit hall, exceptional education, and dynamic networking functions.

For more information or to register for the 2023 Process Heating & Cooling Show, visit www.process-heating.com.



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ASHRAE UPDATE

ASHRAE, Leading Industry Organizations to Host 2023 Decarbonization Conference for Built Environment

ATLANTA — ASHRAE is now accepting presentation proposals for the 2023 Decarbonization Conference for the Built Environment, Oct. 25-27, 2023, in the Washington, D.C., metro area at the Renaissance Arlington Capital View Hotel. The conference is organized by ASHRAE, the American Institute of Architects (AIA), International Facility Management Association (IFMA), APPA and Building Owners and Managers Association (BOMA).

The industry-wide conference will address all aspects of design, construction, commissioning and operation of the built environment. Attendee will learn methods to decrease carbon emissions, both embodied and operational, in order to reduce the impact of buildings on the climate crises. Current and future governmental policies, regulations and requirements for environmentally responsible building will be highlighted.

“The goal of this conference is to bring persons who work in all aspects of building design, construction, operation, ownership and management into the same room to address how the building industry as a whole can improve the impact buildings have on the global climate crises,” said 2022-23 ASHRAE President-Elect Ginger Scoggins, P.E., Fellow ASHRAE. “Since building design, construction and operation contribute close to 40 percent of total global emissions of

carbon, it is imperative that we all work together to develop a path forward to address buildings’ impact.”

Invited speakers will present on topics supporting North American decarbonization efforts, while software vendors and conference sponsors will present trending technologies and strategies.

Accepted presentation proposals will address the following topics:

- Decarbonization 101: Measures, Metrics and Terminology
- Decarbonization Drivers: Guidelines, Standards and Regulations
- What is your role in Decarbonization?
- Strategies to Achieve Low Carbon Operations
- Designing and Constructing Low Carbon Buildings
- Retrofitting Your Way to Low Carbon Buildings
- Lessons Learned: New Construction Case Studies
- Successes and Failures: Existing Buildings Case Studies
- How Do We Fund Low Carbon Buildings?

The deadline to submit presentation proposals is May 1, 2023. If accepted, presentations will be due Sept. 1, 2023.

For more details, please visit ashrae.org/2023decarbBE. ☒



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Introduction of Copyright Protection Legislation Draws Continued Support From ASHRAE

ATLANTA — ASHRAE, along with other non-profit Standards Development Organizations (SDOs), announced continued endorsement of bipartisan legislation introduced in the U.S. Senate to protect the copyrights of standards.

March 16, Senators Chris Coons (D-Del.) and John Cornyn (R-Texas) introduced the Pro Codes Act (S.835) in the Senate, with Senators Thom Tillis (R-N.C.) and Sheldon Whitehouse (D-R.I.) joining as original co-sponsors. The bipartisan bill will preserve copyright protection of codes and standards when they are incorporated by reference into federal regulations, state laws or municipal regulations.

“The rigorous, consensus-based standards developed by ASHRAE

and other SDOs are essential to public health, sustainability, safety and security,” 2022-23 ASHRAE President Farooq Mehboob, Fellow ASHRAE, said. “ASHRAE proudly supports this legislation and will continue our work to provide vital standards for adoption or incorporation by reference — another step towards realizing our vision of a healthy and sustainable built environment for all.”

The bill states that the U.S. benefits greatly from the work of private standards development organizations with expertise in highly specialized areas.

Read S.835 in its entirety at bit.ly/438PFqv



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AMERICAN STREET GUIDE

A Ship for Windpower Takes Shape in Louisiana Oil Country

By Kevin McGill and Jennifer McDermott | Associated Press

HOUMA, La. (AP) — In Louisiana bayou country, where oil rig supply ships are as much a part of the waterside scenery as shrimp boats, a new kind of seagoing behemoth is taking shape that marks offshore wind power's growing presence in the energy seascape.

Louisiana shipbuilding giant Edison Chouest Offshore is assembling the 260-foot-long *Eco Edison* in coastal Terrebonne Parish, along the Houma Navigation Canal. It's being built for Ørsted, a Danish firm that builds and operates wind farms worldwide, and Eversource, a New England energy provider. When delivered next year, the ship will serve as floating housing for U.S. offshore wind technicians and a warehouse for their tools as they run and maintain wind farms in the Northeast.

Officials with the three companies gathered Tuesday under the bow of the unfinished vessel to mark construction progress and hail the role offshore oil industries are playing in the development of offshore wind generation. House Majority Leader Steve Scalise, of Louisiana, attended.

It's long been understood that offshore oil companies possess know-how valuable for offshore wind, for example, how to maintain machinery in a salty marine environment.

Differences between the *Eco Edison* and vessels built for offshore and deep-water oil rigs aren't yet apparent as the skin and bones of the towering ship take shape in a 120-foot-tall waterside assembly building. But the differences are there, said Daryl Owen, a consultant on the project. Workers in protective clothing tended computer-driven machines bending and welding sections of piping and huge plates of steel. Standing near the stern of the developing ship on Monday, April 3, Owen pointed to the deck of a nearby oil industry supply vessel.

"That's all open deck space for cargo," he said. "This vessel won't have that. It's got a lot more housing space for the workers."

The cargo will be different, too Owen added. "That vessel's got specialty tanks, all over, below decks, for specialty chemicals, fluids. ... The wind guys don't need any of that."

While offshore oil platforms often double as living quarters for the workers who tend to them, the *Eco Edison* will be the temporary home for roughly 60 workers as it moves from turbine to turbine to provide maintenance.

The April 4 unveiling of the work in progress came almost a week after the Biden administration announced a wind power strategy aimed at providing 30 gigawatts of offshore wind by 2030.

Globally countries are building out wind power and solar in a shift away from the coal, oil and methane gas burning that cause climate change.

But it also came days after House Republicans passed legislation to sharply increase domestic production of fossil fuels, and ease permitting restrictions that delay pipelines, refineries and other projects. Louisiana politicians, Democrats and Republicans alike, have been critical of administration attempts to curb drilling. And oil and gas remains a major employer and driver of the Louisiana economy. But they are also embracing the state's role in helping the offshore wind industry take off.

Democratic Gov. John Bel Edwards recently announced that Shell will invest \$10 million with New Orleans-based Gulf Wind Technology for a project to develop turbine components designed to operate in the Gulf.

Wind turbines won't be sprouting in Gulf waters right away. Although the Biden administration is considering the first-ever lease sale for offshore wind energy in the Gulf of Mexico, there are challenges to address, including slower wind speeds.

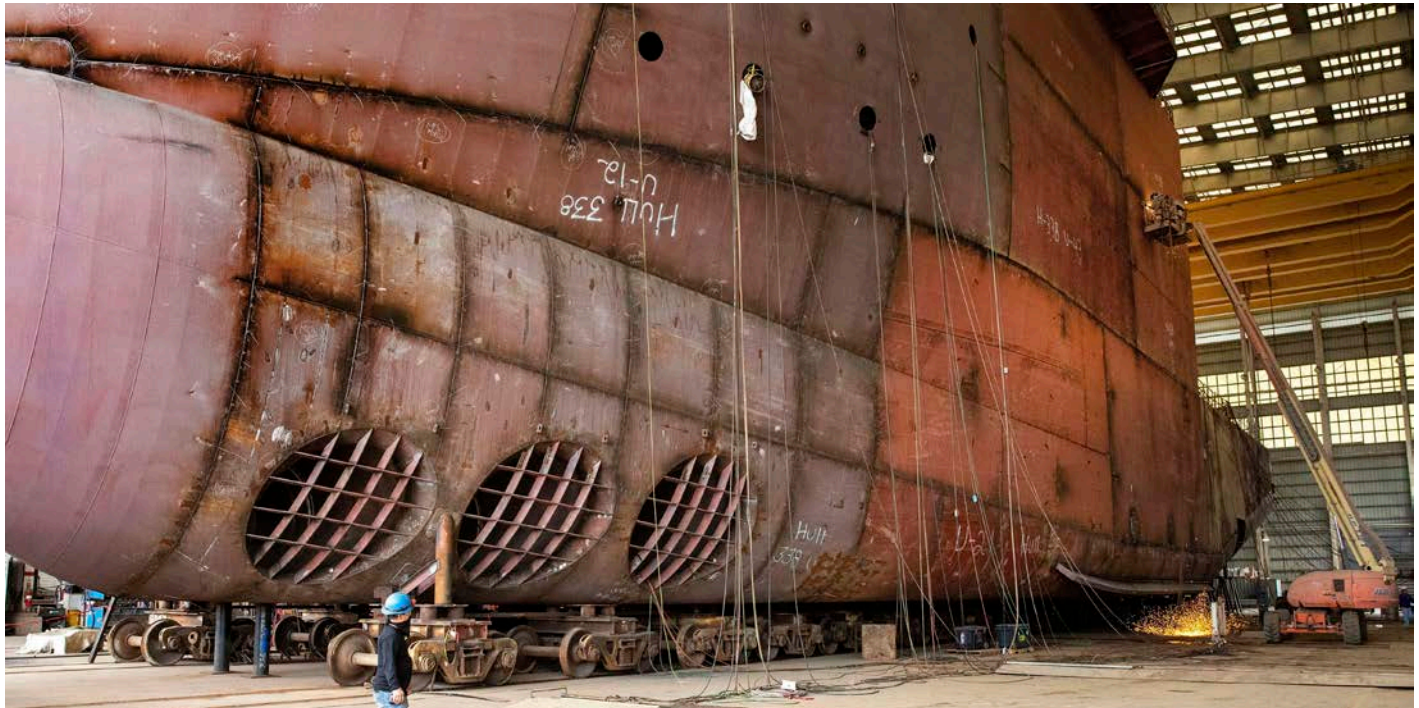
But Gulf cities and companies are "a big part" of what will make the offshore wind industry successful, said David Hardy, CEO of the Ørsted Americas region. In turn, offshore wind developers are creating high-paying jobs in the Gulf and giving companies a way to diversify to take advantage of opportunities in the energy transition, he added.

Ørsted and Eversource say they're investing hundreds of millions of dollars in shipbuilding across the Gulf Coast. More than 400 shipbuilding workers with Edison Chouest Offshore have worked on the *Eco Edison* so far. Parts of the ship have been manufactured at ECO facilities in Florida and Mississippi and shipped to Houma.

"People think about offshore wind, and they think about jobs where the wind farms are. But the reality is, there are jobs being created across the country," Hardy said.

Because of century-old laws, only a qualified U.S.-flagged vessel can transport people and goods between U.S. ports. The *Eco Edison* is the first Jones Act-qualified wind farm service operations vessel in the United States. In Texas, Dominion Energy is building the first U.S.-based offshore wind installation vessel, the *Charybdis*. Ørsted and Eversource signed up to charter it first.

Jason Grumet, CEO of the American Clean Power Association, said the Gulf region is poised to become "the economic engine" of the offshore wind industry because of its highly skilled energy workforce.



A worker walks by an unfinished 260-foot-long Eco Edison ship in Terrebonne Parish, La., along the Houma Navigation Canal, Monday, April 3, 2023. The ship will serve as a floating housing for U.S. offshore wind technicians and a warehouse for their tools as they operate and maintain wind farms. (AP Photo/Ted Jackson)

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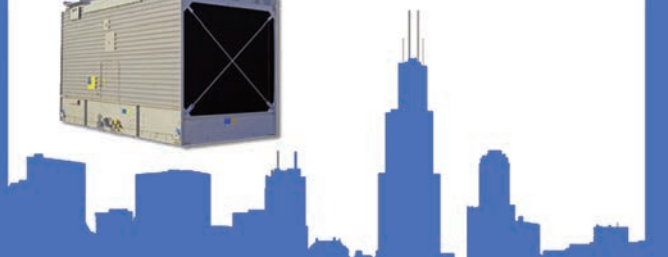
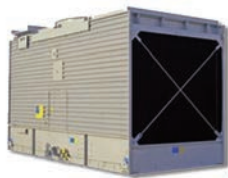
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Leading offshore developers are racing to invest billions of dollars to construct a fleet of specialized vessels, he added.

When the *Eco Edison* is finished next year, it will go to Port Jefferson, New York, to serve three planned Northeast wind farms, South Fork Wind, Revolution Wind and Sunrise Wind. Combined, those projects are expected to generate about 1.7 gigawatts of offshore wind energy to power over a million homes. ☒

McDermott reported from Providence, R.I.



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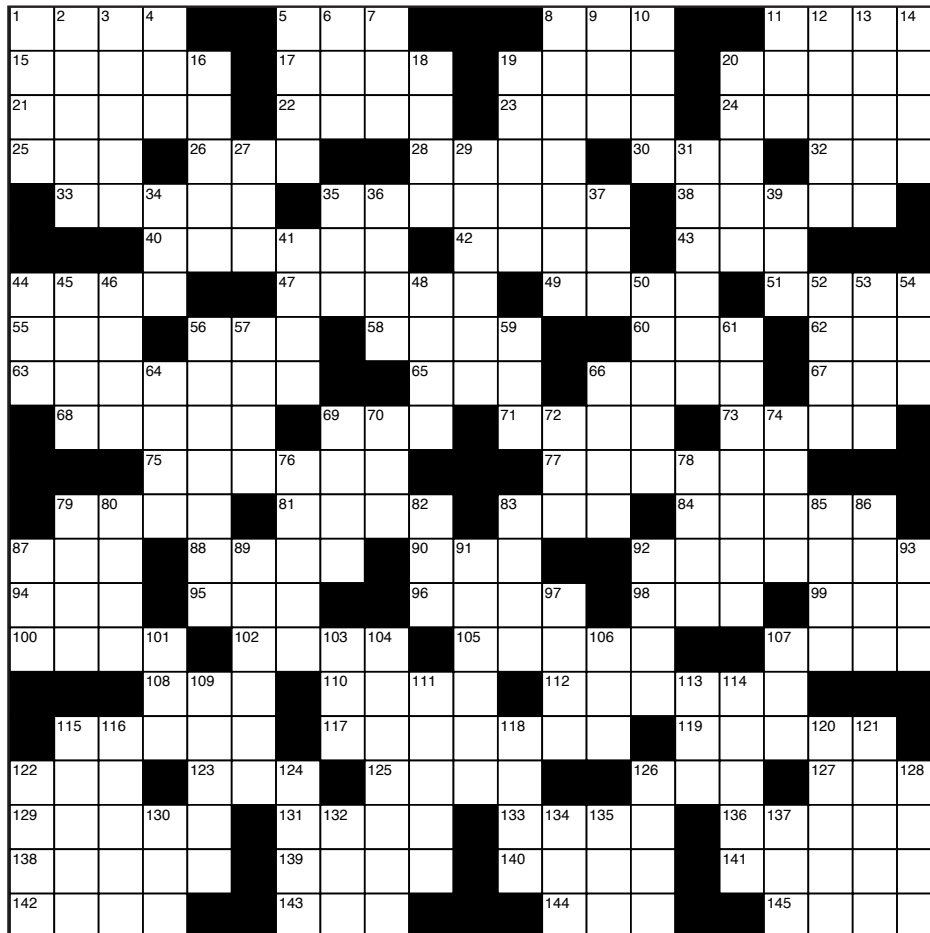
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DOWN

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- 76 Grating
- 78 Spy
- 79 Spoken
- 80 Organization concerned with civil liberties (abbr.)
- 82 Antlered animal
- 83 Lazy
- 85 Am not
- 86 Kimono
- 87 American College of Physicians (abbr.)
- 89 Fortes
- 91 Church offerings
- 92 Black stone
- 93 Unused
- 97 Northeast by east
- 101 African antelope
- 103 BB association
- 104 Change to powder
- 106 Head motion
- 107 Foxy
- 109 Kinder
- 111 Listing
- 113 Food and drug administration (abbr.)

BOILER ROOM ANNEX

Details, Details ...

Source: www.quora.com

A mechanical engineer went to police station to file a report on his wife, who had gone missing. Gently weeping, he told the attending inspector, "Excuse me — I lost my wife. She went shopping yesterday and never returned."

"How tall is she?" the inspector asked.

"I never noticed," the engineer responded.

"What's her build? Is she slim or healthy?" the inspector inquired.

"Slim can be healthy," the engineer answered.

"Color of eyes?" the inspector continued.

"Never noticed," replied the engineer.

"Color of hair?" the inspector asked, gruffly, getting exasperated.

"It changes according to the season," the engineer said.

"Clothes she was wearing when last seen?" the inspector droned, expecting nothing.

"Some dress, or some suit — I can't remember," the engineer explained.

"Was she in a car?" the inspector said, suddenly.

"Yes — a black Audi A8 with supercharged, 3.0-liter V6 engine generating 333 horsepower teamed with an eight-speed tiptronic automatic transmission with manual mode. It has full LED headlights that use light-emitting diodes for all light functions and it has a very thin scratch on the passenger-side quarter panel ..."

Strong and Dumb vs. an Engineer

Source: www.grahamnasy.com

A big, full-of-himself buffoon took a job as a laborer at a construction

Solution:

C	H	I	R	P		P	I	T		E	G	O		L	E	T	G	O			
R	A	M	I	E		R	I	C	E	A	R	O	N	I	U	S	H	E	R		
A	G	A	P	E		U	N	E	X	C	I	T	E	D	S	T	E	E	D		
M	U	G		L	P	N		T	E	E		O	U	T	S	S	E				
P	E	E	R		S	T	A	G		F	I	L	M		B	E	E	R			
				P	E	T		C	N	S		P	O	I		P	S	I			
	A	L	M	S			P	U	N	J	A	B	I		E	D	A	M			
A	L	A		P	I	E		O	A	T		N	F	L		F	I	G			
S	I	R		N	O	D		A	R	M	E	D		O	A	F		F	L	U	
K	E	Y	S		N	U	D	G	E		R	A	F	T	S		P	R	E	Y	
		N	N	E		C	U	E		N	O	N		F	O	N		E	O	S	
C	A	G	E		M	A	G	N	A		A	T	R	I	P		A	N	T	E	
A	T	E		H	A	T		T	R	U	C	E		C	A	W		T	O	W	
T	E	A		O	D	E		E	T	C		E	R	A		E	N	E			
	S	L	A	P			F	U	N	E	R	A	L			R	I	D	E		
		Y	E	A			U	S	A		A	D	O		U	F	O				
O	O	Z	E		B	A	N	S			D	O	E	R		U	C	L	A		
F	C	A		A	C	V		W	S	W		D	N	A		L	A	P			
T	H	I	R	D			E	S	C	A	P	A	B	L	E		S	C	A	N	S
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N	E	E	D	S			M	S	T		T	N	T			N	A	M	E	S	

APRIL SOLUTION

site. Being overconfident, he soon began to brag to the other workers about all sorts of things. One day bragged that he could outdo anyone in a feat of strength. He made a special case of making fun of the wiry engineer on the site. After several minutes, the engineer had had enough.

"Why don't you put your money where your mouth is?" said the engineer. "I will bet a week's wages that I can haul something in a wheelbarrow over to that outbuilding that you won't be able to wheel back."

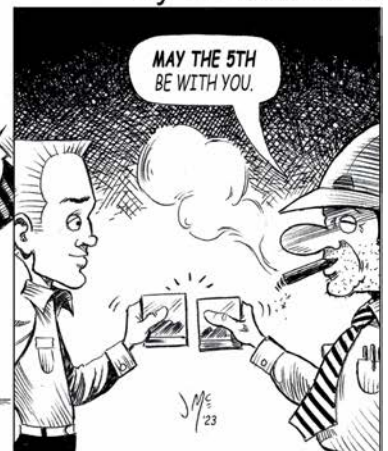
"You're on, little guy!" the braggart replied. "Let's see what you got."

The engineer reached out and grabbed the wheelbarrow by the handles. Then, nodding to the young man, he said, "All right: Get in."

Wrench



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