

# GREENING NEWSLETTER

## The War on Straws Is Coming to a Bar Near You

**Plastic straws have begun disappearing from some taverns and restaurants as bartenders, liquor companies and others argue that too many end up in the ocean**

Jennifer Call was aghast recently when the server at her go-to Asheville, NC, pizza spot delivered her Diet Coke. It was missing the straw! The server explained she had stopped giving them out automatically. Having worked in food service, Ms. Call, she has memories of lipstick lingering after dish-washing. "Let me see your glass racks," she says, "and then I'll decide if I don't want a straw." Besides, she says, drinking through a straw is more fun. She requested one and got it.



Ms. Call, 30 years old, was caught up in a war on straws declared by a growing cadre of bartenders, liquor companies, celebrities and environmentalists. They argue too many of the plastic drinking devices—from big

soda straws to little cocktail numbers—end up in the ocean.

"We see straws as a 'gateway plastic' in understanding the pollution problem," said actor Adrian Grenier in a news release championing the cause. The Scotch Whisky Association and the makers of Absolut vodka and Tanqueray gin have announced plans to ban plastic straws and stirrers from their events. Celebrities such as Mr. Grenier have pushed the cause on social media, encouraging people to #StopSucking. A California lawmaker has introduced a pending bill that would outlaw servers' giving plastic straws to diners by default, and several US cities are banning them or curtailing their use. Bartender Claire Sprouse, 33, travels the country teaching fellow servers how to create less waste. "The first thing we try to talk about," the Brooklyn, NY, mixologist says, "is that you don't always have to stick a straw in something." Ms. Sprouse recommends paper straws to her customers. "The biggest complaint about paper straws is that they disintegrate. I just tell people to drink faster." Nick Jackson, who mixes drinks at Ward III in New York's Tribeca neighborhood, says he deploys plastic straws only under certain conditions, such as when a mint-leaf garnish would tickle a patron's face.

It isn't clear if the efforts are crimping the straw market. The Plastics Industry Association doesn't have straw data. Straw maker Fuling Global Inc. says it supplies about 5 billion straws a year to some of the country's largest fast-food chains and estimates US consumers use 20 billion plastic straws annually. Fuling CEO Xinfu Hu says that the company has made prototypes of biodegradable plastic straws and thinks the government should promote use of such straws.

Mia Freis Quinn, a spokeswoman for the association, says

the plastic straw's detractors should focus on finding ways to recycle and recover them. Plastic straws, she says, play vital roles in everything from her children's class projects to personal hygiene. "My dentist says if you're not drinking water, you better be using a straw. The American Dental Association suggests using straws to prevent tooth erosion, recommending using a straw "palatally," placing the end behind the teeth.

Straws date back to at least 2,500 BC, when wealthy Sumerians likely shared pots of beer using metal straws more than 4 feet long, says William Hafford, a University of Pennsylvania researcher. Other iterations were of reeds and paper. Plastic straws created a splash in the 1960s because they were cheap, but didn't fall apart.

The straw that stirred the drink, by many accounts, was a fourth-grader in Vermont named Milo Cress, who in 2011 decided to quantify how many straws end up discarded. "I just started noticing the vast amount of straws that would come with every meal," says Mr. Cress, now a high-school junior. "You wind up with piles of straws on the table." He and his mother called straw manufacturers and estimated US diners throw away 500 million straws daily, or more than 1.5 a person. The figure became the go-to straw statistic, appearing in hundreds of media reports, corporate sustainability initiatives and on the National Park Service website.

A 2015 YouTube video, "Sea Turtle with Straw up its Nostril," gave the movement a mascot. The video of marine biologists extracting the straw has been viewed more than 19 million times.

Bacardi Ltd. cited the 500 million estimate when it became one of the first spirits makers to take a stand against plastic straws and swizzle sticks, banning them two years ago from its events. A Bacardi spokeswoman says the initiative spares more than 1 million straws a year.

Pernod Ricard SA, which sells Absolut, also cited the estimate when it followed suit, saying the average straw is sipped from for 20 minutes and can take more than 200 years to break down. Pernod's Director of Sustainability and Responsibility, John Tran, says, "We have asked our agencies to remove them from images."

At a March event by Smirnoff, owned along with Tanqueray by Diageo PLC, which also dropped plastic straws, guests downed Moscow Mules quickly to prevent paper straws from disintegrating.

Mr. Cress's mother, Odale Cress, says raising awareness has been great. She doesn't like the idea of completely banning straws, preferring policies that don't give straws automatically. "If people ban straws, I don't really know what's going to happen with milkshakes."

New York City resident Chris McCoy, 58, says he is "adamant" about getting a plastic straw if a restaurant doesn't offer one. He refuses to drink from glass rims other mouths have touched. There are so many more communicable diseases,"

says Mr. McCoy, who works for a tour-bus company. "Your imagination goes into play."

A soggy straw was what Jason Rammelsberg, 43, ended up with in Seattle, where plastic straws will be outlawed come July. The software-company manager's encounter with a paper straw wasn't bad for 10 minutes—until it started absorbing his Coke Zero. "Kinda near the end, I just said forget it, took the lid off and drank it like a man."

Some bars use metal straws, but say patrons like to steal them. Bars that have cut back on straws say some patrons didn't seem to notice. Even when the straws are there, people don't tend to use them, says Chad Arnholt, 36, a bartender who with Ms. Sprouse runs a sustainability-consulting firm. "Most people just take the straw and they do that move where they pinch it underneath their index finger."

Fabienne Alexis gave up straws voluntarily. To down frozen margaritas, the 41-year-old Brooklyn, NY, marketer learned to tilt the glass to prevent blended ice from spilling on her face. "I love to drink a lot more than I like the straw," she says.

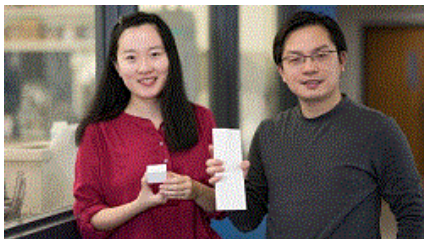
Lombardo, Cara, The War on Straws Is Coming to a Bar Near You, The Wall Street Journal, March 20, 2018

## This is 'nanowood,' a new invention that could greatly reduce humanity's carbon footprint

Move over, Styrofoam. Scientists have designed a heat-insulating material made from wood that is both light and strong and made entirely from tiny, stripped-down wood fibers. The so-called nanowood, described in the journal *Science Advances*, could one day be used to make more energy-efficient buildings. It's cheap and biodegradable, too. "Nature is producing this kind of material," said senior author Liangbing Hu, a materials scientist and engineer at the University of Maryland in College Park.

Managing heat is a major issue in the cities we build. It's hard to keep heat indoors in the winter and keep it outdoors in the summer. The insulating materials currently in use are often very expensive to make, both in terms of money and of energy. They're not usually biodegradable and ultimately contribute to our growing landfills. So scientists have been trying to come up with cheaper, more environmentally friendly options.

Hu has been probing the properties of nanocellulose, nano-meter-scale versions of cellulose, the tough carbohydrate in the cell walls of plants that allows tree trunks to grow strong and tall. At these incredibly small scales, cellulose fibers can take on remarkable characteristics, including a strength-to-weight ratio that's about eight times that of steel.



Hu and his team have already developed a strong, dense material they called super wood, in part by removing some of the wood's lignin—a complex polymer that holds cellulose in the wood together, almost like glue—and hemicellulose, another component of woody tissue. But for this project, Hu and his colleagues removed all of the lignin and most of the hemicellulose. Lignin is very good at conducting heat—which means it would be a terrible insulator.

Without all that lignin, the woody material turned pure white, allowing it to reflect incoming light rather than absorb it (which also helps to block heat). When scientists removed lignin and hemicellulose from around the nanocellulose in wood, it left a smooth, white block of nanowood—a lightweight, heat-blocking material.

The secret to nanowood's insulating powers lies partly in its structure. Styrofoam is isotropic: It basically looks the same from any angle. But nanowood is anisotropic: The fibers are bundled together in parallel, so it looks very different from different angles. Heat can travel up and down the fibers with ease, but can't easily cross them, particularly because of the air gaps left after all the woody filler (lignin and hemicellulose) was removed. The scientists found that the nanowood was just as good an insulator as Styrofoam—slightly better, even. It far outclassed other materials, too.

"When exposed to the solar spectrum, the silica aerogel absorbs ~20% and transmits ~60% of the radiative heat," the study authors wrote. "In comparison, ~95% of the radiative energy was reflected, whereas only ~2% was found absorbed by the nanowood." On top of that, the nanowood was also lightweight and could withstand pressures of 13 megapascals. That's about 50 times higher than insulators like cellulose foam and more than 30 times higher than the strongest of the commercially-used thermal insulation materials, they said. "To the best of our knowledge, the strength of our nanowood represents the highest value among available super insulating materials," the study authors wrote.



Even better, nanocellulose is readily available and relatively cheap to process, potentially costing as little as \$7.44 per square meter. (The key to keeping it sustainable, Hu added, would be to harvest fast-growing trees like balsa, and leave slow-growing trees alone.) In the right conditions, bacteria can eat it, making it biodegradable.

"When the thickness is less than 1 mm, the nanowood slice can be rolled and folded, making it suitable for scenarios that require flexibility, such as pipelines in chemical factories and power plants," the authors wrote. Hu said that such a strong, lightweight, thermally insulating biodegradable material could have a host of future uses. It could be used to build skyscrapers, to manufacture cars, even protect heat-sensitive electronics, whether on Earth or in space.

Khan, Amina, This is 'nanowood,' a new invention that could greatly reduce humanity's carbon footprint, <http://www.latimes.com/science/sciencenow/la-sci-sn-nanowood-20180309-story.html>, March 9, 2018

## Westin Spins Linens Into Pajamas for Children

For children, a successful night's sleep includes the three Bs: bath time, books and bed. This nightly routine can have a positive impact on their well-being and overall development. But, what happens when children don't have access to the basics?

Aligned with Westin Hotels & Resorts' six pillars of well-being—sleep well, eat well, move well, feel well, work well, play well—the brand's team resolved to create a better night's rest, while supporting sustainability goals and children in need.

Called Project Rise: ThreadForward, the project was born out of a call-to-action to associates to identify and present ideas that could make a difference on-property and in the community.

"About a year-and-a-half ago, we launched a new brand position, Let's Rise, and it builds upon Westin being the leader in hospitality and pursuing well-being on the road with programs throughout," said Brian Povinelli, SVP, global brand leader, Westin Hotels & Resorts.



"We were really looking to add a complement to it. How do we turn this idea of Let's Rise into giving back? That was the impetus for the Project Rise: ThreadForward initiative. We wanted it to be driven by associates at the hotels and the community. We

went out with a challenge to associates and asked what initiatives were happening in their properties and what opportunities did they see."

There was strong feedback from Westin's properties and more than 300 ideas were presented. "It was extremely rewarding to see what our hotels were already doing, get all that content back and then announcing the winner," said Povinelli.

Westin partnered with the World Sleep Society for the fact-based impact this effort could have in communities; Delivering Good for the distribution of the pajamas; and Clean the World, a social enterprise with deep roots in the hospitality sector and, more significantly, dedicated experience in the recycling and repurposing of used materials for hotels.

Guests also will have an opportunity to participate in the program by purchasing the pajamas at Westin.com. A portion of the proceeds from the sales will go toward continuing to support the service project. Povinelli noted that the brand is firmly committed to the program's success, focusing on raising its visibility, strengthening the retail component and fueling further investment in the initiative.

"Project Rise is now a foundational pillar of the Westin brand, and we continue to find ways to engage associates and build on their ideas," the executive concluded.

Little, Corris, <https://www.hotelbusiness.com/hb-exclusive-westin-spins-linens-into-pajamas-for-children/>, March 14, 2018

## UPS to add electric delivery trucks to fleet

UPS plans to deploy 50 electric delivery trucks as part of its fleet of brown vehicles, a move it expects could give a boost to adoption of electric vehicles across the industry. UPS said the trucks—which it is partnering with electric vehicle manufacturer Workhorse Group to design—will be comparable in cost to regular trucks, without any subsidies. The electric delivery trucks are expected to have a range of about 100 miles between charges, which UPS said is enough for many of its city delivery routes.

The company plans to test the vehicles on urban routes in Atlanta—mostly downtown, as well as in Dallas and Los Angeles, with the potential for a larger fleet starting in 2019. The company has about 35,000 diesel or gasoline trucks that are about the same size and used on routes short enough for the range of the electric vehicles. Scott Phillippi, a senior director of maintenance and engineering at UPS, said he thinks UPS'

size "can drive the industry for adoption," and that its partnership with companies is "basically a stamp of approval for other companies to adopt that technology."

The electric trucks are expected to be cleaner and quieter, with an operation cost less than similar diesel or gasoline-fueled trucks. UPS previously partnered with Workhorse on projects such as a test of a package delivery by drone from a truck, and already has some Workhorse vehicles in its fleet.

By working with the company on design of the new trucks, UPS expects to take advantage of composites to lighten

the vehicles and add safety features like collision mitigation, emergency braking and cameras, Philippi said. "It's an economic benefit and an environmental benefit at the same time," he said. Along with charging infrastructure to reduce range anxiety, "That's where we need to be to start seeing large-scale adoptions."



UPS says it operates one of the largest private fleets of alternative fuel and advanced technology fleets in the United States, including electric, hybrid, ethanol, natural gas and propane vehicles. It already has about 300 electric vehicles and 700 hybrid electric vehicles as part of roughly 9,000 alternative fuel and advanced technology vehicles in its "Rolling Lab" fleet. UPS also recently pre-ordered 125 electric Tesla Semi trucks. But the prospect of getting the cost of electric delivery trucks down to a level comparable to conventional trucks is an industry first, according to UPS.

Workhorse Group CEO Steve Burns said his company's goal is "to make it easy for UPS and others to go electric by removing prior roadblocks to large scale acceptance such as cost." By 2020, UPS aims for a quarter of its new vehicles purchased to be alternative fuel or advanced technology vehicles. Ultimately, the rolling laboratory approach means that not all of the alternative fuel vehicles may end up in mass deployment. But, "it gives us the ability to make better decisions," Philippi said.

Yamanouchi, Kelly, UPS to add electric delivery trucks to fleet, Atlanta Journal-Constitution, Houston Chronicle, February 22, 2018

## The Battery Boost We've Been Waiting for Is Only a Few Years Out

**Batteries that power our modern world are expected to get a jump in storage capacity of 30% or more**

The batteries that power our modern world—from phones to drones to electric cars—will soon experience something not heard of in years: Their capacity to store electricity will jump by double-digit percentages, according to researchers, developers and manufacturers.

The next wave of batteries, long in the pipeline, is ready for commercialization. This will mean, among other things, phones with 10% to 30% more battery life, or phones with the same battery life but faster and lighter or with brighter screens. We'll see more cellular-connected

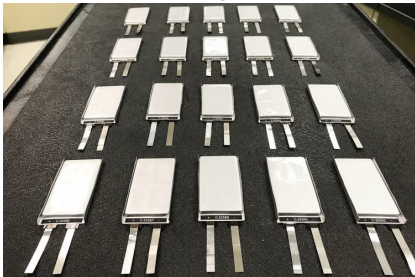




wearables. As this technology becomes widespread, makers of electric vehicles and home storage batteries will be able to knock thousands of dollars off their prices over the next five to 10 years. Makers of electric aircraft will be able to explore new designs.

There is a limit to how far lithium-ion batteries can take us; surprisingly, it's about twice their current capacity. The small, single-digit percentage improvements we see year after year typically are because of improvements in how they are made, such as small tweaks to their chemistry or new techniques for filling battery cells with lithium-rich electrolyte. What's coming is a more fundamental change to the materials that make up a battery.

First, some science: Every lithium-ion battery has an anode and a cathode. Lithium ions traveling between them yield the electrical current that powers our devices. When a battery is fully charged, the anode has sucked up lithium ions like a sponge. And as it discharges, those ions travel through the electrolyte, to the cathode. Typically, anodes in lithium-ion batteries are made of graphite, which is carbon in a crystalline form. While graphite anodes hold a substantial number of



lithium ions, researchers have long known a different material, silicon, can hold 25 times as many.

The trick is, silicon brings with it countless technical challenges. For instance, a pure silicon anode will soak up so many lithium ions that it gets "pulverized" after a single charge, says George Crabtree, director of the Joint Center for Energy Storage Research, established by the US Department of Energy at the University of Chicago Argonne lab to accelerate battery research.

Current battery anodes can have small amounts of silicon, boosting their performance slightly. The amount of silicon in a company's battery is a closely held trade secret, but Dr. Crabtree estimates that in any battery, silicon is at most 10% of the anode. In 2015, Tesla founder Elon Musk revealed that silicon in the Panasonic-made batteries of the auto maker's Model S helped boost the car's range by 6%.

Now, some startups say they are developing production-ready batteries with anodes that are mostly silicon. Sila Nanotechnologies, Angstrom Materials, Enovix and Enevate, to name a few, offer materials for so-called lithium-silicon batteries, which are being tested by the world's largest battery manufacturers, car companies and consumer-electronics companies.

For Sila, in Alameda, CA, the secret is nanoparticles lots of empty space inside. This way, the lithium can be absorbed into the particle without making the anode swell and shatter, says Sila Chief Executive Gene Berdichevsky. Cells made with Sila's particles could store 20% to 40% more energy, he adds. Angstrom Materials in Dayton, OH, makes similar claims about its nanoparticles for lithium-ion batteries.

Dr. Crabtree says this approach is entirely plausible, though there's a trade-off: By allowing more room inside the anode for lithium ions, manufacturers must produce a larger anode. This anode takes up more space in the battery, allowing less overall space to increase capacity. This is why the upper bound of increased energy density using this approach is about 40%. The big challenge, as ever, is getting to market,

says Dr. Crabtree.

Sila's clients include BMW and Amperex Technology, one of the world's largest makers of batteries for consumer electronics, including both Apple's iPhone and Samsung's Galaxy S8 phone.

China-based Amperex is also an investor in Sila, but Amperex Chief Operating Officer Joe Kit Chu Lam says his company is securing several suppliers of the nanoparticles necessary to produce lithium-silicon batteries. Having multiple suppliers is essential for securing enough volume, he says.

The first commercial consumer devices to have higher-capacity lithium-silicon batteries will likely be announced in the next two years. A wearable is expected to be first. Other companies claim a similar timetable for consumer rollout.

Enevate produces complete silicon-dominant anodes for car manufacturers. CEO Robert Rango says its technology increases the range of electric vehicles by 30% compared with conventional lithium-ion batteries.

BMW plans to incorporate Sila's silicon anode technology in a plug-in electric vehicle by 2023, says a company spokesman. BMW expects an increase of 10% to 15% in battery-pack capacity in a single leap. While this is the same technology destined for mobile electronics, the higher volumes and higher safety demands of the auto industry mean slower implementation there. In 2017, BMW said it would invest €200 million (\$246 million) in its own battery-research center.

Enovix, whose investors include Intel and Qualcomm, has pioneered a different kind of 3-D structure for its batteries, says CEO Harrold Rust. With much higher energy density and anodes that are almost pure silicon, the company claims its batteries would contain 30% to 50% more energy in the size needed for a mobile phone, and two to three times as much in the size required for a smartwatch. The downside: producing these will require a significant departure from the current manufacturing process. To get beyond what's possible with lithium-silicon batteries will require a change in battery composition—such as lithium-sulfur chemistry or solid-state batteries. Efforts to make these technologies viable are at a much earlier stage, however, and it isn't clear when they'll arrive.

Meanwhile, we can look forward to the possibility of a thinner or more capable Apple Watch, wireless headphones we don't have to charge as often and electric vehicles that are actually affordable. The capacity of lithium-ion batteries has increased threefold since their introduction in 1991, and at every level of improvement, new and unexpected applications, devices and business opportunities pop up.

Amplifications: Sila Nanotechnologies produces nanoparticles that contain silicon and other components, but don't include graphite. A previous version of this article incorrectly described nanoparticles as a graphite-silicon composite.

Mims, Christopher, The Battery Boost We've Been Waiting for Is Only Few Years Out, The Wall Street Journal, March 18, 2018

## Day Zero in Cape Town Cape Town faces Day Zero: what happens when the city turns off the taps?

In a few weeks engineers will turn off water for a million homes as this South African city reacts to a one-in-384-year drought. The rich are digging boreholes, more are panic-buying bottled

water and the army is on standby.

The head of Cape Town's disaster operations center is drawing up a plan he hopes he never has to implement as this South African city on the frontline of climate change prepares to be the first in the world to turn off the water taps. "We've identified four risks: water shortages, sanitation failures, disease outbreaks and anarchy due to competition for scarce resources," says Greg Pillay. "We had to go back to the drawing board. We were prepared for disruption of supply, but not a no-water scenario. In my 40 years in emergency services, this is the biggest crisis."

The plan—being drawn up with the emergency services, the military, epidemiologists and other health experts—is geared towards Day Zero, the apocalyptically named point when water in the six-dam reservoir system falls to 13.5% of capacity. At this critical level—formerly forecast for 16 April—piped supply will be deemed to have failed and the city will dispatch teams of engineers to close the valves to about a million homes—75% of the city. "It's going to be terrifying for many people when they turn on the tap and nothing comes out," says Christine Colvin, freshwater manager for WWF and a member of the mayor's advisory board.

In place of piped water, the city will establish 200 water collection points, scattered around the city to ensure the legally guaranteed minimum of 25 liters per person per day within 200 meters of every citizen's home. This will be a major burden on municipal coffers. The estimated cost of installing and running the new system for three months is 200m rand (£12m). Instead of selling water, it will be given away for free, which will mean R1.4bn in lost revenue. "The total city budget is R40bn, so this won't destroy us, but it will cause severe discomfort," says the deputy mayor, Ian Neilson, who adds that he has not had a bath at home for a year. "A bigger concern is to ensure the economy doesn't collapse. We need to keep business and jobs going. Clearly, there could be a severe impact. It depends on how long it continues."

Neilson stresses that Day Zero can be avoided. A lowering of pipe pressure and a public information campaign to conserve water have cut the city's daily water consumption from 1,200 million liters to 540 million liters. If this can be pushed down another 25%, the taps should stay open to the start of the rainy season in May. But this is no guarantee. Three consecutive years of drought have made a mockery of normal seasonal patterns. "We're in a critical transition period where the past is no longer an accurate guide to the future," says Colvin.

She illustrates her point with two maps. One—based on historical data—shows the water risk of Cape Town is green, meaning it is among the lowest in South Africa. The other—based on future climate projections—is almost the complete opposite, with the city located in a middle of an alarming red heat zone. "What we didn't know was when that future would arrive," says Colvin. "Businesses and investors have heard the long-term projections, but they haven't heard the starting gun go off. If this drought can pull the trigger, then that could be a good thing. If this is seen as a pressure test for the new normal, it will help us to adapt."

The government has struggled to keep pace. Plans to make the city more resilient to climate change by diversifying the water supply with boreholes and desalination plants were not due to kick in until after 2020. But the climate has moved faster, bringing a drought so severe it would usually be expected only once every 384 years. One side of the lake is now a desert. Devoid of life, this is

a landscape of sand dunes, cracked earth and dead trees. It takes more than 30 minutes' walk under a burning sun to reach the last pool of water, which is barely wide enough to skim a stone across. In what looks like a dark failure of evolution, it is ringed by the carcasses of stranded fish. On the other side, by the dam wall, the water is nearly 10 meters deep, but the shoreline is receding at the rate of the 1.2m a week, leaving the bed exposed to the sun. The afternoon winds once attracted sail boats; now they whip up white dust storms that envelope much of the valley.

"The change is visible by the week," said Paul Furst-enburg, restaurant manager at



Theewater sports club. "When I arrived here four years ago, it was like a sea," he says, pointing to photographs on the walls of high waves crashing up to the car park during a storm and dozens of boats sailing in regattas. Now, the shoreline is more than 100m back and one of the three small vessels left in the water is stranded on a sandbank. The club—which would normally be thronged with sailors, water-skiers, swimmers, campers and fishermen—is almost empty. The revenue has dried up too, leaving the 20 staff worried about their futures. "This has gone from a holiday resort to nothing," says Errol Nichols, the safety officer. "It has become a desolate place."

In Cape Town itself, the population is jittery. "We're scared," says Amirah Armien as she queues to fill a couple of bottles at the spring beside Newlands Brewery. "Water is life. What are we going to do without water?" After a run on bottled water last month, supermarkets introduced limits for each customer. Hardware shops have sold out of water tanks and pool covers. Borehole drillers are now so overwhelmed with requests that there is a year-long wait. Even dehumidifiers—which are being marketed as "water from air" devices—are out of stock. "People are freaking out," said David Gwynne-Evans, a botanist. "You go to the shops and see people buying 20 bottles of water. It's a ridiculous increase of disposable plastic."

He believes Cape Town's vineyards bear a large share of blame because they are water-intensive, yet they have continued to expand during the drought. "Wine is a luxury. We shouldn't be using water for that, yet even now new vineyards are opening."

Many hotels have removed the plugs from rooms so guests must have a shower rather than a bath. Blue droplet-shaped signs above office toilet sinks remind users "Conserve H2O. Use sparingly." There are more signs in the cubicles, which are divided into "No. 1" and "No. 2" toilets to ensure maximum efficiency. Some shopping malls have turned off the taps and installed hand-sanitizer dispensers. Joggers who go out at 5 am hear the 'phut phut' of sprinklers being used to water lawns before most people are awake,

At an individual level, the learning curve has been steep. Civic-minded Capetonians have become accustomed to showering—or just lading hot water—in a baby bath that collects the run-off so that it can be used in first, the washing machine, and then the toilet. A major topic of conversation for Capetonians is how many liters they use and how long they can go



without washing their hair or flushing. “I’ve never talked about toilets so much,” says Fiona Kinsey, a young office worker. “Last year, we were discussing whether it was OK to wee in a public toilet and not flush. Now we are way beyond that.”

Shame is used to maintain discipline. An online water consumption map allows neighbors to check on each other’s usage. Some sports clubs have installed buzzers on their showers that embarrass people who linger under the water for more than two minutes. There is a positive aspect to this sudden shock. Many people are happy to see a greater awareness of conservation and consumption inequality. Social activists say the rich are experiencing what life has always been like in poor townships, where many residents are used to lining up at standpipes.



For residents of informal Cape Town settlements, collecting drinking and washing water from a communal tap has been a daily routine for many years. Using washing water to flush the toilet is what people in townships do all

the time. So is washing with buckets and scuttles. “I had my first shower when I was in my 20s.” Dee Watson, a teacher, describes the situation as a “euphoric stage” in which most people are looking out for others in a positive way. “What’s amazing is to mix and talk in the queue with every strata of society. We all need water so it brings people together,” says Watson. “For now at least, most people are laughing and joking. But it’s scary that some people are being greedy and panic-buying.”

There have been acts of benevolence. At the start of the drought, Newlands spring—where water flows freely from underground—was a site of mud, crowds and chaos as people jostled to get at the taps and informal laborers competed to carry water for tips. “People were getting hurt,” remembers Riyaz Rawoot, a local resident who says he spent R25,000 from his own pocket to organize the spring with the construction of multiple access points and provision of uniforms for the water carriers.

“I’m not making any money. I just want to be of service. Until now it has been fun, but it is becoming more stressful as more people come,” he says. “I’m worried about Day Zero. People are scared and they don’t trust the government, so they might panic and try to get water any way they can.”

Neighbors are already unhappy that their previously quiet street is now a hive of activity, with people carrying water containers in squeaky shopping trolleys back and forth from the spring to cars parked along the main road. “It’s a nightmare,” says one of the residents of the Cresswell House senior citizens’ community. “They come all through the night. It’s so noisy, we can’t sleep.”

At the other end of the income spectrum, there are worries. The government has promised that standpipes will continue to flow in informal settlements after Day Zero, but there is skepticism in the Kanini neighborhood of the Langa township. The one pipe that serves 20 families tailed off here last Thursday without explanation. Some locals feel they are being punished because of a public outcry about the waste at a street car-washing center at the neighboring settlement of Joe Slovo.

Maintaining social programs will also be a challenge. City officials say hospitals and prisons will run as normal because

they have access to aquifers, but questions remain about 819 schools, half of which do not have boreholes. There would be sanitation risks if their toilets were unable to flush, but the authorities insist they will remain open. “The objective is no school closures. We don’t want kids on the street compounding issues,” says deputy mayor Neilson.

“This isn’t going to be martial law. It will be low profile,” says JP Smith, an alderman responsible for safety and security. “There might be some trouble about people cutting queues, but I don’t foresee a big increase in crime. The bigger problem will be congestion.”

While the debate rages about what will happen, who is to blame and whether the city will be drawn together or pulled apart, Pillay and his colleagues at the disaster risk management office are obliged to prepare for the worst—something other cities may soon be obliged to do.



“We don’t want to create panic. We can avert Day Zero,” he says. “We had hoped that rainfall would replenish the dams, but it hasn’t happened. What this signaled to me was that climate change is reality. If you doubted it before, you can’t now.”

Note: As of today, 19May18, Day Zero has been postponed until 2019 and data show dam levels rising elsewhere in the country as is water usage.

Watts, Jonathan, Cape Town faces Day Zero: what happens when the city turns off the taps?, <https://www.theguardian.com/cities/2018/feb/03/day-zero-cape-town-turns-off-taps>, February 3, 2018

## 4 Tips for a Brilliant Buffet

Originating in 16th-century Sweden when a smorgasbord was laid out alongside shots of schnapps at celebrations, the buffet line has long dominated F&B lineups at events. Whether the setting is formal or casual, the appeal of a buffet is simple: You can accommodate a large number of guests without having to serve everyone at seated tables. Try these four classic and contemporary tips for maximizing your buffet.

**Start with the basics.** Large gatherings can be awkward if attendees don’t know one another, come from similar cultures or speak the same language. A classic buffet move is to set up the food table to lead traffic toward the bar. Better yet, a four-sided buffet/bar table combo makes mingling easier and has room for internal shelving for drink storage.

**Incorporate human interaction.** “People like to see their food being prepared and interact with the chefs,” says Margaret Teskey, president of Taste Catering & Event Planning. A popular option is sous



vide cooking, where food is prepared in a precise, temperature-controlled water bath, then seared on a hot grill or skillet to finish. "People are wowed by this technique; it's so simple, but super impressive to watch."

**Put a twist on tradition.** Teskey likes to create multilevel surfaces by placing smaller shelves atop the buffet. This increases serving capacity without sacrificing space. To up the wow factor, consider using a mini table made of ice for a cocktail hour buffet. It will keep the glasses and mixers cold all night.

**Use food carts for deliveries.** This idea is borrowed from dim sum service in Chinese restaurants and eliminates the need for servers replenishing chaffing dishes. A planner for an insurance company recently used this option for a breakfast buffet of 40 guests. An egg dish was prepared in cast-iron skillets to retain heat and then wheeled over to the buffet table.

Deinzer, Erin Caslavka, 4 Tips for a Brilliant Buffet, [connectyourmeetings.com/feature/4-tips-brilliant-buffet/](http://connectyourmeetings.com/feature/4-tips-brilliant-buffet/) August 31, 2017

## COMFORT AND JOY

### Experts weigh in on how to improve HVAC for efficiency and guest comfort

Walk into the DoubleTree by Hilton in London, ON, CN and you'll see a contemporary lobby with clean lines and muted shades, stunning light fixtures, and similarly modern suites, all of which were made possible by a recent \$10-million renovation. Likewise the Holiday Inn Ottawa recently underwent a \$9 million renovation, and it has a new cozy look meant to attract families and make them feel at home. Among these upgrades is something you might not immediately notice—the new heating, ventilation and air conditioning (HVAC) system, chosen for guest comfort, reliability and energy efficiency.

There are numerous types of HVAC systems available on the market today, including the traditional packaged terminal air conditioner (PTAC), a type of self-contained heating and air conditioning system commonly found in hotels and motels, and the vertical terminal air conditioner (VTAC) which can be installed inside a small closet instead of protruding from under the window the way a PTAC does. Newer types of HVAC are constantly being developed to address energy efficiency, make a smaller impact on the environment and improve guest comfort.

There are numerous HVAC manufacturers and suppliers on the market servicing hotels, including NRG Equipment, Carrier Enterprise and Enercare Commercial Services. Each offers a wide range of items to address energy efficiency, room automation, guest comfort and other concerns.

**WHY UPGRADE?** - Sometimes, as with the DoubleTree London and Holiday Inn Ottawa, hotels upgrade the HVAC as part of a renovation. Other times, they improve inefficiencies or respond to customer complaints if the rooms are not up to date.

"Hotel operators have to update their equipment to maintain their expenses," says Jaqueline Manitaros, vice-president, Business Development and Marketing at NRG Energy Inc. "An inefficient PTAC could be costing them money. In addition, as an operator, should you have a full house, you want all rooms to be in operation."

"Guest comfort, reliability and energy efficiency are the primary drivers," says Scott Beneteau, general manager at Enercare. "Through social media and numerous travel-rating

websites, guests often comment if the room temperature and air quality do not meet their expectations. Upgrading to new technologies and implementing a common-sense building-controls system addresses all three of those drivers. Properly conditioned air delivered reliably will ensure repeat business and positive reviews, which will ultimately drive maximum occupancy."

**ENERGY-EFFICIENCY DEVELOPMENTS** - Felix Seiler, Chief Operating Officer of Holloway Lodging Corporation, which owns both the DoubleTree by Hilton in London and Holiday Inn Ottawa, along with numerous others ranging from 60 to 350 rooms, says, "Many of the smaller hotels operate with PTAC and VTAC units, and we also replace those with quieter and more energy-efficient systems with remote thermostats."

When choosing HVAC, we look for a decrease in power consumption, more efficiency on both cooling and heating, and newer technologies for electronics and automation," explains Seiler. "We also install motion sensors and heat sensors in rooms to ensure the system only runs when the room is occupied. When installing new HVAC systems in large hotels, we always obtain an engineering opinion to ensure we get the right sized and engineered system," he adds.

Currently, NRG offers new PTACs that are designed to be direct replacements for PTACs that were manufactured 30 to 40 years ago. "Our Perfect Comfort model will be a direct replacement, so the hotel owner receives a new unit with a higher energy efficiency ratio (EER), new components and a quieter sound," says Manitaros. "There is also an option to allow these PTAC units to work on an energy-management system (EMS) to save additional energy costs. We ensure our equipment is manufactured with top-of-the-line internal components, including gasketing material to create an air-tight seal and ensure the PTACs are not always running," she adds.



VTAC

"Increasingly, variable refrigerant flow (VRF) systems are becoming a popular choice with hotels because of the ease of retrofit and the energy efficiency [they offer]," says Beneteau. "These systems consume less electricity than a conventional heat/cool system and require less maintenance over their life."

Douglas Mackemer, director of Parts, Supplies and Specialized Equipment at Carrier Enterprise, agrees with Beneteau about the energy efficiency of VRF, adding, "We are seeing property conversions, renovations and new builds utilizing this technology. Key features are the removal of large condenser farms outside, [which are] taking up ground level and roof level real estate and elimination of separate boilers and cooling towers." VRF also allows simultaneous heating and cooling for individual rooms, he explains.

New refrigerant systems also offer environmentally friendly refrigerant gas. "Older systems use 'R22-type' refrigerant which is a hydrochlorofluorocarbon (HCFC). HCFCs are known to deplete the ozone layer, among other things," says Beneteau. "New systems use 410A, which is said to have no ozone impact." In addition, "technologies such as variable-frequency drives are used to stage fan speeds for high and low usage, and carbon-monoxide sensors to control the on/off operation of exhaust fans can dramatically reduce energy costs," says

Beneteau.

In addition to more energy efficient systems and technologies, Enercare offers programs to help customers understand the energy consumed by their hydronic and HVAC systems.

Our Validation Inspection and Equipment Walk-through (VIEW) program provides a detailed assessment of a building's mechanical system," says Beneteau. "We will identify low-cost, high-impact energy savings options."

**THE AUTOMATED ROOM** - Enercare is investing in a number of state-of-the-art technologies for common and in-suite areas to help improve guest comfort.

"Many operators are surprised at how affordable sensor and control equipment can be." says Beneteau. "The key is how the data from sensors and the building automation system (BAS) is managed. Enercare's solution is to utilize existing (BAS) equipment to keep the cost down, provide low-cost equipment where it makes sense, and provide a managed service that drives actionable intelligence rather than simply send reports or e-mail alerts."

"Especially impactful is the ability to provide directed maintenance where technologies allow for rapid diagnostic and repair of major mechanical equipment, saving energy and extending the useful life of costly equipment," continues Beneteau.

Other options that appeal to hoteliers include remote-control equipment, automatic identification of poor performing equipment, and alerts and alarms when the equipment is not operating properly, says Makemer. Mackemer is keen to explain Carrier's energy-management system, Founten, which interfaces with the hotel's property-management system. "Founten can be deployed without the expense of dedicated servers or special cabling," he explains. "It creates its own redundant self-healing wireless mesh network of communications and provides an evaluation of the performance of equipment operating on the property to target poor performing equipment first. The hotelier can know of an issue [often] before a guest does," says Mackener.

**THE RIGHT FIT** - There are numerous options available for different hotels. For example, small hotels that have limited

space may benefit from installing a more compact unit, such as NRG's 16x26 PTAC model, which operates with 24-volt thermostat capability.

Properties with underground parking tend to consume more energy as a result of the need to circulate large volumes of air, and controls can help manage these costs. Older hotels benefit from upgrading their cooling system from water-cooled to air-cooled, which wastes less water and are much cheaper to maintain.

"Each hotel is unique and the first step is to understand what equipment you have in your building including age, state of repair and what controls systems are available to utilize," explains Beneteau. "Once you know what you have, you can explore technology upgrades that offer the biggest payback."

Chen-See, Sherene, Comfort and Joy, hoeliermagazine.com, June 2017, p. 49-51

## POLLUTION FATALITIES

Pollution is responsible for illnesses that kill one in every six people around the world each year, according to a new landmark report.

*The Lancet*, the world's leading peer-reviewed journal on health, commissioned a study that found toxic air, water, soil and workplace environments kill at least 9 million people annually.



Study authors warn the crisis "threatens the continuing survival of human societies."

Phili Ladriagan, from the Icahn School of Medicine at Mount Sinai, said the scale of deaths from pollution surprised the researchers, as did the rate at which the fatalities were rising.

Earthweek, Houston Chronicle, October 29, 2017

## FINAL WORDS . . .

Every moment is an organizing opportunity, every person a potential activist, every minute a chance to change the world.

Dolores Huerta, social justice advocate