

HYDROPOWER

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the technology, and those backers will soon want to see a prototype in action, Chief Technology Officer Moriel Arango said. “Getting this into the water, for all of us, that’s the most important milestone to hit.”

Arango has help from Roth and another Central Oregon Community College student, Noah Park, who designed a flotation device to house BladeRunner’s generator and power electronics. In other hydrokinetic systems, those components are submerged under water, which drives up the cost, Arango said.

BladeRunner is trying to create a system that could be used in irrigation canals in remote areas, such as southeastern Oregon, or in rivers in South America, where many communities aren’t connected to the national grid, Arango said. At an installed price of

less than \$3,000 per kilowatt, BladeRunner’s main competitor in the United States is solar while in South America, it’s diesel generators, Arango said.

The system has to be easy to install and maintain for people who don’t have access to equipment or power sources, Roth said. He and Park want to build generator housing that would withstand a blow from an entire tree floating downstream.

On top of the technical challenges, alternative energy and hardware startups have to compete for funding from investors who are more interested in the size of returns they see in the software industry, said Vanessa Margolis, portfolio director at VertueLab in Portland.

Formerly called Oregon Best, VertueLab is an economic development organization for clean technology startups.

Arango made a breakthrough with investors in 2017 when he pitched

BladeRunner at the Bend Venture Conference and won the Early Stage competition. The BVC award was \$17,500, and it motivated an angel investor in California to make an even larger investment, he said.

By January, BladeRunner had enough cash that Arango could leave his day job to work for the company full time.

The Bend Venture Conference also led Arango to the Cascadia CleanTech Accelerator. At the end of that program, BladeRunner was awarded a \$55,000 proof-of-concept grant in conjunction with Oregon State University-Cascades.

“We’re so happy to be able to help someone who’s working on such a meaningful project in town,” said Rebecca Webb, energy systems engineering program lead at OSU-Cascades. Her students will take measurements of an irrigation canal bed and make calculations to

help BladeRunner find the place where its device can generate the most energy. Meanwhile energy systems engineering instructor Kyle Webb’s students will work on a microgrid connecting BladeRunner’s system to the power grid.

Arango hopes to run pilot tests in one of Central Oregon’s irrigation canals next year and that more private investment, and ultimately, a commercial product will follow.

BladeRunner wants to have its headquarters, engineering and assembly in Central Oregon, Arango said.

The company’s other two co-founders worked on the project for several years from California before bringing Arango in. Winning at the Bend Venture Conference was a turning point for the company, he said.

“It also showed us there was this warm reception in Oregon to what we were doing.”

BRIEFLY

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development in the last 16 years.”

Winterkorn resigned as VW CEO in 2015 after Volkswagen was caught using illegal software to cheat on U.S. diesel emissions tests.

At Monday’s AGM, Hoeness was confirmed as Bayern’s supervisory board chairman for another four-year term, with former Adidas CEO Herbert Hainer as first deputy chairman and VW chairman Herbert Diess as second deputy chairman.

“We are very happy to have another high-caliber supervisory board,” Bayern chairman Karl-Heinz Rummenigge said.

Bayern recently announced another year of record turnover, 657.4 million euros (\$744.3 million) for the financial year covering the 2017-18 season. But the team, chasing a record-extending seventh straight Bundesliga title, is nine points behind Borussia Dortmund after 15 matches.

Campaign touting Adirondacks as ski destination underway

LAKE PLACID, N.Y. — A new campaign touting the Adirondack Mountains as an Alpine ski destination is underway.

Representatives from seven ski areas in the region are using digital and print campaigns to highlight the diverse terrain and amenities offered throughout the Adirondacks. The ski centers are under one common brand and message on social media — hashtag #SkiADK.

The seven resorts participating are Whiteface Mountain in Wilmington, Oak Mountain in Speculator, Gore Mountain in North Creek, McCauley Mountain in Old Forge, West Mountain in Queensbury, Mount Pisgah in Saranac Lake, and Titus Mountain Family Ski Center in Malone, which was rated the No. 1 family-friendly ski center in North America by Liftopia.

Skiers and riders are encouraged to share their Adirondack adventures on social media using the hashtag.

MYTHS

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Myth 2: Marshmallow predicts future success

The famous “marshmallow test” put a treat in front of preschoolers and promised that if they didn’t eat it, they could have two treats after 15 minutes. Researchers found that preschoolers’ ability to put off eating the marshmallow correlated with academic performance and better stress management when they were older.

Personal finance types

love this research, because it highlights the importance of delayed gratification. Putting off spending today in favor of investing for tomorrow is a key to building wealth.

A study published earlier this year, however, found a much smaller correlation between delayed marshmallow consumption and future success — and most of that was explained by a child’s background.

“Socioeconomic status was heavily tied to one’s ability to delay gratification,” says Tyler W. Watts

, assistant professor of research at New York University’s Steinhardt School of Culture, Education, and Human Development. “It’s easier to delay gratification if your basic needs are met and if you have financial security.”

Myth 3: Willpower is a limited resource

Since 1998, researchers have been finding that our self-control is a limited resource that can be exhausted, a process known as “ego depletion.” If we resist the urge to eat

a chocolate chip cookie, for example, we’re supposed to have less willpower to tackle the next temptation. Rather than relying on self-control when it comes to money, financial advisers tell us to put our saving and investing on automatic so we have fewer choices to make (and potentially screw up).

An attempt by 23 labs to replicate one of the most famous ego depletion studies, however, failed to find the same effects. Meanwhile, researchers from the University of Miami and

the University of Minnesota who reviewed more than 100 published and unpublished studies found little support for the idea that willpower is a finite resource and even some evidence that self-control improves with use.

The idea of ego depletion isn’t quite dead, though. Two large experiments conducted by Texas A&M University researchers and published late last year once again found evidence that using your willpower once leaves you with less of it for the next round.

Common sense to the rescue

When studies collide, consider common sense. Putting saving and investing on automatic can help you accumulate more, without relying on willpower. Automation also sidesteps the delayed gratification issue — you don’t see the “treat,” or the money in your paycheck, since it’s automatically whisked away. And when you do have extra cash, spend it on what makes you happy — not on what anyone else thinks you should want.

BUMP STOCKS

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bacco, Firearms and Explosives sought public comment on the proposal, drawing more than 35,000 comments.

The amended regulations reverse a 2010 ATF decision that found bump stocks did not amount to machine guns and could not be regulated unless Congress changed ex-

isting firearms law or passed a new one. In the aftermath of the Las Vegas shooting, there was a growing push by some members of Congress to ban bump stocks, but no legislation was passed. At least 10 states have sought their own restrictions on the devices.

People who own bump stocks will be required to either surrender them to the ATF or destroy them by

late March, the official said. The change has undergone a legal review and the Justice Department and ATF are ready to fight any legal challenge that may be brought, the official added.

The amended rule was met almost immediately with resistance from gun rights advocates, including Gun Owners of America, which said it would file a lawsuit against the Justice

Department and ATF in order to protect gun owners from the “unconstitutional regulations.”

“These regulations implicate Second Amendment rights, and courts should be highly suspect when an agency changes its ‘interpretation’ of a statute in order to impair the exercise of enumerated constitutional rights,” the organization’s executive director, Erich

Pratt, said.

Police said the gunman in the Las Vegas massacre, Stephen Paddock, fired for more than 10 minutes using multiple weapons outfitted with target scopes and bump stocks. Paddock fatally shot himself after the shooting and there were 23 assault-style weapons, including 14 fitted with rapid-fire “bump stock” devices, strewn about the room near his body on

the floor of his 32nd-floor hotel suite at the Mandalay Bay casino-hotel.

The largest manufacturer of bump stocks, Slide Fire Solutions, announced in April that it was going to stop taking orders and shutting down its website. The remaining stock of the devices is now being sold by another company, RW Arms, based in Fort Worth, Texas.

RECESSION

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offs. The Dow Jones Industrial Average plunged nearly 32 percent in 2008 after the housing bubble burst. And it shed more than 5 percent in 2001 when the tech stock bubble burst. But stocks also declined in 2002 — a year when the U.S. economy expanded.

The fact is that the stock market captures just a piece of the broader U.S. economy. Less than half of U.S. households even own any stock, according to New York University economist Edward Wolff. And more than 80 percent of the stock market’s value is controlled by the richest 10 percent of households, according to his calculations.

The bulk of most Americans’ net worth is derived from a different asset: Their homes.

How bad is the stock market decline?

It’s painful. But Wall Street has endured far worse sell-offs.

Year-to-date, the Dow has lost about 5 percent — just a small fraction of its 2008 plunge. And the recent losses follow an extraordinary winning streak: From its bottom in March 2009, the Dow has rocketed 250 percent. This means that investors who have held on have earned a rich profit — even including the losses since October.

That said, the decline of the past two months has been severe — about 12 percent. This means the market

has entered “correction” territory, commonly defined as a decline of at least 10 percent.

What’s behind the economy’s strength?

Look to the job market. The 3.7 percent unemployment rate is near a half-century low. Average hourly wages have climbed 3.1 percent in the past 12 months, the strongest such increase since 2009.

The solid employment picture has helped fuel consumer spending. Retail sales have grown 5.3 percent so far this year as more Americans have eaten out and shopped online, according to the Census Bureau.

The jobs market is also where to watch for signs of a recession. Ahead of the 2008 financial crisis, the monthly hiring levels swung from gains to losses and unemployment shot up. The Labor Department issues a weekly report on people applying for unemployment benefits. A sustained increase in such applications would signal that employers are shedding workers in anticipation of a downturn.

Does the housing market point to a recession?

A: This is tricky. By some measures, like the Census Bureau’s report on home construction, the housing market never really recovered from the meltdown of a decade ago. As a result, housing has contributed relatively little to the economic recovery, which makes it less likely to be a major force

that tips it into a recession.

What has generally recovered are average home prices. Home sales prices have been steadily rising faster than Americans’ average wages for the past few years, according to the National Association of Realtors. This made some homeowners wealthier. But it also reduced affordability of homes for many would-be buyers.

Until this past year, homebuyers had been helped by historically low mortgage rates. But mortgage rates began to creep up last year as it became clear that Trump’s tax cuts would swell the federal budget deficit. Mortgage rates generally move in sync with 10-year Treasury notes. As the average 30-year mortgage rate has risen 4.63 percent from 3.93 percent a year ago, sales of homes have fallen.

Are the fed’s rate hikes a risk for recession?

A: The Federal Reserve

has become a punching bag for Trump as the stock market has tumbled. The Fed is widely expected to raise its key short-term rate for the fourth time this year on Wednesday, which would likely further raise borrowing costs for consumers and businesses over time.

The Fed is raising rates to try to keep inflation at its 2 percent annual target while maximizing employment. But if it miscalculates and raises rates too high or too fast, history suggests it could trigger a recession.

Compounding the risk is that the Fed is also paring the huge bond purchases on its books, which resulted from the trillions in Treasury and mortgage bonds it bought to help the financial system recover from the 2008 financial crisis. Doing so magnifies the upward pressure on borrowing rates for consumers and businesses.

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