

IS AN ELITE UNIVERSITY WORTH IT?

Our panel of experts looks at whether there really is a payoff in attending a top college. **C2**

JEDI DRAMA INSIDE THE PENTAGON

A little-known entrepreneur is holding up a \$10 billion federal cloud computing contract. **C6**SECTION **C**

The San Diego Union-Tribune

SUNDAY • MARCH 24, 2019

BUSINESS

**SUN
DAY**

NEW SDG&E RATES MAY VARY FOR ROOFTOP SOLAR

Usage plan switch for some customers has stipulations

BY ROB NIKOLEWSKI

San Diego Gas & Electric is rolling out "time of use" rates that will eventually affect the monthly bills for about 750,000 of the utility's residential customers.

But will the switch affect the nearly 155,000 residential customers who have rooftop solar systems on their homes?

Yes, but the full answer is complicated.

The vast majority of solar customers will eventually move to time of use rates but some have the option to stay on a more traditional tiered-rate structure that is considered more financially attractive than time of use — it all depends on how long ago they activated their rooftop solar systems.

"It really varies on the residential side," said Edward Randolph, the Energy Division Deputy Director for the California Public Utilities Commission, which has directed the state's investor-owned utilities to adopt time of use rates, also known as TOU. "That's why (solar customers) need to contact their utility to find out their exact circumstance."

And circumstances have been changing quickly in California's energy landscape.

Many customers — those with solar installations as well as those without — had just gotten used to the latest iteration of tiered rates and adopting TOU means a transition to a different pricing plan.

Under tiered pricing, cus-
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NELVIN C. CEPEDA U-T

Dustin Gardner surveys a section of a site in Mission Bay where old buildings and structures are giving way to new development. Laser beams scan a space a million times a second to capture the exact distances.

FIRM HAS SHAPED SAN DIEGO THROUGH THE DECADES

Technology and rules have changed, but Rick Engineering still plotting out plans in county

BY ROGER SHOWLEY

San Diegans may take pride in how their skyline has blossomed in recent decades, but the untold story is what made possible those pretty buildings.

Or as Roger Ball, president of Rick Engineering put it, "Architects get all the glory and we make it work."

From the construction of Mission Bay in the 1950s to the pending redevelopment of SDCCU Stadium into SDSU West, Rick Engineering has been at the forefront of planning the county's roads and freeways, neighborhoods, parks, shopping centers, waterworks and landscapes.

The company's first few decades of work took place in the colored pencil and blueprint era. The earliest computers in the 1970s and '80s required piles of keypunch cards and 10 hours of mainframe computing time to spit out what today is a simple calculation that takes seconds to perform.

But technology without street smarts can turn the nerdiest engineer into a laughing stock.

Jayne Janda-Timba, who oversees the company's water resources division, recalls one newbie who insisted that a curb was 3 feet tall because that's what his computer screen showed. It was 3 inches and he was reading the scale wrong.

"I just gave up (after 20 minutes) and walked away," she said.

Rick Engineering was founded in 1955 by Glenn Rick, who as San Diego city's first planning director in 1928 oversaw the implementation of

Rick Engineering

Founded: 1955

Headquarters: Mission Valley

Rank: 1st in terms of licensed engineers on staff, according to the San Diego Business Journal's annual report on engineering firms.

Workforce: 310, with half in San Diego County and the rest at nine other offices around the state and in Arizona, Colorado and Nevada; 65 percent are women and minority group members.

Key projects of the past: Mission Bay; numerous subdivisions and master-planned communities, such as La Costa, Lomas Santa Fe, Carmel Valley, Rancho Bernardo, Scripps Ranch, Liberty Station, Chula Vista

Current projects: SDSU West, Civita, Chula Vista bayfront, water resources master planning

the Massachusetts landscape architect John Nolen's 1908 and 1926 master plans for San Diego. Nolen laid out the key thoroughfares that became freeways after World War II, San Diego's bayfront, the location of key parks and public buildings and a zoning code that separated housing from industry and commerce — a concept now giving way to mixed-use development and transit-oriented development.

Several teams of young and old Rick engineers took a few hours recently to explain what they do and how their profession has morphed from manual labor to space-age tech.

Surveying

Engineers can't do a thing until they know where imaginary boundaries lie. That's the job of surveyors. On Pat McMichael's side table is a mini-museum of relics from surveying in its pre-computer days — devices that George Washington might have recognized in his first career as a colonial surveyor.

McMichael, who oversees Rick's survey staff, has a length of metal tape measure marked in tenths of inches; a transit or small telescope to determine the angles of a slope; and a three-quarters-inch metal disk that's pounded into the sidewalk to mark a property line.

But in San Diego's earliest days, boundaries were commonly described by natural landmarks like trees, creeks and boulders. When current landowners want to build a fence, they might land in court because their neighbors dispute the loca-

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LIZ WESTON

Money Talk

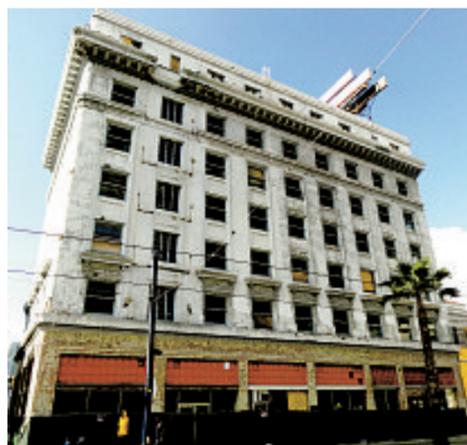
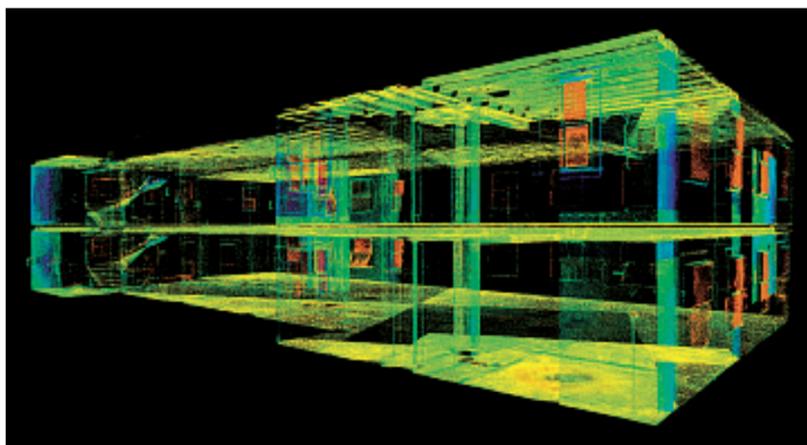
Questions to ask before using savings to pay off student debt

Dear Liz: I'm wondering whether I should use part of my emergency fund to pay off student loans. I currently have \$15,000 in an emergency fund to cover three to six months of my living expenses and owe \$18,000 in federal student loans. I've been feeling the itch to pay off a chunk of my student loans to reduce the amount of years (and interest) I have to keep paying. I'd like to use \$5,000 to \$6,000 of my emergency fund to put toward the loan. For context, I'm already contributing 15 percent to my 401(k) and have no other debt.

Answer: First of all, well done. The fact that you have any emergency fund puts you ahead of the game, plus it's great that you're also saving for your retirement and avoiding credit card debt.

There are a few things to consider before using savings to pay down your loan. "Prepaying" a student loan is different from paying down credit cards. Reducing credit card debt typically frees up additional credit that you could use in an emergency. Paying down credit card debt also can help your credit scores by reducing your "credit utilization," or the amount of your available revolving credit that you're using. Extra money sent to a student loan lender, by contrast, can't be clawed back

SEE DEAR LIZ • C5



RICK ENGINEERING PHOTOS

Rick Engineering employed 3D laser scanning in 2009 to uncover the original location of concrete and wood framing and joists (left) in the Hotel Churchill before the \$20.6 million restoration began on the historic building in downtown San Diego (right). Contractors used the laser scans to design the new bedrooms and bathrooms without running into conflicts with the original 1914 structural system.

HOT JOB MARKET COAXING PEOPLE OFF OF THE SIDELINES

Defying predictions, 80% of 'prime-age' workers employed

BY CHRISTOPHER RUGABER

A surprisingly strong burst of job growth over the past year has led many economists to wonder: Where are all the workers coming from?

As recently as last spring, analysts had worried that hiring would slow as the pool of unemployed shrank. Many employers have complained for years that they could no longer find enough people to fill their open jobs.

"Turns out they were both wrong.

The pace of hiring in 2018 was the most robust in three years, and for a surprising reason: Many more people have decided to look for work than experts had expected. The influx of those job seekers, if sustained, could help extend an economic expansion that is already the second-longest on record.

The growth in America's workforce — made up of people either working or looking for work — has helped reverse an alarming consequence of the recession: The exit of millions of Americans from the job market.

For five years after the Great Recession ended in 2009, many Americans gave up on their job hunts. Some suffered from disabilities. Others enrolled in school or stayed home to raise chil-

dren. Still others were stymied by criminal pasts or failed drug tests. Some just felt discouraged by their job prospects. Because they weren't actively seeking work, they weren't even counted as unemployed.

Economists had speculated that millions of these people lacked necessary qualifications or were otherwise deemed undesirable by employers and might not work again. They were thought to be, in economic parlance, "structurally" unemployed. Subsequent hiring wouldn't necessarily help them.

Yet for the past few years it has. The proportion of Americans ages 25 to 54 who have a job has reached nearly 80 percent — the same as before the recession. Economists refer to this age group as "prime-age" workers. It excludes older Americans who have retired and younger workers who may be in school.

"The U.S. is a very diverse and dynamic economy and can often surprise us," said Julia Coronado, chief economist at MacroPolicy Perspectives. "This is a positive surprise. We're due for one."

Research released Thursday by Stephanie Aaronson, an economist at the Brookings Institution, and three other economists found that racial minorities and people with less than a college degree tend to benefit most from strong job growth when the unemployment rate is al-

ready low.

That it took nearly a decade for the proportion of prime-age Americans who have jobs to reach its pre-recession level shows just how ruinous the Great Recession was. It destroyed 8.7 million jobs. And the recovery that followed was comparatively sluggish.

Still, the unemployment fell steadily, from 10 percent to 4.1 percent at the start of 2018. With so few people unemployed, businesses have increasingly begun recruiting more widely, including among people who hadn't been looking for work.

"Economists were too quick to discount what the economy was capable of going forward," said Martha Gimbel, research director at job listings site Indeed.

Other factors that have held some people back from seeking work have included the high cost of child care and a lack of paid leave. Research suggests that such costs have held back the workforce participation rate of prime-age U.S. women, a rate that trails those in most other industrialized countries.

Child care costs delayed the return of Valerie Regas of Atlanta to the job market after she gave birth to her second child in 2012. Regas wanted to go back, but most of the jobs she found didn't pay enough to cover child care. So she remained mostly out of the job market for five more years.

After completing a coding boot camp, Regas was hired last year by a division of the European aerospace giant Airbus. The company initially wanted someone with more experience, she said. But after she pitched them on her enthusiasm and willingness to learn, she was hired as a software programmer.

"Even with the exorbitant cost of child care, I am now bringing home real money," said Regas, 36.

Many companies are relaxing their education or experience requirements, according to economists and staffing agencies. They are considering more applicants with disabilities. Businesses are expanding their training programs. Some, analysts say, are also looking with a more open mind at people with criminal backgrounds.

Partly as a result, the number of people who either have a job or are looking for one grew 1.6 percent in 2018, sharply higher than the average annual gain of 0.4 percent in the first five years after the recession.

The rebound has confounded many experts' projections. The Federal Reserve has consistently underestimated the likelihood of more people finding jobs. In 2013, its policymakers estimated that "full employment" — the lowest point to which unemployment was thought capable of reaching without sparking higher inflation — would ar-

rive when the unemployment rate was between 5.2 percent and 5.8 percent.

Unemployment is now 4 percent, with little inflation in sight.

And in 2014, the Congressional Budget Office forecast that the proportion of people ages 16 and up either working or looking for work — often called the participation rate — would be just 62.5 percent by the end of 2017 and would decline thereafter. Instead, the figure reached 63.2 percent in January, a five-year high.

Though the participation rate remains below its 2000 peak of 67.3 percent, most of the decline has resulted from aging, economists say. The huge baby boomer generation is retiring en masse.

"The performance of labor force participation over the last really three or four years has been an upside surprise that most people didn't see coming," Fed Chairman Jerome Powell said Wednesday.

"That tells us that there is more room to grow," Powell said last month.

If more Americans are available to work, it means companies won't necessarily have to raise pay so fast to hire people, a trend that helps limit inflation.

Average pay is still growing more slowly than it did the last time unemployment was this low. Adam Ozimek, an economist at Moody's Analytics, says this suggests that there is still room for

companies to raise pay and perhaps entice even more people into the job market.

Women, it turns out, have returned to the workforce in greater numbers than men have. The proportion of prime-age women in the labor force is now higher than before the recession. And for women ages 25 through 34, participation is at an 18-year peak.

By contrast, prime-age men still lag behind their pre-recession level of participation. But Ernie Tedeschi, an economist at Evercore ISI, says the reasons aren't as discouraging as they were five years ago.

In 2013, disability or illness accounted for nearly half the decline in prime-age men in the workforce since the recession, according to data compiled by the Federal Reserve Bank of Atlanta. But unemployment among the disabled fell last year to its lowest point in a decade. The government has also made it harder to obtain Social Security disability benefits. Now, disability or illness accounts for less than 10 percent of the shortfall.

And men returning to school now account for about a third of the decline in prime-age men in the workforce since the recession. Family responsibilities, mostly the raising of children, make up about a quarter.

Rugaber writes for The Associated Press.

FIRM • Environmental regulations have changed over the years

FROM C1
tion of the boundary line.

His colleague, Brian Laird, said today's surveyors tap into the global positioning system, or GPS, linked to satellites and employ lasers to measure distance.

"One of the big differences and challenges, especially in California, in surveying physical features is California is moving," Laird said. "It moves north and west a couple of centimeters a year."

And so surveyors have to reconcile the on-the-ground conditions with the GPS coordinates.

McMichael's crews are currently surveying a section of a site in Mission Bay where old buildings and structures are giving way to new development. Laser beams scan a space a million times a second to capture the exact distances.

An even more fantastic tool is LIDAR (light detection and ranging), a laser system that penetrates buildings, trees and other obstructions to produce a 3D image in minutes. Coming next is augmented reality that can simulate a place using high-tech goggles and a laptop. Then come robots that can do the work automatically.

"But it's still going to take a human to interpret that survey," Laird said. "The downside is we're maybe a little farther away from the everyday work."

Water resources

Water resources manager Janda-Timba pulled out a 1990s set of blueprints of the Fashion Valley south-side parking garage — the one that floods when a heavy rainstorm swells the San Diego River at Camino de la Reina and Avenida del Rio.

The blueprints are filled with handwritten markings and notations to denote where and how high floodwaters flow through the narrow channel that cuts between the mall and the property of the Town & Country Hotel. The findings were used to design the garage so that the floodwaters would be contained within the first level of the garage. That explains why the floor-to-ceiling height is so much greater than between the second



Dustin Gardner (left) and Paul Knox of Rick Engineering use a data collector to compile the measurements they collected using laser technology to create a topographic map.

and third level.

Traditionally, engineers measured widths and depths in the field and worked out the calculations by hand. Then came hand calculators and mainframe computers that still took many hours to generate the necessary calculations. Now the results can be done instantly without ever setting foot in the field.

In the meantime, regulations have been tightened.

"I don't know if we could do that today," she said, since it's no longer permitted to let waters flow through a garage and carry oils and other pollutants out to sea.

The preferred method of handling floodwaters is to capture the overflow and its pollutants in retention basins, bioswales and other devices before entering the storm drains.

One of Janda-Timba's project managers, Andrew Thies, can fire up GIS mapping software from ESRI —

those are abbreviations for geographic information systems and the Environmental Systems Research Institute — to work out the solution. And that comports with his personal priorities.

"It's my passion — I like going to the ocean and going surfing," he said.

Civil engineering

Rick president Ball joined seven-year employee Salvador Galvan to compare past and present civil engineering techniques and challenges. One of the biggest changes from decades ago is what engineers are no longer allowed to do. They can't wipe out natural habitat to build an artificial harbor (as was done at Mission Bay). They can't bulldoze rare and endangered plants to make way for a roadway — as would have been done for a future recreational vehicle park at the Chula Vista bayfront.

Bottom line: Civil engineers can build almost any-

thing, given enough time and money, but the question these days is whether they should be allowed to do it.

Ball said the goals are laudable, but mitigation can greatly increase costs on a property-by-property basis.

"We are making such a minute, insignificant impact that until it is done across the entire spectrum, it means nothing," he said. The alternative is to approach such issues across a wider, multi-property-owner basis and charge a proportionate share of the total cost.

When it comes to a single large property such as SDCCU Stadium, Rick's client, San Diego State University, faces far more stringent requirements to redevelop the site than when the stadium was built in the 1960s.

"Right off the bat, you have the San Diego River to deal with," Galvan said.

Flooding from the river and nearby creek needs to be managed to steer clear of the

office buildings, apartments, hotels and new stadium planned for the 132-acre site. That will require raising the footprint of the new buildings above the floodplain by moving dirt from one part of the site to another.

Transportation to and from the site will have to reflect the daily comings and goings of SDSU students, just not the occasional crowds at sporting events. That means improving Friars Road and freeway ramps to accommodate more daily traffic patterns. Room also will need to be made to accommodate the multibillion-dollar San Diego Trolley's Purple Line as it stops at the stadium on the way north and south on Interstate 805.

Planning and landscape architecture

San Diego is a manmade paradise, thanks to the region's landscape architects who picked the plants, spotted the park sites, laid out

scenic highways and beautified the bayfronts, riverbanks, creeks, canyons and lakesides.

"In the early 20th century, planning and landscape architecture were one," says Patricia Traub, Rick's landscape architecture lead.

But terraforming the landscape to mimic lush conditions back East is no longer considered acceptable in arid places like San Diego.

"We kind of ignored nature for a long time," Traub said. "In the 30 years I've been practicing, there's been a pretty dramatic change, and cultural change, for communities."

What were considered "weeds" are now native plants. Sand and soils had been analyzed to determine what could best grow in them. Drainage, water conservation, natural habitat and other details took center stage. An example can be seen outside Lindbergh Field's Terminal 2 parking garage; Rick's landscaping plan called for natives, not bluegrass.

Along the coast, fear of landslides along the cliff line prompts owners to build 50 to 100 feet back from the edge, said Brian Moore, the company's planning lead. They also know that overwatering can weaken the cliff face and hasten erosion.

A new threat is sea level rise, caused by a warming climate and melting glaciers and ice caps. Rick is taking that into account as it works on the Chula Vista bayfront redevelopment.

"We're in uncharted territory how much to raise up a site," Traub said.

Mooney also noted that northern Baja California is growing rapidly, even as San Diego nears a zero-population-growth rate in coming decades.

"The region has to include Tijuana," he said. "That's where we're seeing growth happening," whether it's from immigration from other parts of Mexico and Central America or from San Diegans choosing to live in a less expensive place."

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Supervisor Pat McMichael displays surveyors tools from precomputer days in his office — a transit (left) for measuring angles and a cloth measuring tape (right).

