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Houston Regional Group

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December 13, 2019

Oil & Gas EIS Project
Mr. Robert Potts
Natural Resources and Planning Team Leader
National Forests and Grasslands in Texas
2221 North Raguet
Lufkin, Texas 75904

Dear Rob,

The Houston Regional Group and Lone Star Chapter of the Sierra Club (Sierra Club) provide this eighth set of comments for scoping for the U.S. Forest Service (FS) oil/gas leasing environmental impact statement (OGLEIS) under the National Environmental Policy Act (NEPA) for the National Forests and Grasslands in Texas (NFGT).

Although the official scoping period is over, the Sierra Club will continue to send the FS documents and articles that relate to the OGLEIS. The Sierra Club has been told in the past that although there is an official scoping comment period, that scoping extends from the beginning of the scoping comment period until the draft EIS is released. There are additional articles that the Sierra Club provides to the FS with this letter.

1. "Index signals Houston economy slowing", Erin Douglas, Houston Chronicle, December 13, 2019.

This article documents how oil/gas can slow the Houston economy and others who depend on it when it goes through its "boom and bust" cycle.

2. "Billions more in subsidies for carbon capture may be needed", James Osborne, Houston Chronicle, December 13, 2019.

Carbon capture is one option the FS should discuss in the OGLEIS as a way to reach a zero foot-print emissions state to combat climate change that occurs from oil/gas exploitation in the NFGT.

3. "BLM pulls back on Utah leases to do climate reviews", Brian Maffly, The Salt Lake Tribune, December 11, 2019.

This article emphasizes that the potential impacts of fossil fuel development on climate change must be analyzed under the NEPA.

"When we try to pick out anything by itself, we find it hitched to everything else in the universe." *John Muir* ¹

4. "Arctic Report Card Update for 2019, Executive Summary, J. Richter-Menge, M.L. Druckenmiller, and M. Jeffries, National Oceanic and Atmospheric Administration, December 6, 2019.

The Arctic is warming quickly thus documenting how climate change is occurring much faster than anticipated.

5. "Experts agree: Houston's economy will slow with energy next year", Erin Douglas, Houston Chronicle, December 9, 2019.

Due to a fall in the oil/gas economy due to oversupply the Houston Area will have a slower economy in 2020.

6. "Output from non-OPEC oil producers to climb", Jordan Blum, Houston Chronicle, December 9, 2019.

This article documents that the oversupply of oil will continue due to increased output of oil from a variety of countries.

7. "Spanish oil giant's net-zero goal puts U.S. companies to shame on climate", Chris Tomlinson, Houston Chronicle, December 8, 2019.

The need for net-zero operations by oil companies is emphasized here to reduce climate change impacts.

8. "Energy industry's roughnecks go digital", Sergio Chapa, Houston Chronicle, December 8, 2019.

This article emphasizes that the oil/gas industry is going toward more computerization which eventually will result in fewer jobs.

9. "OPEC + to cut another 500K barrels a day", Jordan Blum, Houston Chronicle, December 7, 2019.

This article documents in an attempt to stabilize oil prices OPEC will cut production again in an oversupply market which has driven the price of oil down.

The Sierra Club appreciates this opportunity to provide these additional initial scoping comments about the OGLEIS. Thank you.

Sincerely,

A handwritten signature in black ink, reading "Brandt Mannchen". The signature is fluid and cursive, with the first name "Brandt" and last name "Mannchen" clearly distinguishable.

Brandt Mannchen
Forest Management Issue Chair
Lone Star Chapter of the Sierra Club
Chair, Forestry Subcommittee
Houston Regional Group of the Sierra Club
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BUSINESS

HOUSTON CHRONICLE • FRIDAY, DECEMBER 13, 2019 • SECTION B ★★

● **DOW:** 28,132.05, up 220.75 (0.8%) | ● **S&P:** 3,168.57, up 26.94 (0.9%) | ● **OIL:** \$59.18, up .42¢ (0.7%) | ● **NATURAL GAS:** \$2.328, up 0.085¢ (3.81%)

Index signals Houston economy slowing

It's first contraction since Harvey in 2017

By Erin Douglas
STAFF WRITER

Houston's economy last month showed signs of contracting for the first time in more than two years.

The Houston Purchasing Manager's Index, a well-regarded gauge of economic activity in the region, showed that the local economy pointed toward shrinking in November. It's the first time the indicator has shown that goods production contracted since Hurricane Harvey, which left 200,000 homes and businesses flooded, knocked out power for more than a quarter-million customers and caused an estimated \$30 billion in damage.

The index, which measures the direction of Houston's economy by predicting likely shifts in production three to four months in advance, registered 46.9 in November, down 4.2 points from October. Readings above 50 generally indicate an expansion; readings below 50 indicate a contraction in goods production, a leading indicator for the local economy.

It's calculated based on survey responses from local executives reporting prices, production, sales and inventories. Excluding the drop from Harvey, this is the first time the index has fallen below 50 in three years.

"This underscores everything else we've seen in the economy — the slowdown in construction, trade is barely up, and the slowdown in oil and gas," said Patrick Jankowski, an economist with the Greater Houston Partnership, a business-financed economic development group. "I don't see a recession in the numbers, but I see much slower growth than everyone would like it to be. The first two quarters (of 2020) are going to be the roughest."

Still, economists cautioned that it's a sign from just one month — and that while the falling index might be concerning, it's not quite low enough to indicate full-blown contraction. The PMI, said Jesse Thompson of the Federal Reserve Bank of Dallas, would need to be further into the low 40s for the local economy to really begin shrinking.

"The PMI is a very good real-

Proposed deal with China on trade gets Trump's OK

By David J. Lynch
WASHINGTON POST

WASHINGTON — President Donald Trump on Thursday approved a proposed U.S.-China trade deal, raising hopes for a possible truce in a 24-month commercial conflict that has rolled financial markets, disrupted corporate supply chains and cost taxpayers tens of billions of dollars.

At a White House meeting with

Markets' reaction

» The S&P 500 and Nasdaq closed at all-time highs. **Page B3**

his top trade advisers, the president signed off on a swap of U.S. tariff reductions in return for China spending \$50 billion on U.S. farm goods, tightening its intellectual property protections and opening its financial services mar-

kets, according to Michael Pillsbury, a China expert at the Hudson Institute, who says the president briefed him on the deal Thursday.

"It's a breakthrough," Pillsbury said. "He says it's historic. I certainly agree with that."

The limited accord caps a roller coaster negotiation that brought the two countries to the brink of success more than once this year, only to see talks stall. Diplomats from the world's two largest econ-

omies have been working against a Sunday deadline, when new U.S. tariffs on \$360 billion in Chinese goods were scheduled to take effect.

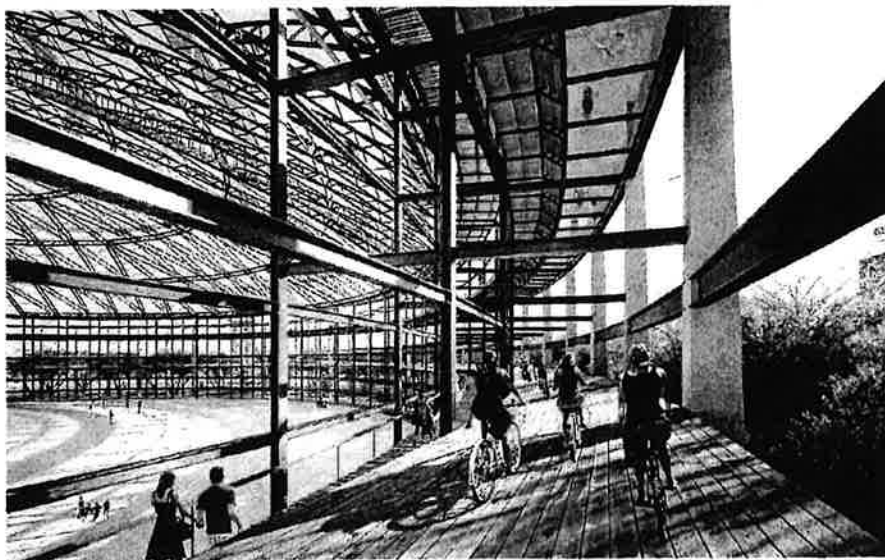
That increase now will not go forward, and existing tariffs on \$360 billion in Chinese imports will be reduced, according to Pillsbury and others familiar with the arrangement. The deal includes provisions that will penalize the

China deal continues on B7



A-Dome Park is a proposal to convert the Astrodome into a walking, jogging and cycling space.

Architect's dream: Pool atop the Astrodome



groomsmen, family members, Joshua Thomas, Blake Campbell and Sean Mayberry and many other dear relatives and friends.

Her husband, Willie Earl Thomas preceded her in death.

DR. BEN THARP 1955-2019

Dr. Ben Tharp, beloved husband, friend and brother in Christ, suddenly passed away on Tuesday, December 10. He was a well loved and respected Houston veterinarian at Voss Rd Animal Clinic and elder at Katy Bible Church for numerous years. His absence will be felt by family and friends including his wife, Mary Ellen of nearly 40 years, his siblings Ed, Marty, Betsy, Nancy, his three children, Katie, Benjamin, and Carra, and his four grandchildren. His funeral will be on Saturday, December 14 at 10am at Kingsland Baptist Church 20555 Kingsland Blvd, Katy, TX 77450. Flowers can be sent to Kingsland or a donation can be made in honor of Dr. Ben Tharp to Christian Veterinary Mission www.cvm.org.

Memorial Oaks Funeral Home



13001 Katy Freeway
Houston, TX 77079
(281) 497-2210

Condolences may be offered at
www.memorialoaksfuneralhome.com

chron.com/obits

services beginning at 9:30 A.M. All services will be held at Trinity Baptist Church, 5590 Van Fleet St.



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ODDIE PARKS LOCKETT, SR. 1928-2019



Oddie Parks Lockett, Sr., expired (Saturday) November 30, 2019. Visitation will be held (Saturday) December 14, 2019 from 9-9:55 a.m. Service at 10:00 a.m. Both services will be held at Holman Street B.C., 3501 Holman St., Pastor Marston B. Johnson, Shepherd/Teacher, Interment, Houston Memorial Gardens.



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CEMETERY LOTS

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water developments. Anchor is southwest of New Orleans and 140 miles off the Louisiana coastline.

Chevron and its minority partner in the project, the French energy major Total, said they have reduced the project costs by one-third from the last generation of deep-water Gulf developments by using standardized designs and equipment specifications instead of designing projects from scratch and customizing

components.

Total also said it is proceeding with engineering and design work on developing its North Platte field in the deep-water Gulf, which would include building a new floating production platform. This could be the next big Gulf project after Anchor, although it won't be fully authorized until 2021 with its minority partner, the Norwegian company Equinor.

Louisiana-based LLOG

Exploration may opt to proceed with its Shenandoah project - another high-pressure development - next year, before construction begins at North Platte. Both the North Platte and Shenandoah fields also are in the inboard lower tertiary region.

As for the Anchor field, it is located in the Green Canyon area of the Gulf within the lower tertiary. The first stage of the Anchor development consists of building

West Texas' booming Permian Basin and the big Tengiz oil field in Kazakhstan. Chevron owns nearly 63 percent of the Anchor project, while Total holds just more than 37 percent.

Other major Gulf projects currently under construction include BP's Mad Dog Phase 2 development and Royal Dutch Shell's V1 to project.

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CARBON

From page B1

ployment is a pretty big price tag," said John Minge, the former chairman of BP America. "There's not a lot of capture right now. Some new projects have been announced, but people are holding off."

Former Energy Secretary Rick Perry asked the council to undertake the 18-month study, bringing together more than 300 participants from the oil sector, academia, environmental groups and government agencies, to explain why, despite efforts by Democratic and Republican administrations, carbon capture technology has yet to catch on.

"We have proven beyond

any doubt we can grow our economy, develop our energy and make our environment cleaner all at the same time," new Energy Secretary Dan Brouillette, Perry's former deputy, said at a National Petroleum Council meeting Thursday. "Using (carbon capture) technologies, we can and we will drive emissions down even further."

Only 19 carbon capture facilities are operating in the world. Most are in the U.S., where federal tax credits pay \$35 or \$50 for every ton of carbon dioxide captured - depending on whether it is pumped underground or stored in nonpotable aquifers.

The NPC report recommends increasing those credits to \$90 per ton within

the next decade and then to \$100 within the next 25 years. The aim is to eventually be able to capture 10 percent of carbon emissions - about 500 million tons per year - a 20-fold increase over current operations.

Were the government to adopt that plan, it would cost more than \$650 billion, the NPC estimates.

With wind and solar energy technology now competing with coal and natural gas in some electricity markets, many environmentalists have questioned the need for carbon capture at all.

Their thinking: If you switch to renewables and don't burn fossil fuel, you don't need to spend money capturing emissions.

"If you're going to spend billions - or trillions! - to prevent climate disaster,

why spend it on an experimental scheme to clean up coal instead of proven, zero-carbon, renewable technology?" Paul Rauber, a senior editor at the Sierra Club's magazine, wrote in 2014.

But scientists working for the U.N. have said the world is too reliant on oil and coal to stop burning it altogether and that carbon capture will be essential to reaching net zero carbon emissions by 2050 and avoiding a potentially devastating temperature increase.

"It's deep decarbonization," said Minge, the former BP America chairman. "Some people will say, 'Why do it now?' You need to do it now to grow the value chain and all the infrastructure."

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BUSINESS

CHINA DEAL

From page B1

Chinese government if it fails to place the required agricultural orders.

As of Thursday evening in Washington, the Chinese government had issued no official confirmation of a deal.

Still, the so-called phase one agreement leaves the thorniest issues in the U.S.-China trade dispute to future negotiations, which are scheduled to begin next year. China's massive subsidies for state enterprises and its practice of forcing foreign companies to surrender technology secrets in return for access to the Chinese market will be the subject of phase two of the talks.

Pillsbury recounted that the president told him in a late-afternoon phone call that Trump anticipates those talks continuing past the November 2020 election. Pillsbury serves as an occasional outside adviser to the president.

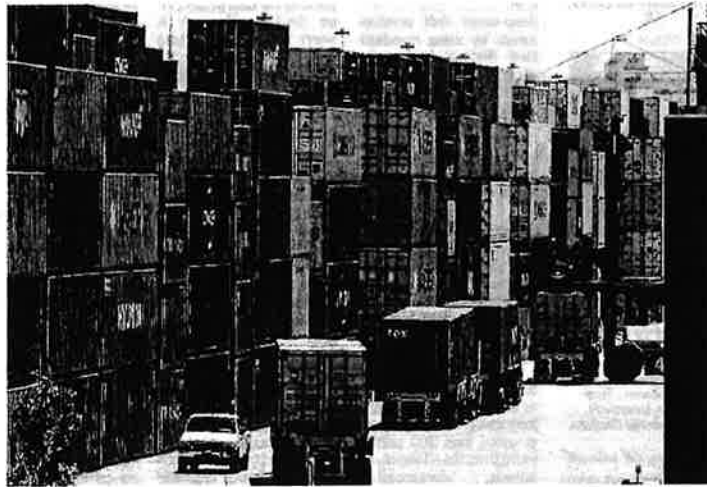
For Trump, the China deal is part of a sudden flurry of policymaking that has dazzled official Washington in the past week, as House Democrats are advancing plans to impeach him next week.

This week alone, the administration has reached deals with lawmakers to provide federal workers with 12 weeks of paid parental leave, establish a new military branch called Space Force, revise a proposed North American trade deal and broker a budget deal that would prevent a government shutdown this month.

"It's very ironic: In some ways, this has been the best week of Trump's presidency, and it's happening at the very moment impeachment is reaching its crescendo," said Stephen Moore, who advises Trump on economic policy and visited the White House for policy discussions this week. "It's been revealed by their actions that the strategy was to go on a policy offensive as a way to play defense against impeachment, and it's made Trump look unfazed by this."

Plans for announcing the deal, including whether an official text will be made public, remain in flux. The administration has said it does not intend to seek congressional approval of the agreement.

"The deal is essentially done. The mechanics of how you execute it and how you get it signed still have to be worked out," said one person briefed on the White House's deliberations who requested anonymity because they were not authorized to speak to



Associated Press file photo

As the U.S.-China trade war escalated, costs mounted. Manufacturers petitioned the White House for permission to continue importing tariff-free Chinese parts they depended on.



New York Times file photo

President Donald Trump began imposing tariffs on Chinese imports in March 2018, and China retaliated.

the media.

Under one scenario, Robert Lighthizer, the president's chief trade negotiator, and Chinese Ambassador to the U.S. Cui Tiankai could sign the document as soon as Friday. Alternatively, Lighthizer and Treasury Secretary Steven Mnuchin could travel to Beijing for the signing.

Administration officials expect that Trump will benefit politically from sealing a deal with China. His decision to confront Beijing over its discriminatory trade practices was backed by business and farm groups that had felt the sting of Chinese behavior. Trump began imposing tariffs on Chinese imports in March 2018 in an effort to pressure Beijing to overhaul its

state-dominated economy. Chinese leaders retaliated, halting purchases of U.S. farm products, in a bid to pressure some of Trump's strongest supporters.

As the trade war escalated, costs mounted. Assembly lines were disrupted, as manufacturers petitioned the administration for permission to continue importing tariff-free Chinese parts they depended on to operate. In August alone, more than 10,000 workers were laid off, collateral damage from the trade war's salvos. To mollify farmers, a politically potent constituency that lost lucrative Chinese sales, Trump doled out \$28 billion — an amount that was more than double the 2009 rescue of the auto industry.

Some were unimpressed with Thursday's news.

"It is unclear that much will really be gained from the deal other than partially unwinding some of the disruptions created earlier this year while leaving other uncertainties in place," economists at J.P. Morgan told clients.

Business leaders who have grown anxious for relief from the trans-Pacific tariff war welcomed the development. "That is excellent news. It puts a floor under the deterioration in the relationship," said Craig Allen, president of the U.S.-China Business Council.

Myron Brilliant, executive vice president of the U.S. Chamber of Commerce, said the deal would benefit American manufacturers and farmers. "It's an important

first step, but just a first step," he said. "There is more work to be done."

Several people close to the talks said the administration had not shared with them the text of the deal, which they described as an "agreement in principle." Trump two months ago said he had reached "an agreement in principle" with China and expected to commit the terms to paper within a few weeks.

Even before a formal presidential decision to proceed, Republican critics of the phase one agreement sounded the alarm.

Sen. Marco Rubio, a Florida Republican and member of the Senate Foreign Relations Committee, warned against settling too quickly with Beijing. "@WhiteHouse should consider the risk that a near-term deal with #China would give away the tariff leverage needed for a broader agreement on the issues that matter the most such as subsidies to domestic firms, forced tech transfers & blocking U.S. firms access to key sectors," Rubio tweeted.

Derek Scissors, a China hawk with the American Enterprise Institute and occasional administration adviser, accused the president of rushing to make a deal. "This timing is really weird," Scissors said. "Technically, there's been a deal on the table for the president to sign for some time. What's changed is they think the president will say 'yes.'"

Early Thursday, Trump teased

investors with word of a potential deal with China, sending the stock market briefly higher amid optimism about a breakthrough in the lengthy standoff.

"Getting VERY close to a BIG DEAL with China," the president tweeted shortly after Wall Street opened. "They want it, and so do we!"

The Dow Jones Industrial Average quickly rose more than 300 points, or roughly 1 percent, within the first hour of trading as financial markets cheered the prospect of a phase one deal with China. The market later surrendered some of its gains, though, and closed at 28,320.05, up almost 22 points, or 0.8 percent.

The emerging deal would fall well short of the president's initial goal: a comprehensive settlement of U.S. complaints about subsidized Chinese state businesses and trade secrets theft.

The president has often suggested that the two sides were close to a deal, only to see negotiations stall in the past. In April, Trump said the White House and Chinese negotiators were within weeks of an "epic" deal. The next month, talks collapsed amid U.S. charges that Beijing had reneged on a tentative bargain.

Progress with China comes as the White House is celebrating victory on another front in Trump's trade wars. This week, House Democrats agreed to support a revised version of a new North American trade deal, which the president had signed last year with Mexico and Canada.

House Speaker Nancy Pelosi, D-Calif., backed the agreement after securing amendments that toughened enforcement of labor and environmental standards. The modified accord also dropped an extension of patent protections for a class of new drugs known as biologics, which Democrats said would lead to higher prescription drug prices.

The new U.S.-Mexico-Canada Agreement is expected to reach a House vote next week and clear the Senate early next year. Once approved by the legislatures in each country, it will supplant the 1994 North American Free Trade Agreement, which Trump has called "our country's worst trade deal."

The bipartisan cooperation on trade is occurring even as House Democrats move forward with plans to impeach the president over his demand that Ukraine announce an investigation of one of his political rivals before receiving \$391 million in congressionally authorized military aid.

LIFE TRIBUTES

DEBORAH J. THOMAS

1951-2019

"God looked around his Garden and found an empty place. He put his arms around you and lifted you to rest. His Garden must be beautiful, he always takes the best."

Our mother, Mrs. Deborah Joyce Thomas peacefully entered into Eternal rest, December 6, 2019. Left with memories of her precious legacy are her sons, Shannon Mayberry (Aileen) and Shannon Thomas (Erica); sister, Stephanie Mayberry; and grandchildren, Ashlee Mayberry.



The Celebration of Life Service will be Saturday, December 14th, 11:00 A.M. Visitation will be prior to service beginning at 9:00 A.M.

DRILLING

From page B1

energy research firm Wood Mackenzie.

Justin Rostant, an analyst at Wood Mackenzie, said the project marks a major milestone for high-pressure technology in the Gulf and the wider offshore industry. The next wave of higher-pressure projects are located within the Gulf in an area known as the inboard lower tertiary region, to the west of most existing deep-



Luke Sharrett / Bloomberg

A Chevron platform in the Gulf of Mexico is shown. The company calls its Anchor project the first-ever high-pressure development in the deep-water Gulf.

a semi-submersible floating production platform and drilling a seven wells. The project is expected to come online in 2024.

The Anchor project is designed to produce up to 75,000 barrels of crude oil and 28 million cubic feet of natural gas per day. The total potentially recoverable oil-equivalent resources for Anchor are estimated to exceed 440 million barrels.

Earlier this week, Chevron listed the Gulf as its third-highest funding priority heading into 2020 after

BUSINESS

Social Security benefit proposal might cut disability payments

By Alfred Lubrano
TRIBUNE NEWS SERVICE

PHILADELPHIA — The Trump administration is proposing changes to Social Security that could terminate disability payments to hundreds of thousands of Americans, particularly older people and children.

The new rule would change aspects of disability reviews — the methods by which the Social Security Administration determines whether a person continues to qualify for benefits. Few recipients are aware of the proposal, which is open for public comment through January.

Critics of the plan liken it to the administration's efforts to cut food stamps, among other entitlement programs, with insufficient information offered to explain curtailing benefits.

Social Security officials declined to comment. For years, Republicans have argued that Social Security benefits need to be reined in to save money.

The new rule, advocates for low-income Americans say, is just a way to push people off the disability rolls.

"I have serious concerns about this proposed rule," said U.S. Sen. Bob Casey, D., Pa., adding that it "appears to be yet another attempt by the Trump administration to make it more difficult for people with disabilities to receive benefits."

In a similar vein, U.S. Rep. Brendan Boyle, D-Pa., said, "These changes seem arbitrary, concocted with no evidence or data to justify such consequential modifications. This seems like the next iteration of the Trump administration's continued efforts to gut Social Security benefits."

Typically, Americans who are too physically and/or mentally impaired to work may be eligible for one of two kinds of benefits:



The new rule would change aspects of disability reviews from the Social Security Administration.

Social Security Disability Insurance (SSDI) or Supplemental Security Income (SSI).

While SSDI is for people who have worked at least 10 years, SSI is for low-income recipients who have seldom, if ever, been employed.

More than 16 million Americans receive either SSDI (8.5 million) or SSI (8 million). SSI benefits can run to \$770 a month; SSDI payments, which are based on lifetime earnings, can range from \$800 to \$1,800 monthly, government figures show.

Merely getting benefits is an extraordinarily difficult task, often taking years and requiring applicants to compile reams of documents, then state and restate their cases in front of hearing officers, adjudicators, and judges.

Those already receiving disability benefits are subject to so-called continuing disability reviews, which determine whether they are still deserving of compensation for an injury, illness, or other incapacitating problem as their lives progress.

Not everyone gets reviewed within the same time frame. A person with a grave illness such

as Lou Gehrig's disease (ALS) is placed in a category called "Medical Improvement Not Expected," and is subject to review every five to seven years.

A low-birth-weight baby, on the other hand, is categorized as "Medical Improvement Expected," and the case is reviewed every six to 18 months, because growth and change are anticipated, Romig said.

A third category is "Medical Improvement Possible."

All three categories are based on existing medical standards meant to help officials decide whether benefits are still warranted, said Kate Lang, senior attorney at Justice in Aging, a Washington-based nonprofit that focuses on health benefits for low-income older adults.

The proposed rule change would create a fourth category: "Medical Improvement Likely," which would mandate disability reviews every two years, creating an additional 2.6 million reviews over the first 10-year period.

An estimated 4.4 million beneficiaries would be included in that designation, many of them children and so-called Step 5 re-

cipients, an internal Social Security classification, said Jennifer Burdick, supervising attorney with Community Legal Services in Philadelphia.

When applicants try to receive disability benefits, they either have one of a list of specified medical impairments, or they suffer from a combination of disabilities that make working difficult or impossible, Burdick said. The latter group are Step 5 and are entitled to SSI or SSDI benefits, according to federal law.

They are typically 50 to 65 years of age, in poor health, without much education or many job skills. They often suffer from maladies such as debilitating back pain, depression, a herniated disc, or schizophrenia.

The inclusion of Step 5 people in the "Medical Improvement Likely" category appears to make little sense, advocates for recipients say.

Medical conditions generally deteriorate as already unhealthy people age, and no evidence exists that such beneficiaries are "likely" to improve, Burdick said.

Labeling them that way is "a radical departure from past practice," she said. "There's no medical or scientific basis to say they'll get better."

Compelling Step 5 recipients to be reviewed every two years shows "a hostility toward the basic Social Security Act, which takes a holistic view of the individual," said Jonathan Stein, a former Community Legal Services attorney who is working with Burdick.

He said he believes the ultimate aim of the rule is to review Step 5 recipients so often that they ultimately lose their benefits because of the difficulties complying with the review process.

"There's an underhandedness to this," Stein said. "It's ideological, not based on medicine or science."

ECONOMY

From page B4

ries have cut back. Producers have pulled more than 270 drilling rigs from operation in oil and gas fields since the start of the year, a 25 percent decline.

For Houston, that's meant fewer jobs in the energy sector. Employment in mining and logging, which in Texas is dominated by the oil and gas industry, was down 1.4 percent in the second quarter from last year, according to the Federal Reserve Bank of Dallas. The Houston PMI, a more recent indicator, showed that health care was the only sector that grew in November. Oil and gas, manufacturing, transportation and utilities, and professional services respondents all reported contracting economic activity, according to the Institute for Supply Management, which produces the index.

While Houston's economy is more diverse now than perhaps during the 1980s oil bust, energy still makes up 9 percent of the local economy, according to the Greater Houston Partnership, and other sectors, such as manufacturing, are heavily tied to the health of the energy sector. More than a quarter of manufacturing jobs in the region are tied to oil and gas. Already, some manufacturers, which account for about 17 percent of the Houston economy, have reported cutting back or shuttering operations as a result of the energy slump.

"The energy industry has really had a tough time," Thompson said. "The access to credit is really tight, and the cheap money is gone. This is nothing like 2015, but it's still negative for the industry."

Another sign of what's come for Houston comes from the Federal Reserve Bank of Dallas. The Dallas Fed's index of leading indicators, based on data such as manufacturing orders, home sales and the U.S. rig count, recently pointed toward lower growth in the near future.

Still, the Dallas Fed's measure of the local economy, the Houston business-cycle index, shows the economy was growing at an annual rate of 2.7 percent this year through October, down from an average pace of 3.2 percent.

Job growth slows

Houston also had much weaker job growth in the second quarter than earlier estimates suggested, an analysis by the Dallas Fed found. Economic data is often revised after it is first released because the earliest data available is not comprehensive and based on smaller samples.

Job growth from the start of 2019 through October was 1.4 percent over the prior year, the Dallas Fed calculates, slower than the historic average of 2.1 percent.

Local economists agree that Houston is likely to see weaker job growth in 2020.

Bill Gilmer, economist and director of the Institute for Regional Forecasting at the University of Houston's Bauer College of Business, forecasts that the local economy will add around 62,000 jobs next year. Jankowski of the GHP puts it lower, at 42,300. Both would be a slowdown from what

FAA boss to Boeing CEO: Back off Max news

By Dominic Gates
TRIBUNE NEWS SERVICE

Federal Aviation Administration chief Steve Dickson met with Boeing CEO Dennis Muilenburg at FAA headquarters in Washington, D.C., on Thursday to tell him to pull back on public statements about an imminent return to service for the 737 Max.

Meanwhile, American Airlines announced that with the Max's return already slipping by at least another month, it's pushing the Max out of its schedule until early April.

Boeing has repeatedly said it expects FAA clearance for the Max to fly commercially again by year end. Dickson on Wednesday said publicly that the schedule for approving a return to service had slipped into 2020.

Dickson called for the meeting, also attended by new Boeing



Boeing CEO Dennis Muilenburg has said Boeing expects FAA clearance for the Max to fly again by year end.

ule that is not realistic due to delays that have accumulated for a variety of reasons," the email states. "More concerning, the Administrator wants to directly address the perception that some of Boeing's public statements have been designed to force FAA into taking quicker action."

"The Administrator wants to make clear that both FAA and Boeing must take the time to get

mented to Muilenburg "that Boeing's focus should be on the quality and timeliness of data submissions for FAA review."

"He made clear that FAA's certification requirements must be 100% complete before return to service," the email states. "In terms of timeline, he reminded Mr. Muilenburg that FAA controls the review process and that he has told FAA's aviation safety experts working on continued review of the 737 Max to take the time they need to get this right and they have his full support."

Dickson also took the opportunity to promote an idea he talked about in his appearance Wednesday in a U.S. House Committee hearing: that Boeing introduce into its manufacturing and development processes the FAA Safety Management System (SMS).

SMS is a formal approach to managing safety risk that lays out

with Dickson and his deputy Dan Elwell.

"We committed to addressing all of the FAA's questions as they assess Max certification and training requirements," Boeing said in a statement. "We will work with the FAA to support their requirements and their timeline as we work to safely return the Max to service in 2020."

That's the first tacit acknowledgment from the company that the FAA will not be clearing the Max to fly again this year.

American Airlines said Thursday it has taken the Jet out of its schedule until April 7, a month later than previously planned.

Prior to April 7, it plans to operate Max demonstration flights with employees and members of the media on board. After that date, it will phase the Jet slowly into commercial service, increasing the number of Max flights gradu-

Commercial Airplanes boss Stan Deal, in part because Boeing's public statements seemed designed to press for the FAA to provide clearance soon. An email the FAA sent Thursday to the House and Senate aviation oversight committees makes clear Dickson wants that to stop.

"The Administrator is concerned that Boeing continues to pursue a return-to-service sched-

this process right. Safety is our top priority and the Administrator believes public statements must reflect this priority," the email states. "The purpose of the meeting is to ensure Boeing is clear on FAA's expectations."

"Safety is our top priority and the Administrator believes public statements must reflect this priority," the FAA email adds.

The FAA said Dickson recom-

systematic, organization-wide procedures, practices, and policies. It's already a standard practice for U.S. airlines and is credited with increasing safety in the industry.

Though the wording of the email amounts to a public rap on the knuckles for Mullenburg, Boeing issued a bland statement afterward saying that Mullenburg and Deal had "a productive meeting"

ally during April.

Because the Max will be missing from its schedule until then, some flights will be canceled. The airline said it will contact customers whose flights are affected by email or telephone beginning Dec. 22.

The airline added that it will announce its policy toward any passengers who don't wish to fly on the Max "in the coming weeks."

the Dallas Fed projects as the jobs added in the local economy this year, around 63,100.

"The oil industry is a drag on Houston's economy right now," Jankowski said. "If it was simply flat, you could do OK. But we're definitely in for a couple quarters of much slower growth."

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ASTRODOME

From page B1

previous county administration, and after Lina Hidalgo was elected county judge last year, replacing longtime Judge Ed Emmett, she's took a step back from the project to analyze its viability and focus on what she said are more pressing issues.

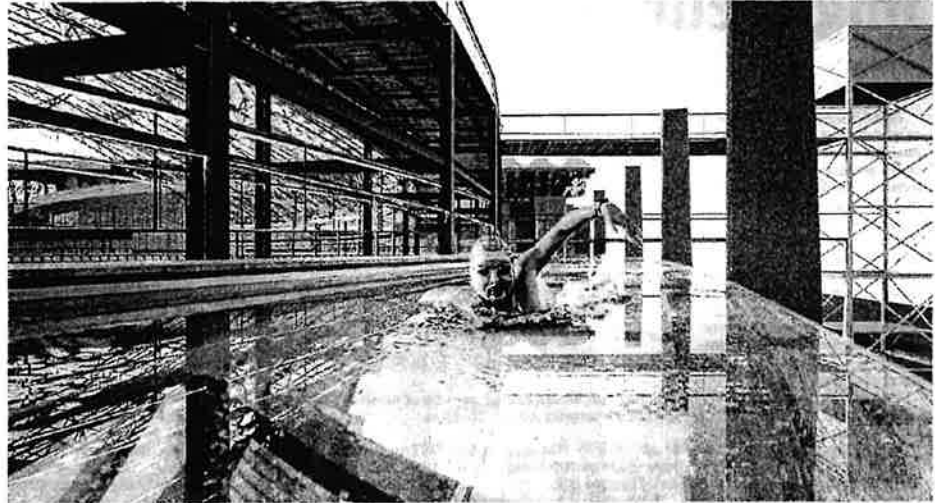
"We realize it's a long uphill battle for us," Richards said. "What we're proposing has never been done in the world."

They recently produced digital images showing a swimming pool on the upper level of the dome's outer ring, complete with an infinity edge and a glass bottom, and another depicting a Christmas market being held inside the structure.

The pool image, Richards notes, was done for fun and wasn't part of the initial plan.

"A lot of people complain that Houston's too hot," he said. "We just answered the call."

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Courtesy James Richards / A-Dome Park

A-Dome Park could include a pool on the upper level of the Astrodome's outer ring, complete with an infinity edge.

12/11/2019

The Salt Lake Tribune

BLM pulls back on Utah leases to do climate reviews



(Al Hartmann | Tribune file photo) Molen Reef, pictured here in Utah's Emery County, is filled with Fremont rock art in a rugged landscape the Bureau of Land Managements offered for oil and gas development in 2018. These leases are among the 130 the BLM suspended in Utah last month so it could conduct additional environmental studies examining their potential climate impacts.



By Brian Maffly

Published: 2 days ago
Updated: 1 day ago

Among President Donald Trump's signature initiatives was pursuing "American energy dominance" through a series of regulatory rollbacks to fast-track fossil fuel development, regardless of the potential impacts on the global climate.

But that strategy may actually be slowing development on Utah's and other Western states' public lands because the Bureau of Land Management has been forced to reanalyze many of the oil and gas leases it sold in recent years. For the fourth time in the past year, the BLM's Utah office last month pulled back dozens of leases covering thousands of acres after acknowledging that its environmental analysis was inadequate in light of a successful court challenge to leases in another state, according to the Southern Utah Wilderness Alliance.

The latest suspensions stemmed from a lawsuit SUWA brought with Living Rivers and the Center for Biological Diversity, challenging the sales of 130 leases covering 175,357 acres across Utah, including Emery County's San Rafael Swell and Molen Reef, lands along the Green and White rivers, the Book Cliffs and in a part of San Juan County, where ancient American Indians left a rich record of their occupation.

"This map is only going to get bigger. This is a mess of BLM's own making. This is the outcome of the blind rush for energy dominance," SUWA staff attorney Landon Newell said. "It has completely backfired. They offered all these leases with as little analysis as possible, and here is the outcome."

Some of these leases date back to November 2014, when the BLM was overseen by Sally Jewell, President Barack Obama's Interior secretary, although the majority were offered after Ryan Zinke, under Trump, succeeded Jewell. None has been developed, according to Newell. All told, Newell estimated that the BLM has pulled 240 Utah leases spanning 300,000 acres.

The BLM's Utah office said it remains committed to responsible development of the energy resources it administers and is conducting "curative" analysis under the National Environmental Policy Act (NEPA) on leases issued under five different sales from November 2014 to December 2018.

"Once the analysis is complete, the BLM will issue a new decision for each lease that may 1) cancel the lease; 2) modify the lease terms or 3) lift suspension without modification," BLM spokeswoman Rachel Wootton said.

"The NEPA analysis is focused on potential greenhouse-gas emissions associated with potential lease development and hydrocarbon production and climate change impacts due to greenhouse gases. "

Since Trump took office in 2017, the BLM's Utah lease offerings have mushroomed sevenfold over a similar time frame during Obama's presidency, SUWA's suit contends. To promote Trump's energy agenda, then-Interior Secretary Zinke issued an order requiring the agency to identify policies and procedures that inhibit oil and gas development on public lands.

The BLM's pace of leasing had slowed after Obama entered the White House in 2009, particularly in Utah, where Interior was forced to withdraw at least 77 leases hurriedly offered in the waning days of the George W. Bush administration. Eco-activist Tim DeChristopher went to prison for entering phony bids on several of those leases.

The Obama administration brought many reforms, requiring the BLM to exercise greater care in deciding what parcels to lease. Those reforms, which included master leasing, went out the window soon after Zinke's arrival in Washington, when the former Montana congressman arrived at his office on horseback.

In the meantime, a large backlog of industry-nominated parcels had built up on Jewell's watch, held back because of the potential to degrade artifacts, national parks, recreation, sage grouse habitat and other nonenergy resources should they get drilled.

In response to Zinke's directives, the BLM adopted instructions that restricted opportunities for public involvement in leasing decisions and encouraged BLM staffers to rely on existing environmental analyses, rather than develop site-specific studies when reviewing new leasing proposals, the SUWA suit alleges.

"BLM officials are starting to recognize the error in their rush to ignore climate science and public health to unleash a fracking frenzy," said Diana Dascalu-Joffe, an attorney at the Center for Biological Diversity. "Now the administration must acknowledge the irreparable harm these irrational decisions have on our fragile climate."

SUWA and its allies hung their legal arguments on a March 2019 ruling by U.S. District Judge Rudolph Contreras for the District of Columbia that invalidated numerous Wyoming leases after concluding the BLM failed to analyze "reasonably foreseeable" greenhouse-gas emissions and climate impacts.

The ruling in that case, brought by Denver-based WildEarth Guardians, has had a cascading effect across the West, where the BLM faces challenges to nearly all leases it has offered since Trump took office three years ago. SUWA's lawyers argued Contreras' logic applied to the Utah leases, and the

BLM apparently agreed, saying as much in September letters to leaseholders informing them they could not develop their leases until the “curative” analysis was completed.

“This is a train wreck going on right now,” said Jeremy Nichols, WildEarth energy program director. “You’re going to see more litigation, you’re going to see more appeals, and they’re going to do everything they can to try to keep the train on the rails. But, man, it’s off. ... They’re getting what they deserve. They cut corners and dismissed the public, and this is what they get.”

Nichols has long argued that the BLM should estimate the volumes of carbon dioxide that would be released when the oil, gas and coal from public lands are extracted, processed and consumed. Unnatural buildup of carbon dioxide in the atmosphere, resulting from the rampant burning of fossil fuels, is warming the planet to a dangerous point, according to a scientific consensus that Trump rejects.

In more recent environmental studies, the BLM said the necessary greenhouse-gas analysis was completed for its two upcoming quarterly sales, as well as those conducted since the Contreras ruling.

On Tuesday, the agency will offer 24 leases covering 13,422 acres all over Utah, including nine in an archaeologically sensitive region around San Juan County’s Montezuma Canyon. At a March 10 sale, the BLM will offer 25 mostly contiguous parcels covering 32,714 acres in the Uinta Basin. These proposed leases, west and south of Vernal, cover areas that have become popular for mountain biking, including McCoy Flats and Halfway Hollow. Most of this land is within designated priority habitat for greater sage grouse.

Activists insist the BLM should take a “programmatic” look at its oil and gas program’s climate impacts, rather than a piecemeal approach that examines leases in isolation.

“The BLM acts like nothing else is happening in other districts or field offices or even other states,” Nichols said. “They’re leasing in every Western state huge amounts of public land. It’s happening at the same time in the same region with similar climate consequences. Our federal environmental laws are very clear that, in those situations, you’ve got to step back and take a much bigger look at your activities.”



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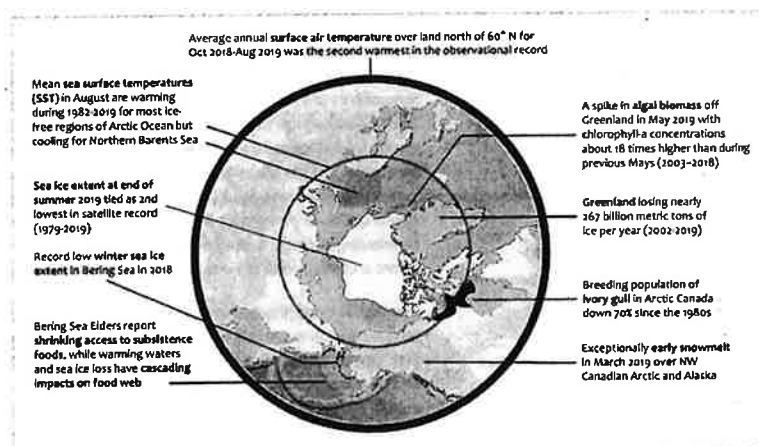
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The 12 essays featured in Arctic Report Card 2019 provide comprehensive summaries of key land, ice, ocean, and atmosphere observations made throughout the Arctic in the context of historical records. Taken together, the essays also serve to highlight the many strong and complex connections within the Arctic system. It is these connections that magnify the impact of the changing Arctic environment—changes that affect ecosystems and communities on a regional and global scale.



([Portals/7/EasyGallery/Images/8/467/ARC19_ExecSum_druckenmiller_Fig1.png](#))

Various essay highlights from across the Arctic.

At the center of the changes observed throughout the Arctic is the persistent warming of the surface air temperature, which began around 1980. At +1.9°C, the annually-averaged land-based surface air temperature anomaly for October 2018-September 2019 is the second highest value (after 2015/16) since 1900. Annually averaged Arctic air temperatures for the past six years (2014-19) all exceed previous records since 1900.

In the marine environment, the decline in the extent and thickness of the Arctic sea ice cover is directly linked to the warming air temperatures. In September 2019, the end-of-summer minimum extent of the sea ice cover was tied for the 2nd lowest (with 2007 and 2016) in the 41-year satellite record. The oldest, thickest ice (>4 years old), which was once widespread within the Arctic Ocean, now makes up just a small fraction of the sea ice cover. In March 1985, at the end-of-winter maximum extent, 33% of the ice cover within the Arctic Ocean was made up of very old ice, but in March 2019 old ice constituted only 1.2% of the ice cover. First-year ice now dominates the sea ice cover, comprising ~77% of the March 2019 ice cover, compared to about 55% in the 1980s. Overall, the Arctic sea ice cover has transformed from an

Other Indicators

Permafrost and the Global Carbon Cycle

(<https://arctic.noaa.gov/Report-Card/Report-Card-2019/ArtMID/7916/ArticleID/844/Permafrost-and-the-Global-Carbon-Cycle>)

Ivory Gull: Status, Trends and New Knowledge

(<https://arctic.noaa.gov/Report-Card/Report-Card-2019/ArtMID/7916/ArticleID/836/Ivory-Gull-Status-Trends-and-New-Knowledge>)

Comparison of Near-Bottom Fish Densities Show Rapid

Community and Population Shifts in Bering and Barents Seas (<https://arctic.noaa.gov>)
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Frostbites

Recent Warming in the Bering Sea and Its Impact on the

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Voices from the Front Lines of a Changing Bering Sea

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Graphics from Climate.gov (<https://www.climate.gov/news-features/understanding-climate/2019-arctic-report-card-visual-highlights>)

NOAA Press Release (<https://www.noaa.gov/media-release/arctic-report-card-record-territory-for-warm-temperatures-loss-of-snow-and-ice>)

older, thicker, and stronger ice mass in the 1980s to a younger, thinner, more fragile ice mass in recent years. Because of this transformation, today's sea ice cover is now more vulnerable to melting out in summer, thereby increasing the likelihood of a continuing decrease in minimum ice extent into the future.

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The declining trend in the extent of the sea ice cover is also directly linked to observed changes in the sea surface temperatures and ocean primary productivity. Sea surface temperatures in the Arctic Ocean are driven mainly by solar warming. Greater solar warming occurs in ice-free regions of the Arctic Ocean, where the dark ocean surface absorbs solar radiation up to 10 times more readily than the brighter sea ice surface, which largely reflects sunlight. August mean sea surface temperatures show significant warming over the past 30 years, with the most pronounced increases occurring in August. For instance, the August mean sea surface temperatures in 2019 were ~1-7°C warmer than the 1982-2010 August mean in the Beaufort and Chukchi Seas, the Laptev Sea, and Baffin Bay.

Primary production in the Arctic Ocean is driven by algae growing in the ice (ice algae) and in the water column (phytoplankton), which provide usable energy to the entire food web. Though phytoplankton is less productive in the Arctic sea ice extent have contributed substantially to shifts in patterns of primary production throughout the Arctic Ocean, as related increases in light availability and stratification of the water column stimulate the growth of phytoplankton in the water column. These patterns are often associated with the timing of the seasonal break-up and retreat of the sea ice cover: higher production tends to occur in regions where break-up is delayed, while lower production tends to occur in regions where break-up is delayed. All regions of the Arctic Ocean have exhibited increasing ocean primary productivity over the 2003-19 period, with the most pronounced increases observed in the Eurasian Arctic, Barents Sea, and Greenland Sea.

RESEARCH ([HTTPS://ARCTIC.NOAA.GOV/RESEARCH/](https://arctic.noaa.gov/research/))

Recent conditions in the Bering Sea have been characterized by a number of factors that are unique to the Arctic marine environment. The Bering Sea forms the transition between the sub-Arctic North Pacific and the Arctic Oceans. The eastern half of the Bering Sea has a broad and shallow shelf that enables an exceptionally productive ecosystem, supporting large numbers of sea birds and marine mammals, the subsistence harvests that numerous Indigenous communities depend on, and more than 40% of the U.S. catch of fish and shellfish (valued at ~\$1B annually). The summer distribution of fishes and invertebrates living near the seafloor on the Bering Shelf is tied to the extent of the cold bottom water temperatures as determined by the southern extent of sea ice during the preceding winter.

FISHERIES ([HTTPS://ARCTIC.NOAA.GOV/FISHERIES/](https://arctic.noaa.gov/fisheries/))

For the past two winters (2018 and 2019) the maximum southern sea ice extent in the Bering Sea was at record low values, at approximately 30% of the long-term mean (1980-2010). The record low sea ice coverage was likely a result of three factors: (1) foremost, abnormally warm, southerly winds during winter limited the maximum sea ice extent by pushing the sea ice northward; (2) the late freeze-up of the southern Chukchi Sea in the preceding falls and delayed ice arrival in the northern Bering Sea; and (3) warm surface ocean temperatures that slowed the advance of ice. The record low sea ice extent and early sea ice retreat disrupted the formation of very cold bottom water temperatures on the Bering Shelf. The warmer bottom water temperatures observed during 2018 created a wide corridor within the shallow continental shelf allowing sub-Arctic fish species to move northward into regions typically occupied by northern shelf and Arctic species. In the Atlantic sector's Barents Sea, there has been a similar northward shift in fish species associated with warming bottom water temperatures and loss of sea ice. Regional patterns of sea ice loss may also be connected to an observed decline in the breeding population of ivory gulls in the Canadian Arctic.

On land, the warming surface air temperature is causing a decrease in the extent of the Arctic snow cover, an increase in the overall amount of Arctic vegetation, and the thawing of perennially-frozen ground, known as permafrost. These components of the Arctic environment are interconnected and understood to influence wildlife. Thawing permafrost significantly affects municipal infrastructure, community shorelines, and Indigenous Peoples' traditional means for storing food in ice cellars. Warming conditions also promote the microbial conversion of carbon that is stored in permafrost into the greenhouse gases carbon dioxide and methane. These gases are released to the atmosphere, contributing to global average sea level rise at a current rate of about 0.7 mm yr⁻¹. During the 2019 melt season, the extent and magnitude of ice loss over the Greenland ice sheet rivaled 2012, the previous year of record ice loss.

Coming full circle, the decreasing extent of sea ice and snow cover along with the melting Greenland ice sheet leads to an acceleration in the rate of warming of surface air temperatures in the Arctic. When these bright, white surfaces melt, they expose darker surfaces (e.g., open ocean, rock, or vegetation). The white surfaces of snow and ice reflect sunlight back to space, helping cool the Arctic region. The darker surfaces of land and ocean absorb sunlight, warming the Arctic region. Hence, the increase in the relative amount of open water and snow-free land leads to warming surface air temperatures, which in turn lead to more melting and more warming. This cycle is a critical reason why the Arctic has warmed at more than twice the rate of the global mean since the mid-1990s, a phenomenon known as Arctic amplification of global warming. This warming is transforming Arctic ecosystems and presenting unique challenges for the region's Indigenous peoples who rely on the stability of the environment for cultural and economic well-being, as well as for subsistence foods taken from their local lands and waters. The impacts of a changing Arctic are not confined to those who live there. Through global sea-level rise, the release of permafrost carbon, and its role in regulating global weather patterns, the Arctic is vitally connected to people worldwide.

December 6, 2019



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FUELFIX NOTEBOOK

Experts agree: Houston's economy will slow with energy next year

Two local predictions for Houston's economy came out in recent weeks. The first from Bill Gilmer, economist and director of the Institute for Regional Forecasting at the University of Houston's Bauer College of Business. The second from Patrick Jankowski, chief economist of the Greater Houston Partnership, a business financed economic development group.



ERIN DOUGLAS

Gilmer puts job growth next year around 62,000.

Jankowski puts it lower, at 42,300 (which would be a pretty significant slowdown of more than 22,000 jobs from what Jankowski estimates Houston is on track to add this year, at 64,400).

But the one thing these two local economists – and every other economist I speak with regularly about the local economy – agree on? We're about to slow down.

Both Gilmer and Jankowski agree that the Texas Workforce Commission's estimates of employment growth thus far this year likely overstate the strength of the local economy and will almost surely be revised downward by the U.S. Labor Department in early 2020.

"It's not as strong as we would like it to be, but it's still growth," Jankowski said at his forecasting event Thursday.

Jankowski compared Houston's economy to the aftermath of the 1980s oil bust,



Steve Gonzales / Staff file photo

Patrick Jankowski, the chief economist of the Greater Houston Partnership, expects the Houston region to lose a net 4,000 energy jobs next year.

when the real estate market had been oversaturated and the industrial market overbuilt. It's a similar pattern, though hopefully this time we can avoid the banking collapse.

But like the 1980s, a major factor holding Houston's economy back is the slumping energy sector, which makes up 9 percent of the local economy,

according to the Greater Houston Partnership, and is headed for another downturn. This time, it's due to Wall Street investors who have tightened capital spending for exploration and production companies and a slowing global economy that has hurt demand for fuel products (though, there are some indications it is beginning

to pick up, Jankowski points out).

But fewer wells are being drilled, and the rig count is down to its lowest level since March 2017. The slump will almost certainly mean job losses in Houston's energy sector next year.

Oil prices were up to more than \$59 per barrel Friday after

OPEC agreed to cut production by 500,000 barrels per day, but that's still within range of what most local economists expect over the long term. Most agree that oil prices are likely to remain stuck in the \$50-\$60 per barrel range unless something drastic changes.

Gilmer's jobs forecast, for example, assumes between \$55-\$60 per barrel next year.

ConocoPhillips chief economist Helen Currie, speaking at the same Greater Houston Partnership event, said the oil major expects global oil supplies to grow next year. More supply typically means lower prices, and Currie said she sees the oil market as largely balanced.

Jankowski expects the Houston region to lose a net 4,000 energy jobs next year.

Of course, the big "but" in these forecasts are the small matters of oil geopolitics and a raging trade war. As Currie pointed out, OPEC is always a factor that can drastically shift the outlook for the oil market, as well as politics in countries such as Iran and Venezuela.

But absent something that bumps oil prices back up past \$65 per barrel (not even an attack on Saudi Arabia's oil field did that), it seems Houston business community can confidently plan for a slowdown next year.

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FUEL FIX

Output from non-OPEC oil producers to climb

By Jordan Blum
STAFF WRITER

Global oil output from non-OPEC producers is expected to grow by record levels in 2020, creating a glut of oil and driving oil prices lower, according to a new report.

The Norwegian research firm Rystad Energy said that producers outside of the cartel will add 2.25 million barrels a day to world oil supplies – which is more than double the anticipated demand growth projected for 2020, Rystad said. This would surpass the 1978 record of just less than 2 million non-OPEC barrels added.

U.S. shale plays along with Norway, Brazil, Canada and Guyana are all going to add significant volumes to global markets in 2020 even as the Organization of the Petroleum Exporting Countries is expected to maintain production quotas next year.

“The record-high production growth from non-OPEC tight oil (shale) and offshore puts significant pressure on OPEC’s ability to balance the oil market in 2020,” said Espen Erlingsson, Rystad’s head of upstream research.

OPEC, Russia and its allies agreed Friday to cut an additional 500,000 barrels a day through March in a new deal that was strengthened by Saudi Arabia’s vow to stay well below its production quota and reduce its output even more in early 2020. Saudi Arabia is seeking market stability and stronger crude prices in part because it is finalizing a limited initial public offering for its massive state energy company, Saudi Aramco.



Norm Betts / Bloomberg News

Canadian oil sand production is forecast to grow by 250,000 barrels a day next year.

The agreement will deepen cuts to 1.7 million barrels a day from 1.2 million through March, when the Organization of the Petroleum Exporting Countries and its allies, known collectively as OPEC+, will revisit the deal.

The Rystad analysis suggests that the additional cuts may not be able to support higher oil prices. Some analysts forecast the oil prices could fall toward \$40 a barrel next year despite OPEC actions.

Rystad estimates the United States will increase its produc-

tion by another 1 million barrels per day in 2020, led by onshore shale. Some Texas oil and gas companies, however, say that such estimates are overly optimistic.

Shale slump

With stock prices falling and capital tight, many exploration and production companies are cutting spending and pulling drilling rigs from the fields. Oil field services companies, which perform drilling and hydraulic fracturing for producers, say they are stacking equipment

and cutting crews.

But even if Rystad’s prediction for U.S. production falls short and shale output slumps, rising output from other countries could still cause the world to surpass the 1978 record. Norway and Brazil will each add close to 500,000 barrels of oil production per day from offshore fields, while Canadian shale and oil sands will bring on about 250,000 barrels, Rystad said.

Exxon Mobil will tack on another 100,000 barrels a day or so offshore of Guyana as the

tiny South American nation becomes a significant player in global crude markets. Exxon Mobil and its partner Hess have announced 14 discoveries offshore of Guyana so far and expect more. Exxon Mobil expects to produce more than 750,000 barrels of oil a day offshore of Guyana by 2025.

Other smaller increases should come from Australia, Yemen, India, South Sudan and Malaysia, Rystad said.

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the state-owned oil company Petroleos Mexicanos, or Pemex, all with the goal of weaning the country from its dependence on foreign — read American — petroleum.

Those efforts, however, appear to end with oil. In the nationalistic fervor to achieve energy self-sufficiency, Lopez Obrador's administration has largely ignored natural gas. Mexico already relies on U.S. im-

Presidencia de Mexico
Carlos Slim is a Mexican billionaire whose company, Grupo Carso, was the first of the pipeline firms to reach a deal with the government.

ports to meet about 65 percent of its natural gas consumption, and that share is only expected to grow over the next two decades as growing manufacturing and power sectors boost demand for natural gas substantially.

By 2025 alone, Mexico's natural gas consumption is projected to grow 20 percent to 9.1 billion cubic feet a day from 7.6 billion cubic feet.

This is good news for Texas oil and gas companies, which are producing such vast amounts of natural

structure coming online, because it is going to be one of your biggest outlets for the next 15 years. For however long you can keep up production, Mexico will buy it."

The Lopez Obrador administration's natural gas approach has been inadvertently shaped by the consequences of other decisions on energy, such as putting up barriers to

Oil continues on B6

Spanish oil giant's net-zero goal puts U.S. companies to shame on climate

CHRIS TOMLINSON
Commentary



Oil and gas companies no longer deny that carbon dioxide is causing climate change, and many are preparing for the energy transition, but only one has accepted it will lose money on its fossil fuel assets.

Repsol, a global energy giant based in Madrid, on Monday promised to achieve net carbon neutral-

ity by 2050. The company said it would capture as much carbon as it releases and sells.

No other oil and natural gas company has set a net-zero goal. But what is more impressive is that Repsol wrote down \$5.3 billion in oil and natural gas holdings in recognition that they will be less valuable in a low-carbon future.

Executives at the \$41 billion company said they would make exploration and production decisions "assuming an oil and gas price curve compatible with the Paris Agreement and the scenario of limiting the temperature increase to well

Tomlinson continues on B6



Oscar del Pozo / AFP via Getty Images

Protests abound in Madrid for COP26, the annual U.N. conference for world leaders to assess the fight against climate change.

Tech developed at A&M could help prevent wildfires

By Brian Melley
ASSOCIATED PRESS

LOS ANGELES — Don Russell wasn't thinking about preventing a wildfire when he developed a tool to detect power line problems before they cause equipment failures, blackouts or even deadly accidents.

The electrical engineering professor at Texas A&M University figured that he might save a life if his creation could prevent someone from being electrocuted by a downed live wire.

But fire prevention may be his product's biggest sell-

ing point in California and other places that have experienced devastating blazes blamed on electrical equipment.

"If we can find things when they start to fail, if we can find things that are in the process of degrading before a catastrophic event occurs, such as a downed line that might electrocute someone or a fire starting or even an outage for their customers, that's kind of the holy grail," Russell said.

The technology he bills as a one-of-a-kind diagnostic tool called Distribution

Electrical continues on B7

FUEL FIX
Port Neches
picking up pieces
 Days after plant blasts, residents say they're "used to" petrochemical emergencies. **PAGE B4**



TECHNOLOGY
Banking on the
honor system
 Retail startups are opening shops with no cameras or cashiers — and boasting few thefts. **PAGE B3**

MONEY
Low-cost investing
often has a catch
 Wealth management policies can take the cheap out of free trading. **PAGE B5**

BUSINESS

HOUSTON CHRONICLE • SUNDAY, DECEMBER 8, 2019 • SECTION B ★★

ENERGY



Mexico's imports of natural gas fuel Texas' shale market.
 Billy Calzada / Staff photographer

Mexican leader's focus on oil leaves a blind spot: natural gas

As Lopez Obrador walks back reforms and foreign investment, U.S. exports to Mexico soar

By Emily Pickrell
 CONTRIBUTOR

MEXICO CITY — Mexico's president, the left-leaning populist Andres Manuel Lopez Obrador, has rolled the international energy industry by walking back market reforms designed to attract foreign investment, modernize Mexico's oil industry and end fuel and power shortages.

Instead, Lopez Obrador has canceled offshore lease auctions, pledged to build new refineries and moved to reassert the dominance of



gas at such low prices that many are just simply burning off, or flaring, the gas as they focus on recovering oil in shale plays such as the Permian Basin in West Texas. Ultimately, analysts say, Texas gas producers need to expand foreign markets to lift demand and prices for their product.

"Mexico is an enormous natural gas client," said Dwight Dyer, a former senior official in the Energy Ministry in the administration of Lopez Obrador's predecessor, Enrique Peña Nieto. "If you are a fracker in the Eagle Ford or the Permian Basin, your mouth should water over the Mexican pipeline infra-



Sean Gallup / Getty Images

A low-level U.S. delegation is in Madrid this year, and none will attend next year's meeting. The United States will be the only nation without a seat at the table.

TOMLINSON

From page B1

below 2 degrees Celsius."

The announcement came as world leaders gathered in Madrid for COP25, the annual U.N. conference to assess the fight against climate change. The latest scientific papers show we need every oil and gas company to take similar steps and quickly.

Global carbon dioxide emissions from fossil fuels will set a record high in 2019, according to the Global Carbon Project, a non-partisan, nonprofit research group.

The average American was responsible for 18.2 tons of carbon, surpassed only by Australians, the group calculated. The Chinese average was 7.7 tons per capita, and the European Union average was 7.4 tons.

The world needs to cut emissions by 7.6 percent, according to climate models. Humans have understood the relationship between carbon dioxide and temperature since 1860, and to prevent the Earth from getting too warm, we must reduce emissions.

Over the next week, negotiators at COP25 will focus on crafting an international cap-and-trade system. Such a market would allow nations that excel in slashing emissions to sell credits to countries that struggle to achieve their Paris goals, usually because they are fossil fuel producers.

A national cap-and-trade system would benefit the United States since our corporations supply much of the world with gasoline, diesel, jet fuel and other refined products. Refining

and petrochemical production in Texas is one reason why U.S. per capita emissions are so high.

A cap-and-trade system would help the country meet the Paris goals without sacrificing Gulf Coast industrial complexes. But President Donald Trump has made sure the United States will not play a significant role in creating this critical marketplace.

Trump withdrew the United States from the Paris Agreement effective next year. A low-level U.S. delegation is in Madrid this year, and none will attend next year's meeting. The United States will be the only nation without a seat at the table.

If U.S. refiners such as Exxon Mobil, Chevron and Valero were genuinely committed to mitigating climate change, they would publicly demand that Trump rejoin

Instead, U.S. oil and gas companies are taking baby steps on climate issues, most of them public relations moves, while continuing business as usual.

The Natural Gas Supply Association, which includes Chevron, ConocoPhillips and Exxon, announced its member unanimously support a carbon tax. But only if federal and state authorities eliminate emissions regulations and stop subsidizing clean energy sources.

The group also does not plan to lobby Congress, where Republicans are blocking efforts to establish a tax.

The U.S. Chamber of Commerce, which represents refineries and petrochemical companies, has also changed their tune. Five years ago, one of their lobbyists refused to acknowledge to me that climate change was real, but last month the group quietly rewrote its website to support the Paris Agreement.

Meanwhile, the refining and petrochemical companies have \$66 billion in new projects under construction, with \$62.6 billion of them in North America, according to Industrial Information Resources, which tracks the industry.

Does the U.S. oil and gas industry have no coura-

energy shareholders and the climate?

The nonbinding goals set in the 2016 Paris Agreement are not strict enough to limit warming to the 2-degree Celsius target, and most wealthy countries are on course to violate the accord. What the world needs is corporate leadership, and so far it's coming from Europe.

Tomlinson writes commentary about business, economics and policy. chris.tomlinson@chron.com

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OIL

From page B1

International investment in renewable generation and new oil and gas fields. As a result, natural gas production is lagging while a lack of wind and solar energy increases the need for natural gas for power generation.

Since becoming president in December 2018, Lopez Obrador has taken several measures in regard to the Mexico's oil resources, a point of particular pride for a nation that still celebrates the 1938 expropriation of foreign oil companies as a national holiday. Lopez Obrador has canceled oil lease auctions designed to attract private investment, provided a \$5 billion relief package to Pemex to help boost sagging domestic production and begun building a \$4 billion refinery in Tabasco in southeastern Mexico.

Stop-gap measure

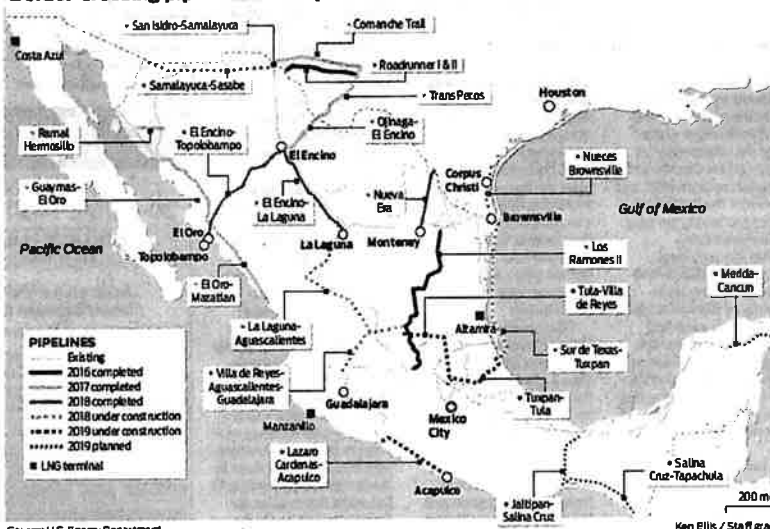
While the stated goal is to achieve energy-self sufficiency, the administration has been largely silent on growing imports of natural gas. U.S. natural gas exports to Mexico have more than doubled over the past five years to 5.5 billion cubic feet a day, according to government statistics.

"They don't really have a natural gas policy," said Jose Maria Lujambio, the former general counsel for Mexico's Energy Regulatory Commission in administration of Peña Nieto's predecessor, Felipe de Jesus Calderon Hinojosa. "This is a government that speaks a lot about energy security and energy sovereignty, but at the same time, natural gas is kind of ignored. It is not seen as that important."

That is a departure from the policies of the Peña Nieto administration, which had hoped eventually to meet Mexico's needs through the development of domestic natural gas resources. The plan was to harness the abilities of international oil and gas companies seeking opportunities in Mexico after the opening of its energy markets in 2014. Natural gas from Texas natural gas would be a stop-gap measure until Mexico's own shale formations began producing.

"What we thought at the time is that we should take advantage of the

Border-crossing pipelines and expansions of Mexico's domestic pipeline network



Sources: U.S. Energy Department

cheapest gas in the world and recover national production at the same time," said Rosanety Barrios, a former senior official in the Energy Ministry in the Peña Nieto administration. "Our strategy for increasing national production was through our rounds of private auctions, to take advantage of all our unconventional reserves."

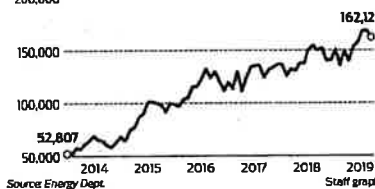
The challenge for Mexico and Pemex has been the expensive logistics of producing shale oil and gas. An estimated 60 percent of Mexico's natural gas reserves are in shale fields concentrated in the Burgos and Sabinas basins, close to the Texas border, and the Tampico-Misantla basin in Tamaulipas in northeastern Mexico, but these areas lack adequate roads, pipelines and water, which is used by the millions of gallons in hydraulic fracturing to free oil and gas from shale rock.

Above all, Mexico and Pemex lack the technological know-how that unlocked vast quantities of oil and gas from the Permian Basin in West Texas and Eagle Ford shale in South Texas.

At the same time, Pemex's natural gas output — most of which comes from associated oil production in onshore and offshore Tabasco — is decreasing 7-to-9 percent per year. To bridge the widening gap between slumping Pemex production and growing demand, the Peña Nieto

Plenty of gas

U.S. natural gas exports to Mexico are expected to keep growing.



administration contracted with North American companies to invest more than \$5 billion to build 2,800 miles of natural gas pipelines in seven projects to connect Mexico to natural gas produced in Texas.

These pipelines, including the \$2.5 billion underwater Sur de Texas-Tuxpan (built by Canadian TC Energy and San Diego-based Semptra Energy) were designed to help meet the natural gas shortages contributing to power shortages in places such as the Yucatan Peninsula. One of the pipelines connects to Kinder Morgan's Sierra Gas Pipeline, which runs from Tucson, Ariz., to the Mexican border near Sasabe, Ariz.

Hit to confidence

The involvement of private companies made the pipeline projects suspect for the Lopez Obrador administration, which in July demanded an additional \$900 million for what it said were

unfair contracts. The disputes with several companies were eventually resolved through arbitration, but many U.S. investors and producers are likely to think twice about building pipelines, storage and other infrastructure in Mexico, analysts said.

"The impact of the pipeline arbitration issue was huge," said Nymia Almeida, a senior vice president and natural gas analyst for Moody's Investor Service in Mexico, likely undermining certainty that future contracts would be honored. Moody's, she added, is still assessing the impact on investor confidence.

The Peña Nieto administration also had hoped to expand the country's wind and solar energy generation, holding contract bidding rounds to attract new investment. But that effort, too, has largely gone by the wayside as Lopez Obrador has canceled auctions and changed key regulations to make the market less

attractive for renewable energy developers. In late November, the administration announced plans to build four giant natural gas combined-cycle power plants.

With the demand for power expected to grow at least 3 percent annually, so will the need for imported natural gas. Meanwhile, Lopez Obrador continues to focus on Pemex and oil, blaming previous administrations for introducing market reforms that he says led to Mexico's decreased oil and gas production.

"We should never forget that those technocrats deceived us," Lopez Obrador said in a recent press conference.

Looking abroad

As for Texas, while Mexico is a desirable client based on its need and proximity, it is far from the only market where the gas could be placed. Both Europe and Asia, especially China, provide compelling opportunities to export liquefied natural gas. "That is where the big incremental volumes of gas are likely to go," said Craig Pirrong, an energy finance professor at the University of Houston. "Our shale sector has kept prices low and it is creating the opportunity for natural gas. That is what makes us competitive on the world market, and not just in Mexico."

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Child labor report eyes Chicago railcars

By Mary Wisniewski
 CHICAGO TRIBUNE

CHICAGO — The Chicago Transit Authority is asking a Chinese manufacturer for more details about its supply chain after a news report that children are being used to mine materials in Africa that might be used in "L" car production.

The report said that children as young as 4 from poor families in Madagascar are mining for mica, which is a type of mineral used in cosmetics, electronics and other products. The NBC report said that the materials end up in goods sold by companies such as Panasonic and CRRC, a Chinese government-owned car rail company whose U.S. subsidiary, CRRC Sifang America, has a \$1.3 billion contract to produce "L" cars for the CTA.

"Due to our concerns about some recent media reports, CTA has requested that CRRC provide more detailed information about its supply chain for the new 7000-series rail cars, specifically about materials providers and their sources," CTA spokesman Brian Steele said in a statement on Friday.

In a statement, Dave Smolensky, a spokesman in Chicago for CRRC Sifang, said that the company "expressly prohibits" the use of child labor in the making of any of the components used in the assembly of its rail cars.

"The majority of components used in the production of our railcars are sourced from U.S. suppliers," Smolensky said in the emailed statement. "We expect all our suppliers to treat their workers with dignity, respect and responsible employment practices."

The November 18 NBC story said that mica mined by "an underground army" of children in the island African nation "make their way through an opaque supply chain from Africa to Asia before landing in millions of products — electronics, appliances, even trains — that wind up in America."



the Paris agreement and participate in these global negotiations.

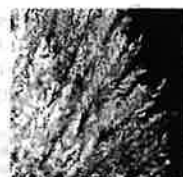
geous CEOs willing to speak the truth about their assets and demand that Trump do the right thing for both

AS AUCTIONS
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 AUCTION

SPORTS
OU takes
Big 12 title
 Sooners beat Baylor in OT and get a shot at the College Football Playoff. LSU routs Georgia in SEC.
PAGES C1, 11



SPORTS
North Shore
moves ahead
 Mustangs score 76, a school record for points in a football playoff game, to advance to semifinals. **PAGE C14**



ZEST
Christmas
circa 1959
 Aluminum trees sparkle in "Space Age Christmas Trees" at Houston's 1940 Air Terminal Museum. **PAGE G1**

HOUSTON CHRONICLE

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Blinded in custody, migrant faces future in war-torn Sierra Leone



Jon Shapley / Staff photographer

"When he got hurt, it changed my whole life," Kadlatu Lamin said of her son, Mohamed Gordon, who had a hard fall in jail.

Critics say case demonstrates lack of adequate care in ICE detention

By Lomi Kriel
 STAFF WRITER

CONROE — Mohamed Gordon's vision was fading.

A legal resident from Sierra Leone, Gordon had slipped in the Fort Bend County jail in the fall of 2017, smacking his head so hard he ended up in the hospi-



Courtesy
 Gordon lost sight in one eye.

tal. Months later, his eyesight blacked out, and doctors diagnosed him with a detached retina. He needed urgent surgery to save his right eye, he was told.

Gordon, 27, shuttled between county jail, state prison and federal immigration custody, where he finally had the operation weeks later in August 2018.

But that marked only the beginning of a monthslong saga to recover his sight. Gordon complained to Immigration and Customs

Enforcement officials in Conroe at least 17 times of pain and pressure, explaining that he needed follow-up care, his medical records show. Doctors warned that without an immediate second surgery, he risked losing his vision permanently. His mother pleaded for ICE to allow him out on bond so that she could pay for the operation.

By this summer, Gordon lost hope, along with sight in his eye.

Immigrant continues on A4

HPD officer shot, killed

Suspect in custody after cop was slain in call to East End

By Lomi Kriel, Jay R. Jordan
 and St. John Barned-Smith
 STAFF WRITERS

A Houston police sergeant died Saturday night after he was shot in the chest with a semi-automatic pistol during a domestic disturbance near Magnolia Park in east Houston.

Mayor Sylvester Turner praised the service of Christopher Brewster, 32, who had been with the department since 2010.

"This is a tough moment for our city," Turner said. "Today and in days to come, years to come, we will honor him as a hero in the city of Houston for the work he performed on behalf of everyone in the city."

Officers were called at about 5:50 p.m. to the 7400 block of Avenue I after a woman told 911 dispatchers that her boyfriend was assaulting her and that he had two firearms. Police Chief Art Acevedo said during a news conference.

Patrol officers did not immediately see the couple, but Brewster spotted a man and a woman near the 7400 block of Avenue L.

"When he exited his patrol vehicle, he immediately came under fire," Acevedo said.

He said 25-year-old Arturo Solis allegedly fired multiple rounds at Brewster, striking him several times before fleeing.

The nine-year veteran of the department fell to the ground but continued to relay information to other officers about the description of the suspected shooter and the direction in which he ran — an action Acevedo praised.

"I know where his wounds are; they were bad," Acevedo said. "He had the presence of mind and the courage to broadcast suspect information that was criti-

Energy industry's roughnecks go digital

Jobs evolve in oil and gas industry as technology takes a key role

By Sergio Chapa
 STAFF WRITER

Scrum master. Data scientist. Cloud architect.

Jobs in the oil and natural gas industry are changing as technol-

younger, more diverse class of tech workers holding these and other titles, such as big data engineer or user experience designer, is increasingly replacing roughnecks, roustabouts and other blue-collar workers who

stay profitable with oil prices stuck in the \$50 to \$60 a barrel range, are making a major push to digitize and automate operations, allowing drilling in West Texas or in the middle of the ocean to be operated and mon-

itorize skills such as coding, design, data analysis and computer system architecture over physical prowess.

While statewide employment in the oil and natural gas industry is down by 3 percent compared with a year ago, tech jobs in the sector appear to be growing, es-

ogy plays an ever larger role in extracting fossil fuels beneath the ground and under the sea. A

toil under the hot Texas sun or on platforms in the Gulf of Mexico. Energy companies, fighting to

lited from control rooms in Houston. That push is driving the growth of six-figure tech jobs that

pecially in Houston, where nearly two-thirds of the estimated
Tech continues on A24

cal." Neighbors said they had seen
Officer continues on A6

Immunotherapy's next horizon: cancer prevention

MD Anderson researchers hope to lower odds of lung disease for those at high risk

By Todd Ackerman
STAFF WRITER

Teresa Powell learned she remained at high risk for lung cancer three years ago, after doctors removed an early-stage malignancy but testing still showed pre-disease growths.

Powell, who'd smoked on and off for 39 years before quitting

nearly a decade ago, had only one seeming medical option: "watch and wait" for the development of a tumor, at which point doctors perform surgery or give radiation, the standard therapies for the disease's early stages.

"It doesn't do any good to worry about things outside your control, but it was hard not to

just before each six-month screening," says Powell, 70, a retired school teacher in Houston. "Odds are, the cancer could return anytime."

MD Anderson Cancer Center scientists are hoping to reduce the odds for Powell and ultimately for all patients at high risk of lung cancer under a new clinical trial just launched at the Houston research hospital. The trial's lofty aim: prevent the disease from developing.

Cancer continues on A24



Teresa Powell embraces her friend Lida Dahm. Powell, an early-stage cancer survivor, is part of a trial aimed at preventing lung cancer from developing.

Marie D. De Jesus / Staff photographer

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