

BUSINESS

5G

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ruptions. Telecommunications companies, device manufacturers, lawmakers and industry associations have promised much faster wireless data speeds, less latency or lag and transformation of the 21st century economy on scale of 4G wireless, which enabled mobile apps that created new services from ride-hailing to video streaming.

To fulfill 5G's promise, federal and state governments streamlined regulations for permitting and building telecommunications infrastructure such as towers, the transmitters atop them and the fiber optic cables that feed them data.

Cities have less control over these networks, resulting in puzzled and unhappy landowners.

The amount of money being spent is mind-boggling. The CTIA, the trade group for the wireless telecommunications industry, estimates the 5G buildout in the United States alone will cost \$275 billion; some estimates put the cost as high \$300 billion.

That doesn't include the spending to acquire spectrum — the radio frequencies over which wireless services travel. Telecom companies recently bid almost \$81 billion for a chunk of spectrum known as C-Band in auctions run by the Federal Communications Commission.

Speed vs. distance

To understand why the 5G buildout is complicated and expensive — and possibly coming to a lawn near you — it's important to know that 5G is not just one technology. Rather, it's an amalgam of many different ones. It's how they are assembled and interact that give 5G its promise.

Wireless networks use radio waves, collectively known as the radio spectrum, for transmission and reception. The radio waves

operate at different frequencies. Higher frequencies can carry more data faster but don't travel as far. Lower frequencies have greater range but can't transmit as much information as fast.

The C-Band spectrum auctioned by the FCC falls in the middle, which is considered the "sweet spot" for 5G as it delivers higher speeds than low frequencies, but its signals can travel further than high frequencies.

Frequency usage

As wireless companies build 5G networks, they are using low, middle and high frequencies to optimize speed and range. The process of rolling out 5G in the United States involves changes to cellular towers, on-the-ground equipment that provides power and internet connectivity, and the data and network centers used to manage wireless communications.

While low- and mid-band 5G transmitters are often installed on the same kind of towers as the predecessor technology 4G LTE, high-frequency transmitters must be lower to the ground and close together.

High-frequency transmission over a large area requires many small cells, a strategy known as densification. Because of its distance and penetration limitations, high frequency transmission has been confined to urban areas, and locations where people gather en masse, such as stadiums or airports.

But that is changing.

Loss of control

Houston was the first city where Verizon sold a version of its 5G service aimed at home users, designed to compete with cable and fiber-optic residential broadband internet access. The service was launched in 2018, when Verizon began installing the "ground furniture" cabinets and putting small-cell transmitters atop utility poles.

Those transmitters deliv-

"It hasn't been turned on yet; it's just sitting there. I want it gone. It's ugly, and it devalues my property."

Norman Ewart, a retired lawyer who lives in the Rice Memorial area

er Verizon's high frequency, 5G service, which it markets as Ultrawideband. The service, first offered to areas in or near downtown, has been extended to other neighborhoods near downtown, Midtown and out to the Energy Corridor — almost to Beltway 8.

In the past, cities had greater latitude in controlling where telecommunications equipment was placed in their jurisdictions. But changes made both by the Federal Communications Commission and the Texas Legislature designed to streamline the permitting process has limited what cities can do.

The FCC rules prevented communities, such as Houston, that require utilities to be buried from blocking the construction of above-ground infrastructure and small-cell towers. That's why Verizon's boxes pop up in Houston neighborhoods.

A 2017 state law allows telecommunications companies to install the 5G equipment without seeking approval of homeowners or notifying them. That law, along with a subsequent ruling by the FCC, also cut the fees the city could charge for installing a wireless node to \$300 from \$2,700, hampering the city's ability to maintain rights-of-way and infrastructure such as utility poles, said Bill Kelly, director of Government Relations for the city of Houston.

"Cities can absolutely be partners in this process" of building out 5G infrastructure, he said. "We can't continually be on the menu for cuts and seen as an obstacle."

Houston City Councilman David Robinson, chair of the city's Transportation,

economic and travel restrictions. U.S. shale producers will also feel pressure from its OPEC rivals, which are expected to ramp up production gradually as demand recovers.

Analysts expect capital spending for new oil and gas projects will likely remain flat in 2021 as companies exercise fiscal discipline to woo back Wall Street investors that abandoned the energy sector after years of disappointing financial performance. Most oil and gas companies are focusing on bringing wells drilled before the pandemic into production, rather than drilling new wells.

S&P Global Platts expects the U.S. rig count and fracking crew figures will continue to recover this year, but won't get back to pre-pandemic levels until the end of 2022. Crude production, which was around 13 million barrels a day before the pandemic, is unlikely to rebound to that level until early 2023, Santos said.

Employment in the oil-field services and equipment sector increased by more than 9,000 jobs between September and November, according to an analysis of Bureau of Labor Statistics data by Petroleum Equipment & Services Association, a Houston-based trade group. While the job growth was welcome news for the sector, it barely made a dent in the nearly 101,000 oil-field services jobs lost since the pandemic started.

Many of these jobs may never return as societies shift away from fossil fuels in favor of more sustainable sources of energy, such as wind and solar power, Santos said. As a result, oil field services firms are evaluating their business models, pivoting to emerging markets in

carbon capture and hydrogen to prepare for a lower carbon future.

"This is a great window for (oil-field services companies) to continue to be more efficient in oil and gas and try to get into new businesses," Santos said. "Business as usual is not going to get them anywhere. The glory days of oil and gas may not come back anytime soon."

In November, Baker Hughes acquired Compact Carbon Capture, a Norwegian tech company developing equipment that can remove greenhouse gases from oil and natural gas operations. Schlumberger on Friday said it started a new division to expand its low-carbon energy portfolio, including ventures in hydrogen, carbon capture, lithium batteries and geothermal. Halliburton launched a laboratory where entrepreneurs, academics and investors can collaborate on clean-energy projects.

As countries and corporations set net-zero emissions targets, oil field services firms also see a growing market for new digital technology to manage and monitor carbon emissions for clients, executives said.

"You've got all of these countries that are now committing to net zero; you've got companies that are committing to net zero and even negative net zero," Baker Hughes CEO Lorenzo Simonelli told analysts in a conference call Thursday. "When you look at the portfolio we have, when you look at the hydrogen discussions we're having as well as carbon capture and storage, this will be an area of growth for us and it's very much in line with our strategy."

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Technology & Infrastructure Committee that oversees telecommunications projects, put it more bluntly.

"It's another instance of Houston getting the shaft as a municipality," Robinson said

Waiting for answers

Robinson, who just happens to live near Wijnands' and Pang's home, said his main concern is Verizon is not alerting residents before the boxes are placed.

The permits don't require individuals to be notified, Verizon spokesperson Kate Jay said.

"We are required to work with design districts

and historical commissions, but not with individual homeowners," Jay said via email. "We take all complaints very seriously. Each case is assessed on an individual basis, with many factors going into that assessment. In limited instances, we have determined that there is sufficient reason to move it, and have done so."

Verizon declined to make executives available for interviews. In a statement, the company said, "We comply fully with all zoning and permitting requirements, and potential antenna locations must meet all local, state and federal regulations. These are placed in the right of way and are properly permitted."

Elizabeth Kantner, who lives in the Rice Memorial area near Washington Ave., said crews affixed one of the boxes last September in front her home, but not on

the ground. Instead, it was mounted on a utility pole, about three feet off the ground. Crews dug up sod underneath it, and then left. An earlier dig broke water mains in the area, she said.

"When they started digging to put in cables, there were two water main breaks that flooded our street," Kantner said.

After Kantner met with the head of the construction crew, the box was removed and the sod replaced. Looking at her front yard, it's hard to tell anything was ever there.

But she said the matter is not resolved. Kantner said the contractor told her the box could reappear at any time and would check to see whether it would return or move to another property.

So far, she said, there's still no word.

twitter.com/dsilverman



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Notice is hereby given of the intention to introduce in the 87th Legislature, Regular Session, of the State of Texas, a local bill relating to the authority of a development corporation created by the Gulf Coast Authority to finance certain projects. For additional information, contact Elizabeth Fazio Hale, General Manager, Gulf Coast Authority, 910 Bay Area Blvd., Texas City, Harris County, Texas. This publication was paid for by the Gulf Coast Authority.

The Houston Housing Authority ("HHA") is soliciting sealed proposals to engage the services of a National Broker with Commercial Real Estate experience in accordance with the requirements and terms and conditions specified RFP 21-07 Real Estate Brokerage Services.

Interested parties who wish to respond to this solicitation must submit the required documents in a sealed envelope by 10 A.M. Central Standard Time (CST) February 26, 2021 to the Houston Housing Authority Attn: Arzoo Kazmi Re: RFP 21-07 Real Estate Brokerage Services - DO NOT OPEN 2640 Fountain View Drive Houston, Texas 77057.

RFP 21-07 can be obtained by going to the doing business with HHA section of HHA's website at www.housingforhouston.com, or by sending an e-mail to HHA's Procurement Dept. at Purchasing@housingforhouston.com.



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Tellepsen Interiors, serving as General Contractor for SERJobs for Progress, in accordance with Texas Government Code requests proposals from Data, Access Controls, A/V for the SER Jobs for Progress, 1960 Tellepsen Rd, Houston, Tx 77023, New Metal Building. Proposals are due to Tellepsen Interiors at 2:00 P.M. local time on Tuesday, 2/9/2021. To receive your invitation to Smart Bid, please contact Blaine Coutant by email at BCoutant@ticonconstructors.com. All proposals shall remain valid for 90 days. The owner, CM at Risk and Architect reserve the right to reject any and all bids, to waive any informalities and irregularities in the proposal process and to make awards in the best interest of SER Jobs for Progress. Contact Nathan Rigney - 713.828.2938 for information.

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The Metropolitan Transit Authority of Harris County, Texas (METRO) is planning to issue the procurement documents listed in this advertisement.
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NOTICE TO BIDDERS

The Texas Department of Criminal Justice (TDCJ) invites bids to **"Replace Structural Floor & Plumbing System - B Bldg., Wings C & D"** at the **Clemens Unit** located in **Brazoria, Texas.** A Pre-Bid Conference will be held at **10:00 A.M. on January 26, 2021** at the project site. Registration is required to attend. To register, contact the Contract Administrator, Christina Bodin-Turner, at (936) 437-7055 or christina.bodin-turner@tdcj.texas.gov.

Bid Documents can be purchased at a cost of \$60.00 (Sixty Dollars, non-refundable) per set, inclusive of mailing/delivery costs, or they may be viewed at various plan rooms. Payment checks for documents should be made payable to Half & Associates, Inc.:

Half Associates, Inc.
Attn: Jim Miller, PE
14800 St. Mary's Lane, Suite 160
Houston, Texas 77079-2943
Phone: (713) 380-4358
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REQUEST FOR COMPETITIVE SEALED PROPOSALS

CHANNELVIEW CRENSHAW and McMULLAN ELEMENTARY SCHOOL RENOVATIONS, CHANNELVIEW INDEPENDENT SCHOOL DISTRICT

The Channelview Independent School District will accept Competitive Sealed Proposals until 2:00 P.M. on Thursday, January 28th, 2021 at the Channelview Independent School District Educational Support Center, 828 Sheldon Road, Channelview, Texas 77530. A Pre-Proposal Conference will be held Thursday, January 21st, 2021 at 9:00 A.M. at Crenshaw ES Elementary School. A walk-through of the project sites will immediately follow the pre-proposal conference. Proposals Evaluation Criteria are published in the "Instructions to Proposers" section of the proposal documents. Plans and specifications will be released Thursday, January 14th, 2021, and will be available electronically from Hucklebee at www.hucklebee-inc.com/construction/ upon request. The Owner reserves the right to waive any informalities and to reject any or all proposals.

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NOTICE TO BIDDERS

The Texas Department of Criminal Justice (TDCJ) invites bids to **"Resurface Perimeter Road at the Henley Unit** located in **Dayton, Texas.** A Pre-Bid Conference will be held at 10:30 A.M. on **January 28, 2021** at the project site. Please register to attend by contacting the Contract Administrator, Joni McLendon, CTCDC, CTCM at (936) 437-7040 or Joni.mclendon@tdcj.texas.gov.

Bid Documents can be purchased at a cost of \$60.00 (Sixty Dollars, non-refundable) per set, inclusive of mailing/delivery costs, or they may be viewed at various plan rooms. Payment checks for documents should be made payable to the RPS Group:

RPS Group
Attn: **Natalie Chaney or Jennifer Hallier**
575 N. Dairy Ashford, St. 700
Houston, Texas 77079
Phone: (281)589-7257
Email: Jennifer.hallier@rpsgroup.com

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