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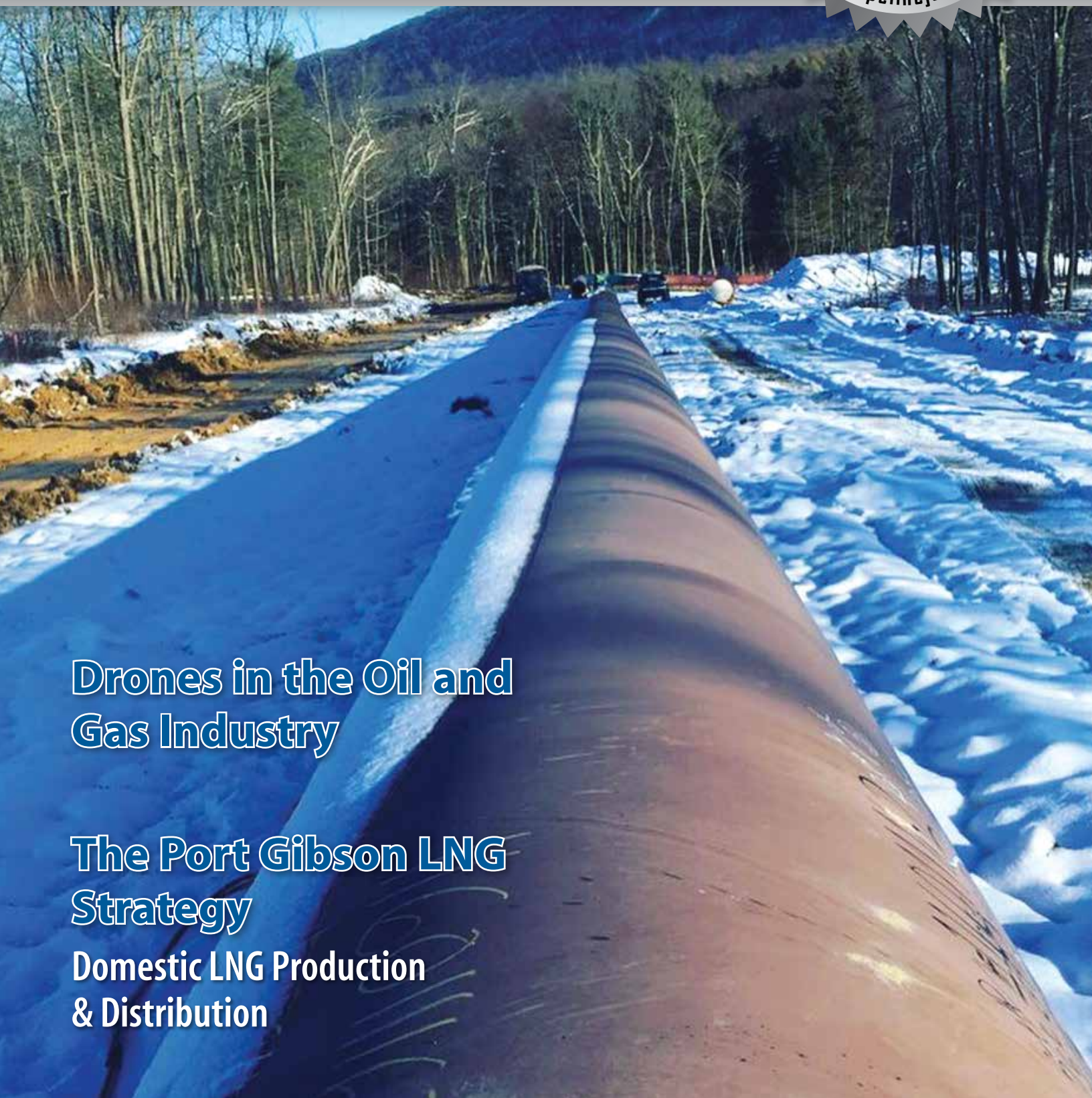

Drones in the Oil and Gas Industry

The Port Gibson LNG Strategy

Domestic LNG Production & Distribution

PIPELINERS HALL of FAME NEWS

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DEPARTMENTS

Send your comments, stories and pipeline photos to tbostic@pipelinejobs.com

EVENT CALENDAR

72nd Annual PLCA Convention
La Quinta Resort & Club
49-499 Eisenhower Drive
La Quinta, California
February 4-8, 2020

DCA Convention
Boca Raton Resort & Club
Boca Raton, Florida
February 24-29, 2020

Pipeliners Reunion
Stoney Creek Hotel & Conference Center
200 W. Albany St.
Broken Arrow, OK
March 19-22, 2020

APCA Annual Convention
Hyatt Baha Mar
Nassau, Bahamas
March 27 - April 1, 2020

Disclaimer

LATEST JOB REPORTS

Gulf South Pipeline will be placing a job out for bid – **The Index 99 Expansion.** The **Index 99 Expansion Project** would include the construction of the following facilities: installation of approximately 22 miles of new 30-inch pipeline (Index99L) beginning in San Augustine County, Texas and terminating in Sabine County, Texas, at Gulf South's existing Magasco Compressor Station near Pineland, Texas; installation of a pig receiver at the intersection of the new Index 99L pipeline and Gulf South's existing Index 99 System, in San Augustine County, Texas; installation of a pig launcher at the intersection of the new Index 99L pipeline and Gulf South's existing Index 99 System and Index 129 Legacy System (within Gulf South's existing Magasco Compressor Station), in Sabine County, Texas; installation of one new mainline valve assembly along the new Index 99L pipeline, in San Augustine County, Texas; installation of approximately 250 feet of new 24-inch station piping and a 24-inch pressure control valve at the existing Hall Summit Compressor Station in Bienville Parish, Louisiana. Additionally, Gulf South proposes to use 3 contractor/pipe yards (all in San Augustine County, Texas).

El Paso Natural Gas Company, L.L.C. has received approval from the FERC to construct and operate its South Mainline Expansion Project. The project includes construction about 17 miles of 30-inch loop line on the existing lines, a new 13,220 hp turbine-driven compressor station in Luna County, NM, and a new 13,220 hp turbine-driven compressor station in Cochise County, AZ. Contractor information not yet available.

Henkels & McCoy, Inc., ph (888)436-5357 has been awarded contracts by TC Energy for the installation of cathodic protection on 20-inch pipeline right-of-ways in Kanawha and Jackson Counties, West Virginia and Pike County, Kentucky. Headquarters are Liberty, West Virginia, Ripley, West Virginia and Ransom, Kentucky. Superintendent is Robert Nelms. The approximate starting date is December 9, 2019.

Pe Ben USA, Inc., ph (281)452-5915 has been awarded a contract by **Hanging H Companies**, ph (360)726-2334 for the loading, hauling, and stringing of approximately 70 miles of 36-inch pipe in Weld County, Colorado. Headquarters is Windsor, Colorado. Superintendent is Robert Cooley. The approximate starting date late November 2019.

LATEST JOB REPORTS

It is reported that **Williams** has awarded contracts for its Bluestem Pipeline. The Bluestem Pipeline is a proposed 188-mile, 16-inch natural gas liquids (NGL) pipeline originating at Mid-Continent Fractionation & Storage LLC's (MCF&S) facility in Conway, Kansas. When completed, it will deliver NGLs to our customer's proposed pipeline system near Kingfisher, Oklahoma. Contracts are said to be awarded to **Jomax Construction**, ph (620)792-3686 and **WHC, Inc**., ph (337)837-8765. Work is anticipated to begin in February 2020.

The Whistler Pipeline consortium has awarded contracts to **Troy Construction,** ph (281)437-8214, **Strike Construction,** ph (888)353-1444 and **Pumpco, Inc**., ph (979)542-9054. The Whistler Pipeline is an approximately 450-mile, 42-inch intrastate pipeline (the "Whistler Mainline") that will transport natural gas from an interconnect with the Waha Header near Coyanosa, Texas in the Permian Basin to a terminus near Agua Dulce, Texas, providing direct access to South Texas markets and consumers. An approximately 50-mile 36-inch lateral will provide connectivity for gas processors in the Midland Basin. The pipeline will have transportation capacity of 2 billion cubic feet per day (Bcf/d). Construction is expected to begin in February 2020.

TECO Energy will place a job out for bid which is expected to begin construction in April 2020. The job will include construction of approx. 40 miles of 24-inch pipeline from Pensacola, Florida to Flomaton, Alabama.

TECO Energy is expected to begin construction in February 2020 with the Callihan Interstate Pipeline. The job will include approximately 21 miles of 30-inch pipeline near Yulee, Florida.

Rockford Corporation, ph (214)545-6780 is expected to construct approximately 17 miles of 30-inch pipeline in El Paso, Texas. Work is slated to begin in February 2020.

Williams Transco will be placing a job out for bid which will include construction of approximately 10.5 miles of 42-inch pipeline in Lancaster, PA. The job is expected to get underway in March 1, 2020.

It is reported that the **Voyager Pipeline** proposed by **Magellan Midstream Partners, L.P. and Navigator Energy Services** has been placed on hold. The proposed Voyager pipeline will involve construction of almost 500 miles of 20- or 24-inch diameter pipeline from Magellan

Midstream's terminal in Cushing to its facility in East Houston. The pipeline is estimated to come online in late 2020.

Troy Construction, ph (281) 437-8214 , **Pumpco, Inc**., ph (979) 542-9054, and **MPG Pipeline Contractors, LLC**, ph (713) 955-9901 are underway with a job for Kinder Morgan and EagleClaw Midstream Ventures **Permian Highway Pipeline** project. **Troy Construction** also has Spread 5 which will begin around the Luling, Texas area and continue toward the coast. That spread will begin in January 2020. The approximately 430 miles of 42-inch pipeline will extend from the Waha in West Texas to Katy, Texas, areas, with connections to the U.S. Gulf Coast and Mexico markets. The PHP Project is expected to be in service in late 2020.

Primoris Services Corp., ph (214) 740-5600 will still construct approximately 90 miles of 36-inch pipeline around Wink, Texas. Work is slated to begin in January 2020.

W B Pipeline, ph (832) 802-4790 (two spreads – 93 miles) and **Southern Pipeline**, ph (501) 281-4640 (one spread of 35 miles) are underway with construction of approximately 138 miles of 20-inch pipeline from Stephenville, Texas to Hearne, Texas.

Energy Transfer is expanding the Lone Star Express Pipeline (Lone Star Xpress II). The Lone Star Xpress II will consist of approximately 360 miles of 24-inch pipeline from Wink, Texas to Morgan, Texas. In-service date for the project is expected in mid-2020. Contractors for the project are: **Spread 1- Pumpco, Inc.,** ph (979) 542-9054, **Spread 2 – Troy Construction,** ph 281-437-8214, **Spread 3 – Holloman Corporation**, ph (281) 878-2600, and **Spread 4 – Precision Pipeline**, ph (715) 874-4510.

PIPELINE PETE SAYS

"To help yourself, help others. Whatever good you do travels a circle and returns to you many times over- but remember, life isn't about what you get, it's about what you become."

Drones in the Oil and Gas Industry

The factor that separates innovation from pure fantasy is simply the ability to recognize what is a creative thought, what is worth devoting your time to, and most significantly, the solution to the problem will be reasonably interesting, amply challenging, yet logically solvable, and could potentially change, forever, the ways things are done. (anonymous author)

It was 1984, thirty-five years ago. The United States Global Positioning System (GPS) was in its early days with six U. S. Military satellites in orbit. The satellites were in a constellation known then as “NavStar”.

The position of each satellite was intentionally induced with error by what was known as “dithering the clocks”. The U. S. Military could correct the error with the application of what was identified as the “P” code. A few innovative U.S. surveyors, experts in measurement and positioning, quietly developed a way to neutralize the error.

Flash forward to this century. Today, all NavStar satellites have been replaced with thirty-one “GPS” multi-frequency satellites in orbit. In addition, twenty-four Russian “Glonass” satellites, thirty-five Chinese “BeiDou” satellites, and twenty-six European Union satellites are orbiting. Surveyors world-wide, are presently using these satellite constellations to determine absolute positions on the earth within an inch.

Other innovations have made great strides:

- The camera industry has been totally transformed from using film and paper to digital photography. Image resolution and photo acquisition speeds are increasing every year.
- Major advances have been made in communications, telemetry, and using the internet, fiber optics, smart phones, WIFI, and Bluetooth.
- Inertial measurement Systems (IMU) once developed by Litton Aerospace and Honeywell International for positioning the U.S. Military missile systems, have been reduced to readily available chips on small printed circuit boards.
- Microcontrollers with strange names like Arduino, Raspberry Pi, Beagle Bone, and Pixhawk are easily programmed. Integrated with other systems they can combine hundreds of miniaturized and specialized sensors for everything from temperature to methane and other gases.

Integrating these micro-systems together has revolutionized and birthed other technologies with the same growth potential as GPS. Take, for instance, what is commonly known today as a Drone.

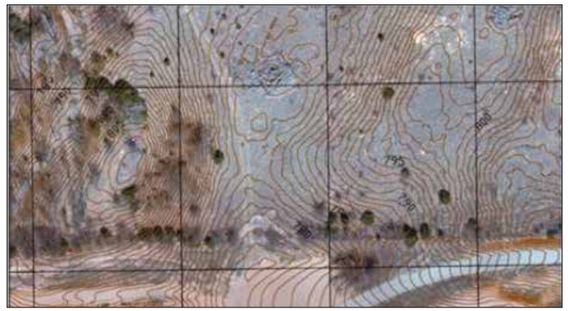
Drones have been evolving for years. Unmanned vehicles were used for target practice prior to World War I and later, as a weapon against the British, in World War II. The sound made as they traveled across the English Channel is where they may have gotten their name.

In the simplest explanation, todays commercial Drones are just an airborne video camera platform. A 20-megapixel camera gimballed on a quadcopter (four-motor) Drone is common, easily acquired, and easily flown. Miniaturization is one of the keys to a successful Drone operation and the DJI “Mavik” is a typical example of a Drone that can be purchased at your local consumer electronics store. Larger multi-copters with additional motors and fixed-wing drones offer options for larger cameras and a heavier payload. But there are trade-offs, if these larger systems are not needed then bigger does not necessarily mean better.

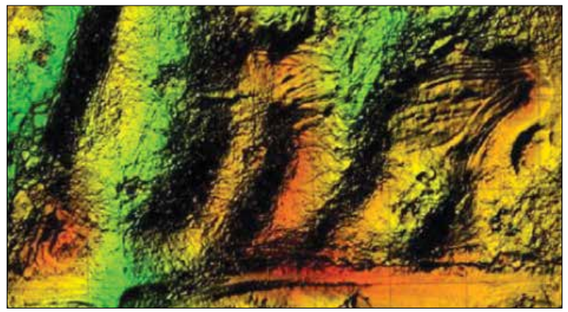
As the practical use of the Drones is in its initial stages, like GPS in 1984, the pipeline industry stands to be one of the industries that will most benefit from its use. A typical use would be for, say, route reconnaissance. During the recon, set the drone on the ground, raise the Drone straight up to 100 feet beyond the height of trees, poles, and other obstacles (maximum 400 feet). Turn on the video camera and while watching on the remote controller, slowly rotate the Drone horizontally 360 degrees, and, when finished, return the Drone straight down to the ground. A simple method for recording the location that can be used repeatedly at road and, railroad crossings, river crossings, access roads and other locations where confirming a pipeline route is critical.

For more complicated applications, such as site development and determining drainage, once again, the surveyors in the Oil and Gas industry are leading the development with precision, low altitude, aerial photography tied to ground surveys.

Practical photogrammetry, for years, has been the tool of choice for creating large area contour maps. Drones can now automatedly, using preflight software, fly to predesignated locations, take multiple pictures and return. Miniaturized flight controllers and autopilot circuits control the motors while the integrated GPS system, barometer, and compass systems work together to determine the Drone’s position. Aerial photographic missions, many having over 2000 precisely positioned individual images, are common. Low Altitude Aerial Photogrammetry, using a Drone, can easily produce a photo ortho-mosaic with one-foot contours and image resolutions as high as one-half inch ground distance pixel to pixel. Processing the ground control and aerial photography takes just a few days and all the data can be imported into your favorite CAD program.



One-Foot Contours



Colors Are Changes In Elevation

Tank farms are another area that can benefit from using a drone. Along with site drainage the containment area around each tank(s) can be determined very accurately and additionally can help satisfy EPA requirements for containment. Computations are very similar to the type of computations now used to compute stockpile volumes using Drones.

Tank Site Under Construction

Pipeline inspection companies can also benefit from using drones. Hard to access areas, such as under bridges, and inspections conducted inside contained areas are an obvious use for a Drone. Many areas hazardous to human health can be accessed while staying within the guidelines of OSHA. Methods to use a Drone with the hundreds of sensors available are now in development. Pipeline inspectors Using sensors along with the Drone telemetry and video will be able to access and inspect areas previously inaccessible due to safety requirements for individuals.

The addition of robotics to Drones in the future will further improve their use by allowing fly-in’s to containment areas with the ability to temporarily repair or establish a monitoring system until repairs can be made.

In the United States the FAA refers to Drones as UAV’s (Unmanned Aerial Vehicles) and the agency imposes a few restrictions in order to fly. The most important restriction is that all commercial flights with a Drone must be completed by a FAA licensed Remote Pilot. While the question of whether requiring a license to perform a pipeline route reconnaissance for your company could be disputed, taking the FAA test is not that difficult. The FAA only requires a written exam and does not require a flight test. To make it easy, there are several Remote Pilot video courses on the Internet with instructions on what to do when you pass. The reality is that you will learn a lot about weather, air space, reading sectional charts, flying safe, etc. and become a responsible Remote Pilot with a knowledge of the rules of flight.

Drones are here to stay in the Oil and Gas industry and the innovators are busy finding ways to use them to make their work easier and more profitable.

ANR Pipeline Company has submitted an application to the FERC seeking approval for the Grand **Chenier Xpress Project**. The project facilities and associated work in Louisiana include the addition of a new compressor station (Mermentau CS) in Jefferson Davis Parish; modifications at the existing Grand Chenier and Eunice Compressor stations in Cameron and Acadia parishes to increase flow through of natural gas; and, installation of new pipeline facilities (i.e. Mainline Valves) on the existing ANR Pipeline. ANR is requesting that the FERC issue an order approving the application by November 30, 2020, so that ANR will be able to begin construction on a timely basis and commence service by January 1, 2022.

FERC has issued approval for the **Annova LNG Brownsville Project. Annova LNG Common Infrastructure, LLC; Annova LNG Brownsville A, LLC; Annova LNG Brownsville B, LLC; and Annova LNG Brownsville C, LLC** are planning to construct, and operate a liquefied natural gas (LNG) export facility in Cameron County, Texas. The project will include a new LNG export terminal capable of producing up to 6.95 million metric tons per year of LNG for export. The LNG terminal would receive natural gas to the export facilities from a third-party intrastate pipeline. Annova anticipates a five-year construction period. The facilities for the project include the following major components: gas pretreatment facilities; liquefaction facilities (six liquefaction trains and six approximately 72,000 horsepower [hp] electric motor-driven compressors); two LNG storage tanks; boil-off gas handling system; flare systems; marine facilities; control, administration, and support buildings; access road; fencing and barrier wall; and utilities (power, water, and communication). Construction is slated for 2022 with a partial in-service date of 2024.

Centurion Pipeline L.P. announced a binding open season to solicit shipper commitments for a proposed crude oil pipeline from Midland, Texas, to Crane, Texas. The **Augustus Pipeline** will connect Centurion's existing Midland Terminal, which currently has approximately 2 million barrels of storage capacity, to multiple long-haul pipelines originating at Crane. The project will include a combination of new and existing pipeline assets and will have an initial throughput capacity of approximately 150,000 barrels per day (BPD). The pipeline is expected to be in service in the fourth quarter of 2020. The binding open season commenced on November 5, 2019, and is scheduled to conclude at on December 9, 2019.

Corpus Christi Liquefaction Stage III, LLC (CCL Stage III) and **Corpus Christi Liquefaction, LLC** has received approval to site, construct, and operate additional facilities for the liquefaction and export of domestically-produced natural gas (Stage 3 LNG Project) at Corpus Christi Liquefaction's existing liquefied natural gas (LNG) terminal on the northern shore of Corpus Christi Bay in San Patricio and Nueces Counties, Texas (Liquefaction Project). The proposed **Stage 3 LNG Project** consists of the addition of seven midscale liquefaction trains and one LNG storage tank. FERC also approved a project for Cheniere Corpus Christi Pipeline, L.P. to construct and operate new interstate natural gas pipeline, compression, and related facilities in San Patricio County, Texas (Stage 3 Pipeline Project). The proposed Stage 3 Pipeline Project comprises a new 21-mile-long, 42-inch-diameter pipeline, additional compressor units at the existing Sinton Compressor Station, meter stations, and appurtenant facilities to transport 1.5 billion cubic feet per day (Bcf/d) of natural gas bi-directionally between the proposed Stage 3 LNG Project facilities and interconnections with existing pipeline systems.

Dominion Energy and a consortium of energy partners remain at a standstill on the **Atlantic Coast Pipeline** project as they wait for court rulings that could impact the future of the project. Despite numerous setbacks, legal challenges and opposition from environmental advocacy groups, a Dominion Energy official said the company remains confident that construction of the Atlantic Coast Pipeline will be complete by 2021. The case is going to be heard in the Supreme Court and Dominion expects to have oral hearings in late winter, springtime of 2020 with a decision expected no later than June 2020.

Bluewater Gas Storage has proposed a compressor project designed to increase operating pressure for its system. Bluewater's current interconnection with Vector Pipeline does not allow direct delivery of the required amount of customers' natural gas needs due to the varying pressures between the Bluewater and Vector systems. This has required rerouting the natural gas to other third-party pipelines for delivery, which results in additional costs. A new compressor would increase Bluewater's operating pressure, taking full advantage of the Vector Pipeline interconnection and eliminating excess costs for rerouting the contracted amount of natural gas. Bluewater has submitted a pre-filing application with the FERC for the project and has received a Notice on Intent to Prepare an Environmental Assessment (EA). The EA is expected from the FERC December 2, 2019 with a final FERC decision slated for March 1, 2020. Pending Federal Energy Regulatory Commission (FERC) and state review and approval, construction is expected to start in mid-2020 with completion in 2021.

The staff of the FERC has approved the **Cheyenne Connector Pipeline Project** and the **Cheyenne Hub Enhancement Project**, proposed by Cheyenne Connector, LLC and Rockies Express Pipeline LLC. The project includes approximately 71 miles of new 36-inch-diameter pipeline, five new meter and regulating stations, and one new compressor station all in Weld County, Colorado (Cheyenne Connector Pipeline). The Cheyenne Hub Enhancement Project includes the following facilities: one new approximately 32,100 horsepower compressor station; enhancements to modify Rockies Express' existing Cheyenne Hub interconnect facilities, including installation of pipe, valves, fittings, filters, and ancillary equipment; and ancillary facilities constructed at Rockies Express' existing Cheyenne Hub, consisting of station piping, vibration reducing equipment, compressor and electrical buildings, valves, and gas cooling equipment. Work is just getting underway.

Columbia Gulf Transmission, LLC has filed an application with the FERC to construct and operate the **Louisiana XPress Project.** Issuance of the Environmental Assessment from the FERC is expected February 7, 2020 with a final EA decision slated for May 8, 2020.The project will create 493,000 dekatherms per day (Dth/d) of incremental mainline capacity on Columbia Gulf's pipeline system. The incremental capacity created by the project, in conjunction with the utilization of existing capacity, will allow for open access firm transportation service on approximately 850,000 Dth/d of capacity on a north-to-south path from Columbia Gulf's Mainline Pool to a primary point of delivery with Kinder Morgan Louisiana Pipeline LLC in Evangeline Parish, Louisiana. The proposed facilities in Louisiana include three new compressor stations: the Shelburn Compressor Station in East Carroll Parish, the Red Mountain Compressor Station in Catahoula Parish, and the Chicot Compressor Station in Evangeline Parish. It also includes upgrades at one existing facility, the Alexandria Compressor Station in Rapides Parish. The new facilities will tie into the already existing Columbia Gulf Transmission System. The estimated cost of the project is $471,588,011.

Double E Pipeline, LLC (Double E) has filed an application with the FERC seeking authority to construct, operate and maintain its **Double E Pipeline Project**. Double E seeks authorization to construct and operate an approximately 116.6-mile, 30-inch and 42-inch trunk-line natural gas pipeline; an approximately 16.3-mile, 30-inch lateral; and meters, mainline block valves, launchers and receivers, and other minor facilities at aboveground sites. The project will interconnect with Kinder Morgan's planned Gulf Coast Express and Permian Highway Pipelines, and Energy Transfer Partners' Trans Pecos Pipeline. The Double E Pipeline Project is designed to provide up to 135,000 dekatherms per day of firm capacity to connect growing production areas in the Delaware Basin in southeast New Mexico and west Texas to delivery points near Waha in Reeves and Pecos Counties, Texas. If approved, in-service is slated for 2021.

Driftwood LNG LLC and Driftwood Pipeline LLC, have received a positive Final Environmental Impact Statement from the FERC for the liquefied natural gas (LNG) export facilities and certain interstate, natural gas transmission pipeline facilities in Evangeline, Acadia, Jefferson Davis, and Calcasieu Parishes, Louisiana. The project would provide gas and processing to produce up to 26 million tonnes per annum of LNG for export. The project facilities include five LNG plants; three LNG storage tanks; three marine berths capable of accommodating LNG carriers of up to 216, each; 74 miles of 48-inch pipeline, 10.6 miles of 42-inch pipeline; 11.3 miles of 36-inch pipeline; and 1 mile of 30-inch lateral pipeline collated with the main pipeline; three compressor stations providing a total of 275,000 horsepower of compression; six pig launchers and receiver facilities, 15 meter stations, and 17 mainline valves.

El Paso Natural Gas Company, L.L.C. has received approval from the FERC to construct and operate its **South Mainline Expansion Project**. The project includes construction about 17 miles of 30-inch loop line on the existing lines, a new 13,220 hp turbine-driven compressor station in Luna County, NM, and a new 13,220 hp turbine-driven compressor station in Cochise County, AZ.

El Paso Natural Gas Company, L.L.C. has filed with the FERC for authorization to replace the driver for one of its existing compressors at its existing Waha Compressor Station located in Reeves County, Texas. This project is referred to as El Paso's **Waha Compressor Station Project**. The total cost of this project is approximately $16.2 million and the target in-service date for the proposed replacement EMD unit is second quarter of 2020.

Enable Midstream Partners, LP has been issued a Notice of Intent to Prepare an Environmental Impact Statement from the FERC for the company's proposed **Gulf Run Pipeline** project. The new, 171-mile pipeline in Louisiana would run through Red River, DeSoto, Sabine, Vernon, Beauregard, and Calcasieu Parishes, Louisiana. Some surveying is underway. Pending receipt of applicable permits and regulatory approvals, construction could begin by 2022. The proposed new pipeline will run from northern Louisiana to the Gulf Coast, helping deliver U.S. resources to international markets with increasing demand.

Enbridge has signed an agreement with shippers to place the **Line 3 replacement pipeline** into service in Canada. The largest project in Enbridge's history, the Line 3 replacement program features a C$5.3bn ($3.96bn) Canadian component and a $2.9bn American component. It expands on the former Line 3 segment replacement program and will feature the entire

remaining segments of Line 3 between Hardisty, Alberta, and Superior, Wisconsin. The program will fully replace 1,660km of Line 3 with new pipeline and related facilities on either side of the Canada-US international border. The Canadian portion of the pipeline is expected to be placed into service by the end of this year. Enbridge is awaiting final permitting to start construction on the majority of the American portion of the project. The Wisconsin segment of the project entered service last year. By November, Enbridge seeks to secure certification for the remaining Minnesota permits to begin construction. The company said that it will concurrently start construction in Minnesota and North Dakota after securing the required permits and approvals. The remaining American portion of the project is anticipated to enter service late next year.

Enterprise Products Partners L.P. announced it is extending its ethylene pipeline and logistics system further into South Texas, a leading growth area for new crackers and ethylene derivative plants. The Baymark ethylene pipeline will originate in the Bayport area of southeast Harris County and extend approximately 90 miles to Markham, Texas in Matagorda County. The pipeline is supported by long-term customer commitments and is scheduled to begin service in the fourth quarter of 2020. The project is a joint venture between **Enterprise and Lavaca Pipe Line Company**, a subsidiary of Formosa Plastics Corporation, U.S.A. Enterprise will be the majority owner, operator, and commercial manager for the new pipeline. The Baymark Pipeline will provide access to a high-capacity ethylene storage well Enterprise is repurposing at its Mont Belvieu complex, as well as connectivity to the ethylene export terminal currently under construction at Morgan's Point. The storage well is expected to be completed in the third quarter of 2019 and will have a capacity of 600 million pounds. The terminal will have the capacity to export approximately 2.2 billion pounds of ethylene per year and is on schedule to begin service in the fourth quarter of 2019.

The staff of the FERC will prepare an Environmental Assessment (EA) that will discuss the environmental impacts of the **Putnam Expansion Project involving** construction and operation of facilities by **Florida Gas Transmission Company**, LLC in Columbia, Union, Putnam, Clay, and Orange Counties, Florida. Issuance of the EA is expected from the FERC on November 8, 2019. The project would consist of the following facilities in Florida: West Loop- install 13.7 miles of 30-inch pipeline loop in Columbia and Union Counties; East Loop- install 7.0 miles of 30-inch pipeline loop in Clay and Putnam Counties; Columbia/Union Receiver Station Relocation-

remove and relocate the existing 30-inch loop pig receiver located at the beginning of the West Loop in Columbia County to a new pig receiver station to be installed at the terminus of the West Loop in Union County; Clay/Putnam Receiver Station Relocation- remove and relocate the existing 30-inch loop pig receiver located at the beginning of the East Loop in Clay County to a new pig receiver station to be installed at the terminus of the East Loop in Putnam County; Compressor Station (CS) 18- install new automated valves, over pressure protection device, and station piping at FGT's existing CS 18 in Orange County, Florida. A final environmental decision from the FERC is expected in February, 2020. If approved, the planned in-service is April 2022.

An affiliate of Plains All American Pipeline is holding a binding open season for long-term commitments for light crude oil transportation service on its Western Corridor Pipeline System. The open season service will originate in northern Montana for delivery to Gulf Coast markets. Subject to sufficient commitments from shippers and receipt of any necessary permits and regulatory approvals, the existing System capacity will be expanded by up to an additional 70,000 barrels per day, and service on the expanded System is expected to begin in the second quarter of 2021.

EPIC Crude Holdings, LP announced that it is opening a third Open Season for its **EPIC Crude Oil Pipeline.** The Open Season commenced on October 28, 2019 and will end on December 17, 2019. The Crude Oil Pipeline successfully closed its first Open Season on July 26, 2018 and its second Open Season on September 28, 2018. The Crude Oil Pipeline runs parallel to the EPIC Y-Grade Pipeline (the "Y-Grade Pipeline") that extends from Orla, Texas to the Port of Corpus Christi, Texas and includes terminals in Orla, Saragosa, Crane, Wink, Midland, Upton, Hobson and Gardendale, with connectivity to the Corpus Refining market as well as multiple terminals in the Port of Corpus Christi for export access. The Crude Oil Pipeline services the Delaware, Midland and Eagle Ford Basins. EPIC began interim crude operations in August, utilizing the 24-inch Y-Grade Pipeline, which can ship up to 400 thousand barrels of oil per day (MBbl/d) and stretches from Crane, Texas to terminals in Corpus Christi and Ingleside. Once the planned 30-inch Crude Oil Pipeline is completed in Q1 of 2020, EPIC will have initial capacity to transport 600 MBbl/d. The Crude Oil Pipeline is expandable to transport up to 900 MBbl/d. The EPIC Crude Export Dock in Corpus Christi is expected to be completed in the fourth quarter of 2019 and will be capable of loading Aframax tankers that carry up to 750 MBbl. Additionally, EPIC is constructing a second crude export dock to be complete by the third quarter of 2020 and with a capability of loading Suezmax tankers that carry up to 1,000 MBbl.

Gulf South Pipeline Company, LP has an application before the FERC seeking authority to construct and operate certain natural gas pipeline facilities. The proposed project is known as the **Lamar County Expansion Project** and would provide about 200,000 dekatherms of natural gas per day to Cooperative Energy's generation facility in Lamar County, Mississippi. Issuance of the Environmental Assessment is expected February 18, 2020 with a final decision expected May 18, 2020. Gulf South proposes to construct and operate 3.4 miles of 20-inch-diameter pipeline, a new delivery meter station, and a new 5,000 horsepower compressor station in Lamar and Forrest Counties, Mississippi. The project would allow Gulf South to provide up to 200,000 dekatherms per day of new natural gas firm transportation service from Gulf South's existing Index 299 pipeline to Cooperative Energy. This service would be primarily utilized for Cooperative Energy's new 550-megawatt combined cycle gas turbine generation facility. According to Gulf South, the Project would allow Cooperative Energy's power plant to switch from coal to natural gas as a power source. If approved, the project is slated for construction in the 4th quarter of 2020.

Gulf South Pipeline Co., LP has an application before the FERC seeking authority to construct and operate a new pipeline, new launcher and receiver facilities, and a new mainline valve, and to modify an existing compressor station in Texas and Louisiana. The project would provide about 500,000 dekatherms per day (Dth/d) of new natural gas firm transportation service to markets along the Gulf Coast region, as well as provide for an additional 250,000 Dth/d of capacity to Gulf South's existing facilities in northern The **Index 99 Expansion Project** would include the construction of the following facilities: installation of approximately 22 miles of new 30-inch-diameter pipeline (Index 99L), including cathodic protection along the proposed pipeline, beginning in San Augustine County, Texas and terminating in Sabine County, Texas, at Gulf South's existing Magasco Compressor Station near Pineland, Texas; installation of a pig receiver at the intersection of the new Index 99L pipeline and Gulf South's existing Index 99 System, in San Augustine County, Texas; installation of a pig launcher at the intersection of the new Index 99L pipeline and Gulf South's existing Index 99 System and Index 129 Legacy System (within Gulf South's existing Magasco Compressor Station), in Sabine County, Texas; installation of one new mainline valve assembly along the new Index 99L pipeline, in San Augustine County, Texas; installation of approximately 250 feet of new 24-inch station piping and a 24-inch pressure control valve at the existing Hall Summit Compressor Station in Bienville Parish, Louisiana. Additionally, Gulf South proposes to use 3 contractor/pipe yards (all in San Augustine County, Texas), as well as 9 temporary and 18 permanent access roads during construction of the Index 99 Expansion Project. Louisiana, for a total maximum daily quantity of 750,000 Dth/d. The Index 99 Expansion Project would include the construction of the following facilities: installation of approximately 22 miles of new 30-inch pipeline (Index 99L); including cathodic protection along the proposed pipeline, beginning in San Augustine County, Texas and terminating in Sabine County, Texas, at Gulf South's existing Magasco Compressor Station near Pineland, Texas; installation of a pig receiver at the intersection of the new Index 99L pipeline and Gulf South's existing Index 99 System, in San Augustine County, Texas; installation of a pig launcher at the intersection of the new Index 99L pipeline and Gulf South's existing Index 99 System and Index 129 Legacy System (within Gulf South's existing Magasco Compressor Station), in Sabine County, Texas; installation of one new mainline valve assembly along the new Index 99L pipeline, in San Augustine County, Texas; installation of approximately 250 feet of new 24-inch station piping and a 24-inch-pressure control valve at the existing Hall Summit Compressor Station in Bienville Parish, Louisiana. Additionally, Gulf South proposes to use 3 contractor/pipe yards (all in San Augustine County, Texas), as well as 9 temporary and 18 permanent access roads during construction of the Index 99 Expansion Project. Gulf South has requested a Certificate of Public Convenience and Necessity from the Commission by March 19, 2020 in order to begin construction in spring 2020 and to place the project into service by October 1, 2020.

Gulf South Pipeline Company, LP has an application before the FERC seeking to construct the **Lamar County Expansion Project.** The project would provide about 200,000 dekatherms of natural gas per day to Cooperative Energy's generation facility in Lamar County, Mississippi. Issuance of the Environmental Assessment from the FERC is expected February 18, 2020 with a 90-day Federal Authorization Decision Deadline slated for May 18, 2020. Gulf South proposes to construct and operate 3.4 miles of 20-inch pipeline, a new delivery meter station, and a new 5,000 horsepower compressor station in Lamar and Forrest Counties, Mississippi. The project would allow Gulf South to provide up to 200,000 dekatherms per day of new natural gas firm transportation service from Gulf South's existing Index 299 pipeline to Cooperative Energy. This service would be primarily utilized for Cooperative Energy's new 550-megawatt combined cycle gas turbine generation facility. According to Gulf South, the Project would allow Cooperative Energy's power plant to switch from coal to natural gas as a power source. If approved, construction is slated for the 4th quarter of 2020.

Gulfstream Natural Gas System, L.L.C. has received a Notice of Intent to Prepare an Environmental Impact

Statement from the FERC to construct, and operate certain natural gas pipeline facilities in Alabama and Florida (Phase VI Expansion Project). The project would add an additional 78,000 dekatherms per day of mainline capacity to an existing power plant in Manatee County, Florida. Gulfstream proposes to install one 16,000 horsepower turbine driven compressor unit at its existing Compressor Station 410 located in Mobile County, Alabama and would also abandon in place approximately 4 miles of 36-inch-diameter pipeline in Mobile County. Gulfstream would construct approximately 4 miles of thicker walled 36-inch pipeline to replace the abandoned pipeline and increase the maximum allowable operating pressure of approximately 59 miles of 36-inch onshore and offshore pipeline. The project would also require the construction of metering equipment at Compressor Station 420 in Manatee County, Florida. Issuance of Environmental Assessment is expected January 16, 2020 with a final FERC project decision expected on April 15, 2020.

Gulf South Pipeline Company, LP has commenced construction activities on the **Willis Lateral** project. The project will provide about 200 million cubic feet of natural gas per day to Entergy Texas, Inc.'s Montgomery County Power Station Project near Willis, Texas. The project will consist of the following facilities entirely within the state of Texas: construction of approximately 19 miles of 24-inch pipeline in Montgomery and San Jacinto Counties; addition of a new 15,876 horsepower turbine engine to the existing Goodrich Compressor Station and construction of a new Meter and Regulator station at the compressor station in Polk County; construction of the Index 129 tie-in and pig launcher facility in San Jacinto County; construction of the new Willis M&R station at the terminus of the project (including a pig receiver, filter separators with a liquid storage tank, and ancillary equipment) in Montgomery County; and construction of a mainline valve facility in Montgomery County. The Willis Lateral Project has a tentative in-service slated for May 2020.

Harvest Midstream Company, an affiliate of Hilcorp Energy Company, announced the start of construction for **the Ingleside Pipeline and the Harvest Midway Terminal**. The Ingleside Pipeline is a new 24-mile, 24-inch oil pipeline that will originate from the Harvest Midway Terminal and connect to multiple oil export terminals in the Ingleside area, including the Flint Hills Resources Ingleside Terminal and the South Texas Gateway Terminal being developed by Buckeye Partners. The Ingleside Pipeline will also connect to multiple terminals in the Midway and Taft area. Additionally, the Ingleside Pipeline will have a final capacity of 600,000 barrels per day (bpd) with up to 380,000 bpd supplied by the existing Harvest Eagle Ford Pipeline Systems. As a result, the Ingleside Pipeline will provide Harvest customers direct access to Ingleside terminals, which is the fastest growing export center along the Gulf Coast. The Harvest Midway Terminal covers 160-acres and has the capacity to store over 10 million barrels. The initial buildout will include 200,000 barrels of crude oil storage, as well as measurement and pumping infrastructure capable of 25,000 barrels per hour. The Ingleside Pipeline is expected to begin service at the end of the first quarter of 2020 and the Harvest Midway Terminal is projected to be in-service at the beginning of the fourth quarter of 2020.

Jordan Cove Energy Project, L.P. and Pacific Connector Gas Pipeline, LP have received a positive Final Environmental Impact Statement from the FERC for their proposed LNG and Terminal Pipeline. The project is designed to create a new LNG export point on the Oregon coast to serve overseas markets particularly around the Pacific Rim. The LNG Terminal would be capable of receiving natural gas, processing the gas, liquefying the gas into LNG, storing the LNG, and loading the LNG onto vessels at its marine dock. The proposed liquefaction facility would be capable of producing up to 7.8 million metric tons per annum of LNG. PCGP proposes to construct and operate a new, approximately 233-mile long, 36-inch natural gas transmission pipeline crossing through Klamath, Jackson, Douglas, and Coos Counties, Oregon. The pipeline would be designed to transport 1,200,000 dekatherms per day of natural gas to the LNG Terminal from interconnections with the existing Ruby Pipeline LLC and Gas Transmission Northwest LLC systems near Malin, Oregon. The project has a projected in-service date is projected for 2024.

Magellan Midstream Partners held a supplemental open season to solicit additional commitments for transportation volume on the western leg of its refined petroleum products pipeline system in Texas. Binding commitments were due from interested customers by 5:00 p.m. Central Time on Dec. 20, 2019. Magellan is in the process of expanding the capacity of its west Texas refined products pipeline system to approximately 175,000 barrels per day (bpd) from its current capacity of 100,000 bpd. In addition, the partnership is currently building a new refined products terminal in Midland, Texas. Based on the timing of current construction activities, Magellan expects both the west Texas refined products pipeline expansion and new Midland terminal to be operational in mid-2020. Magellan's west Texas pipeline system primarily transports gasoline and diesel fuel to demand centers in Abilene, Midland/Odessa and El Paso, Texas as well as New Mexico. The pipeline system also can access markets in Arizona and Mexico via connections to third-party pipelines. Subject to the results of the supplemental open season launched today, Magellan is considering the addition of another 25,000 bpd of capacity on the west Texas pipeline, for a total capacity up to 200,000 bpd, which could be operational by the end of 2021.

MoGas Pipeline, LLC, a wholly owned subsidiary of CorEnergy Infrastructure Trust, Inc., announced an open season to solicit interest in firm transportation capacity on its interstate natural gas pipeline in Missouri and Illinois. Non-binding expressions of interests are due from interested customers by 5:00 p.m. Central Time on Dec. 13, 2019. MoGas is considering an expansion of the capacity of its natural gas pipeline system to approximately 200,000 dekatherms per day (Dt/day) from its current capacity of 125,000 Dt/day. Based on the timing of required permitting and construction activities, MoGas expects that the natural gas pipeline expansion would be operational in the fourth quarter of 2020. MoGas owns an approximately 263-mile FERC-regulated interstate natural gas pipeline system serving the St. Louis area and central Missouri, which delivers natural gas to both investor-owned and municipal local distribution systems. MoGas has pipeline receipt and delivery interconnects with Rockies Express Pipeline LLC (REX), Panhandle Eastern Pipe Line Company, LP (PEPL) and Enable Mississippi River Transmission, LLC (MRT).

Whistler Pipeline LLC announced the beginning of a binding Open Season to solicit commitments for the remaining capacity on the **Whistler Pipeline**. The Whistler Pipeline will transport approximately 2 billion cubic feet per day (Bcf/d) of natural gas through approximately 450 miles of 42-inch pipeline from Waha, Texas, to the Agua Dulce area in South Texas. The Open Season commenced on Friday, November 15, 2019 and will conclude at 5:00 PM CST on Monday December 16, 2019. Whistler Pipeline may, at its sole discretion, extend the duration of the Open Season at any time during the Open Season. The Whistler Pipeline is an approximately 450-mile, 42-inch intrastate pipeline (the "Whistler Mainline") that will transport natural gas from an interconnect with the Waha Header near Coyanosa, Texas in the Permian Basin to a terminus near Agua Dulce, Texas, providing direct access to South Texas markets and consumers. An approximately 50-mile, 36-inch lateral will provide connectivity for gas processors in the Midland Basin. The pipeline will have transportation capacity of 2 billion cubic feet per day (Bcf/d). Whistler Pipeline has contracted for the supply of the entirety of 42"/36" steel pipeline needed to complete the project and is on schedule in its completion of survey along the planned route and acquisition of appropriate permits for a summer 2021 in-service date. Construction will commence in 2020.

Magellan Midstream Partners, L.P. and Navigator Energy Services have plans for **Voyager Pipeline**. The pipeline will transfer different grades of light crude oil and condensate

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from Cushing, OK to Houston, TX. Potential shippers continue to project considerable interest, especially the ones that reach Voyager from The proposed Voyager pipeline will involve construction of almost 500 miles of 20- or 24-inch diameter pipeline from Magellan Midstream's terminal in Cushing to its facility in East Houston. Originating from the Cushing, the pipeline will enable shippers to begin deliveries at Cushing from the Magellan Midstream-operated Saddlehorn Pipeline serving the Rockies and Bakken production regions, Navigator's Glass Mountain Pipeline serving the Mid-Continent basin as well as other connections within the strategic Cushing crude oil hub. On requests of potential shippers, the sponsors are assessing the addition of a Midland origin to provide further supply flexibility from the prolific Permian Basin. The Midland origin is likely to be accomplished in phases through Voyager's use of an existing Magellan pipeline that may become inoperative in the near future. This is part of the company's announced West Texas refined products pipeline expansion project. Voyager will have the capability to use an existing terminal in Frost to construct assets and connect to the Cushing-to-Houston segment. At the destination, the widespread Houston crude oil distribution system will deliver the multiple grades of crude oil to Houston and Texas refineries. Also, the delivery will be made to export facilities like the terminal owned by Seabrook Logistics, LLC, which is owned 50% by Magellan Midstream. Initially, the Voyager Pipeline is anticipated to have an initial capacity of at least 300,000 barrels per day, as proposed. Eventually the capacity will expand further if the industry demand increases. The pipeline is estimated to come online in late 2020.

Mountain Valley Pipeline, LLC has received a Notice of Environmental Assessment from the FERC. The EA is expected on February 14, 2020 with a final decision expected May 14, 2020. the MVP Southgate project is a natural gas pipeline system that spans approximately 74 miles from southern Virginia into central North Carolina.

National Fuel Gas Supply Corporation and Trans-continental Gas Pipe Line Company, LLC has filed an application with the FERC seeking approval for the - **FM100 Project**, proposed by National Fuel, and **the Leidy South Project**, proposed by Transco. The FM100 Project would allow National Fuel to modernize a portion of its existing system and provide an additional 330,000 dekatherms per day (Dth/d) of incremental natural gas transportation capacity, all of which is fully subscribed to Transco. The Leidy South Project would provide 582,400 Dth/d of firm natural gas transportation service from shale producing areas in northern and western Pennsylvania to Transco's customers in the eastern United States. Issuance of the Environmental Assessment from the FERC is expected February 7, 2020 with a final 90 day decision slated for May 7, 2020. National Fuel and Transco are proposing to construct and operate interdependent natural gas infrastructure projects, which are both located entirely within Pennsylvania. The FM100 Project consists of 29.5 miles of new 20-inch-diameter pipeline in McKean and Potter Counties (Line YM58); 1.4 miles of 24-inch-diameter pipeline loop in Potter County (YM224 Loop); 0.4 mile of 12-inch-diameter pipeline in McKean County (Line KL Extension); construction of new Marvindale Compressor Station in McKean County; construction of new Tamarack Compressor Station in Clinton County; construction of the Marvindale Interconnect in McKean County; construction of the Carpenter Hollow overpressurization protection station in Potter County; abandonment in place of a 44.9-mile long portion of the existing 12-inch FM100 Pipeline in Clearfield, Elk, and Potter Counties; abandonment by removal of the existing Costello Compressor Station in Potter County; abandonment by removal of an existing meter station WHP-MS-4317X in Potter County; and installation and abandonment of appurtenances, such as mainline valves and anode beds, associated with the above facilities. The Leidy South Project consists of 3.5 miles of 42-inch pipeline loop in Lycoming County (Benton Loop); 2.5 miles of 36-inch pipeline loop in Clinton County (Hilltop Loop); 6.3 miles of 36-inch meter pipeline loop and related abandonment of a 5.8-mile-long portion of the 23.4-inch Leidy Line A Pipeline (Hensel Replacement) in Clinton County; modification of existing Compressor Station 605 in Wyoming County; modification of existing Compressor Station 610 in Columbia County; construction of new Compressor Station 607 in Luzerne County; construction of new Compressor Station 620 in Schuylkill County; installation of associated facilities such as mainline valves, communication facilities, and pig launchers and receivers, and other appurtenances. Target in-service date for the project is winter 2021.

Northern Natural Gas Company will prepare an Environmental Assessment that will discuss the environmental impacts of the **South Sioux City to Sioux Falls A-Line Replacement Project.** The project will allow Northern to abandon in-place approximately 79 miles of its 14-inch M561A branch line (A-line) and, to replace the lost capacity, install 84.15 miles of 12-inchl A-line between South Sioux City, Nebraska, and Sioux Falls, South Dakota. The

majority of the replacement A-line will be installed within a 25-foot offset from the existing A-line with the exception of three areas – the replacement pipeline route will (1) be installed around Elk Point, South Dakota, to avoid multiple crossings of Interstate 29; (2) deviate from the existing pipeline where the pipeline crosses the Missouri River in Dixon County, Nebraska; and (3) deviate from the existing pipeline where the new A-line ties into Northern's B-line at the southern end of the route near Harrisburg, South Dakota. In addition to the A-line replacement, Northern proposes to replace its Ponca branch line. The 0.2-mile, 2-inch-diameter Ponca branch line, which currently ties into the A-line to be abandoned, will be abandoned in-place and replaced with two miles of 3-inch branch line. The extended length and larger diameter are necessary in order to tie the new Ponca branch line into the replacement A-line at a location optimal to meet required pressure profiles. The line will parallel approximately 1.5 miles of the existing A-line and 0.5 mile of the existing Ponca branch line, and terminate at Northern's existing Ponca town border station. Following the abandonment of the pipeline and the restoration of the land used for the pipeline project, Northern intends to offer the abandoned pipeline to a salvage company. The salvage company will be required, by contract, to comply with federal regulations regarding land restoration and sensitive environmental resource protection. Northern plans to file its section 7 application for approval to start the project in July 2020. Northern is anticipating that approval for the project, subject to Commission review, will occur in March 2021. The facilities are scheduled to be placed into service November 1, 2021.

The staff of the FERC is preparing an Environmental Assessment (EA) that will discuss the environmental impacts of the **Bushton to Clifton A-line Abandonment** Project involving construction and operation of facilities by **Northern Natural Gas Company** in Clay, Cloud, Ellsworth, Lincoln, Ottawa, and Rice counties in Kansas. Northern is proposing to abandon in-place the A-line facilities consisting of approximately 92.76 miles of 26-inch pipeline on Northern's M640A and M630A and 15.74 miles of 24-inch-diameter pipeline on its M640J pipeline systems and other appurtenant facilities. Northern proposes to construct and operate an additional natural gas-driven ISO rated 11,152 horsepower Solar Mars turbine unit (Unit No. 6) at the existing Tescott compressor station located in Ottawa County, Kansas. The unit will tie into station piping that is connected to Northern's existing mainlines. Approximately 85 feet of 24-inch-diameter station piping, approximately 40 feet of 36-inch station piping, and approximately 80 feet of 8-inch station piping will be removed to accommodate tie-ins. After abandonment, Northern will continue to operate the other pipelines in its right-of-way and maintain its pipeline easements with the exception of a segment of Jline that will be abandoned in place. Issuance of the Environmental Assessment from the FERC is expected December 17, 2019 with a final FERC decision expected March 16, 2020.

ONEOK, Inc. is investing approximately $2.3 billion between now and 2020 to construct: a new 400,000-barrel per day (bpd) natural gas liquids (NGL) pipeline – the Arbuckle II Pipeline – that will create additional NGL transportation capacity between ONEOK's extensive Mid-Continent infrastructure in Oklahoma and the company's existing NGL facilities in Mont Belvieu, Texas; a new 125,000 bpd NGL fractionator – MB-4 – in Mont Belvieu, Texas, and related infrastructure; and a new 200-million cubic feet per day (MMcf/d) natural gas processing facility – the Demicks Lake plant and related infrastructure – in the Williston Basin. Arbuckle II Pipeline and MB-4: The approximately 530-mile, 24- and 30-inch diameter Arbuckle II Pipeline is expected to cost approximately $1.36 billion and will have an initial capacity to transport up to 400,000 bpd of unfractionated NGLs originating across ONEOK's supply basins and extensive NGL gathering system to the company's storage and fractionation facilities at Mont Belvieu. The Arbuckle II Pipeline is expected to be completed in the first quarter 2020. The pipeline will have the capability to be expanded up to 1 million bpd with additional pump facilities, which could more than double ONEOK's current capacity between the Mid-Continent and Gulf Coast. The new MB-4 fractionator and related infrastructure, which includes additional NGL storage capacity in Mont Belvieu, are expected to cost approximately $575 million and be completed in the first quarter 2020. ONEOK's total NGL fractionation capacity will increase to 965,000 bpd following the completion of MB-4. The initial capacity of the Arbuckle II Pipeline is more than 50 percent contracted, and MB-4 is fully contracted. Both are anchored by long-term contracts with terms ranging between 10 to 20 years. Adjusted EBITDA multiples for these projects are based only from these commitments but additional supply agreements continue to be negotiated. Demicks Lake plant and related infrastructure: The Demicks Lake natural gas processing plant and related field infrastructure are expected to cost a total of approximately $400 million and be completed during the fourth quarter 2019. The Demicks Lake plant will be built in McKenzie County, North Dakota, which is in the

core area of the Williston Basin. The plant is supported by acreage dedications with primarily fee-based contracts. The Demicks Lake plant is expected to contribute additional NGL volumes to ONEOK's NGL gathering system and natural gas volumes to ONEOK's 50 percent-owned Northern Border Pipeline. ONEOK's Williston Basin natural gas processing capacity will increase to more than 1.2 billion cubic feet per day following the completion of the Demicks Lake plant.

Phillips 66 and Bridger Pipeline LLC recently held a joint open season for the proposed **Liberty Pipeline**, which will provide shippers the opportunity to secure crude oil transportation service from the Rockies and Bakken production areas to Corpus Christi, Texas. The Liberty Pipeline is expected to have an initial throughput capacity of 350,000 barrels per day (BPD) with the ability to expand further depending on shipper interest in the open season. The pipeline is anticipated to be placed in service in the fourth quarter of 2020.

Phillips 66 and Plains All American Pipeline announced that they have formed a 50/50 joint venture, **Red Oak Pipeline LLC,** and are proceeding with construction of the **Red Oak Pipeline** system. The pipeline system will provide crude oil transportation service from Cushing, Oklahoma, and the Permian Basin in West Texas to Corpus Christi, Ingleside, Houston and Beaumont, Texas. Red Oak is underpinned with long-term shipper volume commitments. Initial service from Cushing to the Gulf Coast is targeted to commence as early as the first quarter of 2021, subject to receipt of applicable permits and regulatory approvals. The Red Oak joint venture will lease capacity in Plains' Sunrise Pipeline system, which extends from Midland to Wichita Falls, Texas. The joint venture plans to construct a new 30-inch pipeline from Cushing to Wichita Falls and Sealy, Texas. From Sealy, the joint venture will construct a 30-inch pipeline segment to Corpus Christi and Ingleside and a 20-inch pipeline segment to Houston and Beaumont. Where feasible, Red Oak will utilize existing pipeline and utility corridors and advanced construction techniques to limit environmental and community impact. Plains will lead project construction on behalf of the joint venture, and Phillips 66 will operate the pipeline. The project is expected to cost approximately $2.5 billion.

Portland Natural Gas Transmission System (PNGTS) is proposing the **Westbrook XPress Project** (WXP) to increase New England's natural gas supply. Adding to PNGTS' existing capacity, WXP will be capable of transporting approximately 124,000 dekatherms a day (Dth/d) to areas where it is in great demand. Enhancing PNGTS' existing capacity through WXP will be achieved via the installation of facilities to compress and cool gas on the PNGTS system, and the modification of an existing meter station, on land adjacent to the existing Westbrook Compressor Station. The facilities at Westbrook are jointly owned by PNGTS and Maritimes & Northeast Pipeline (MNE), and operated by M&N Operating Company, LLC (MNOC). The proposed project will be completed in three phases, with the last expected to go into service by November 1, 2022. All work will be conducted on or adjacent to the existing station. Construction will only be associated with Phase II, which is slated to be placed into service in 2021.

Portland Natural Gas Transmission System (PNGTS) is proposing **Portland XPress (PXP)** to increase New England's natural gas supply without the need for construction outside existing facilities. Adding to PNGTS' existing capacity, PXP will be capable of transporting approximately 180,000 dekatherms a day to areas where it is in great demand. Enhancing PNGTS' existing capacity through Portland XPress will be achieved via some optimization modifications at an existing compressor station in Westbrook, Maine, a horsepower addition to an existing compressor station in Eliot, Maine, and some metering upgrades at the existing Dracut, Massachusetts, meter station. All three sites are jointly owned by PNGTS and Maritimes and Northeast Pipeline (MNE), and operated by M&N Operating Company, LLC (MNOC). The proposed project will be completed in three phases, with the last expected to go into service by November 2020. All work will be conducted on existing property. Construction will only be associated with the final phase, which is slated to go into service in 2020.

Port Arthur Pipeline, LLC, a subsidiary of Sempra LNG & Midstream, has received a positive Final Environmental Impact Statement (EIS) from the FERC and a notice that it can begin site preparation for its proposed **Texas Connector** natural gas pipeline in connection with the proposed development of the Port Arthur Liquefaction Project by Port Arthur LNG, LLC, and PALNG Common Facilities in Jefferson County, Texas. The Final EIS addresses the potential environmental effects of the construction and operation of the following proposed facilities: two liquefaction trains, each with a capacity of 6.73 million tons per annum of LNG for export; three LNG storage tanks, each with a capacity of 160,000 cubic meters; a refrigerant storage area and truck unloading facilities; a condensate storage area and truck loading facilities; a new marine slip with two LNG vessel berths, an LNG vessel and support vessel maneuvering area, and an LNG transfer system; a materials off-loading facility and Pioneer Dock; approximately 38.9 miles of 42-inch-diameter pipeline to bring feed gas from interconnections with Kinder Morgan Louisiana Pipeline LLC, Natural Gas Pipeline Company of America, Houston Pipeline Company LP, Texas Eastern Transmission, LP (TETCO), Florida Gas Transmission Company, LLC, and Golden Triangle Storage, Inc./Centana Intrastate Pipeline, LLC to the terminal site; approximately 131.3 miles of 42-inch-diameter pipeline to bring feed gas from interconnections with Centana Interstate Pipeline, LP, TETCO, Tennessee Gas Pipeline Company, Market Hub Partners – Egan, Pine Prairie Energy Center, Texas Gas Transmission, LLC, ANR Pipeline Company, and Columbia Gulf Transmission, LLC to the terminal site; three compressor stations; meter stations at the pipeline interconnects; and other

associated utilities, systems, and facilities (mainline valves, pig launchers/receivers, contractor yards, access roads, etc.). Construction is expected to begin in the third quarter of 2021, with commercial operations expected to begin in third quarter of 2022. On October 16, 2017, Port Arthur Pipeline filed another application requesting a certificate of public convenience and necessity for the Louisiana Connector Project, authorizing Port Arthur Pipeline to construct, own, and operate additional new proposed Liquefaction Facility south of Port Arthur in Jefferson County, Texas. The Louisiana Connector Project will be capable of delivering approximately 2,000,000 MMBtu per day of natural gas to the Liquefaction Project. The Louisiana Connector Project, along with the Texas Connector Project facilities proposed in this proceeding, will be the primary means of delivery of feed gas to the Liquefaction Project. The anticipated construction start date is 1st quarter of 2021 with in-service slated for 3rd quarter 2022.The Louisiana Connector Project will include 131 miles of 42-inch diameter gas pipeline, a new compressor station, interconnection facilities with interstate and intrastate natural gas facilities, and other appurtenant facilities. The proposed Louisiana Connector Project facilities will extend from an interconnect with Columbia Gas Transmission (MP 130.9) located northeast of Eunice, Louisiana in St. Landry Parish through Evangeline, Allen, Beauregard, Calcasieu, and Cameron Parishes in Louisiana and Jefferson County, Texas and terminate at the proposed Liquefaction Facility south of Port Arthur in Jefferson County, Texas. The Louisiana Connector Project, along with the Texas Connector Project facilities proposed in this proceeding, will be the primary means of delivery of feed gas to the Liquefaction Project. Both projects are needed to provide service to the Liquefaction Project and will allow flexible access to multiple supply basins and systems of upstream transporters. Combined, the projects will give more gas sellers access to Port Arthur LNG and Port Arthur LNG access to more supply basins. The proposed Port Arthur Pipeline Project would consist of two segments oriented north and south of the proposed liquefaction project. The 27.6-mile northern portion of the proposed pipeline project would extend from Vidor in Orange County, TX to the proposed liquefaction project, with the majority of the proposed pipeline co-located with existing energy infrastructure rights-of-way. The approximately 7-mile southern portion of the proposed pipeline project would originate in Cameron Parish, Louisiana on the east bank of Sabine Lake and terminate at the Port Arthur Liquefaction Project. The proposed pipeline project would interconnect the

Port Arthur Liquefaction Project to various intra- and interstate pipelines, providing access to a number of major U.S. natural gas supply basins. Construction is expected to begin in the third quarter of 2021, with commercial operations expected to begin in third quarter of 2022.

Sabine Pass LNG, LLC – FERC has issued a favorable Environmental Assessment (EA) for the Third Berth Expansion Project. The project includes construction and operation of a third marine berth at the existing Sabine Pass LNG Terminal in Cameron Parish, Louisiana. The project would also include the addition of piping, pipe racks, utilities, and other infrastructure necessary to transport liquefied natural gas (LNG) to the third berth. The project would consist of the following facilities in Cameron Parish, Louisianaa new marine berth to be dredged adjacent and southeast of the two existing marine berths along the Sabine Pass Channel; additional two tugs to the existing dedicated tug fleet an LNG loading system consisting of a new platform, LNG loading and cool down lines, and LNG loading arms (two liquid, one vapor, and one hybrid liquid/vapor); two new 30-inch-diameter loading lines to transfer LNG to the Third Berth loading platform; an LNG spill collection system to provide spill protection for the new LNG piping and equipment; and appurtenant facilities including, the customs/security building, analyzer shelters, telecommunications systems, digital control systems upgrades, security fencing, cathodic protection systems, elevated fire monitor towers, and gangway with associated gangway hydraulic power unit and local control panel. A final FERC decision on the project is project for early 2020.

Saddlehorn Pipeline Company, LLC announced a further expansion of the Saddlehorn Pipeline. Following a successful open season during July and subsequent increased volume commitments from shippers, the pipeline's capacity will be increased by a total of 100,000 barrels per day ("bpd") to a new total capacity of approximately 290,000 bpd. The higher capacity is expected to be available in late 2020 following the addition of incremental pumping and storage capabilities. The Saddlehorn pipeline, which is jointly owned by affiliates of Magellan Midstream Partners, L.P., Plains All American Pipeline, L.P. and Western Midstream Partners, LP, is currently capable of transporting 190,000 bpd of crude oil and condensate from the DJ and Powder River Basins to storage facilities in Cushing, Oklahoma owned by Magellan and Plains. Magellan serves as operator of the Saddlehorn pipeline. In

conjunction with the increased volume commitments, Noble Midstream Partners LP, through its affiliate Black Diamond Gathering LLC, has an option to buy up to a 20% ownership interest in Saddlehorn, with Magellan and Plains each selling up to a 10% interest to NBLX if the option were exercised.

Seaway Crude Pipeline Company LLC announced its plans to hold an open season to gauge shipper support for an expansion of crude oil capacity on its existing system originating in Cushing, Oklahoma and extending to the Texas Gulf Coast area. The expansion could provide an incremental 200,000 barrels per day of light crude capacity and include further quality enhancements in the segregation of heavy and light crude shipments. The cost-efficient expansion would debottleneck and optimize the system principally through pump upgrades. Initial expansion capacity could be available by mid-2020, with the expansion fully in-service in 2022. The final capacity for committed and uncommitted service would be determined during the open season. Further expansion remains possible depending on customer demand. Seaway is targeting $1.25 per barrel for light crude oil pipeline transportation from Cushing to the Gulf Coast. Seaway features access to a fully integrated midstream network of pipelines, storage facilities, and export terminals along the Gulf Coast and provides connectivity to every refinery in the Houston, Freeport, Texas City, and Beaumont/Port Arthur areas.

TC Energy Corporation announced the **West Path Delivery Program**, a combined $1.2 billion expansion of its NOVA Gas Transmission Ltd. (NGTL) and Foothills Systems, which will connect with the US$335 million **GTN XPress Project** recently announced by TC PipeLines LP, to deliver the volumes to downstream markets. "The West Path Delivery Program, along with the GTN XPress Project, further enhances connections of the Western Canadian Sedimentary Basin (WCSB) to high-value downstream markets," said Russ Girling, President and Chief Executive Officer. "This $1.2 billion program brings our sanctioned expansions of NGTL and Foothills infrastructure to $10 billion, demonstrating our strong commitment to the long-term viability of the WCSB." The West Path Delivery Program is underpinned by approximately 258 million cubic feet per day of new firm service contracts with terms that exceed 30 years, commencing between the fourth quarter of 2022 and the fourth quarter of 2023. The $1.2 billion to be invested includes approximately 119 km (74 miles) of pipeline and associated facilities. Applications for approvals to construct and operate the facilities are expected to be filed in 2020 and, pending receipt of regulatory approvals, construction is expected to commence as early as fourth quarter 2021.

Tallgrass Energy, LP, through its affiliate **Tallgrass Pony Express Pipeline, LLC** , announced a binding open season soliciting shipper commitments for crude oil transportation from a new origin near Carpenter, Wyo., to Pony Express destinations in Colorado. Based on commitments received in this binding open season, Pony Express plans to build approximately 25 miles of new 12-inch pipeline from the Hereford origin to the new origin point in Wyoming, expanding capacity from Wyoming to Sterling, Colo., on the Pony Express system. Pony Express expects the new pipeline to be in-service in Q2 2020. The open season will run from Nov. 20, 2019, to Jan. 20, 2020.

Texas Eastern Transmission, L.P. has an application before the FERC to construct and operate certain natural gas pipeline facilities in Louisiana. The proposed project is known as the **Cameron Extension Project**, and would provide 750 million cubic feet per day of firm transportation service. Texas Eastern proposes to construct and operate a new compressor station (East Calcasieu Compressor Station) in Calcasieu Parish, Louisiana. The new compressor station is comprised of one 30,000 ISO-rated horsepower, natural gas-driven turbine compressor unit and related appurtenances. The project would also consist of three new delivery meter and regulatory stations in Cameron, Beauregard, and Jefferson Davis Parishes, Louisiana; installation of 0.2 miles of 30-inch piping to interconnect with TransCameron Pipeline, LLC's pipeline system in Cameron Parish, Louisiana; installation of miscellaneous equipment at the Gillis Compressor Station in Beauregard Parish, Louisiana; modifications to existing internal pipeline inspection launcher and receiver facilities and two new bypass facilities at existing sites along Texas Eastern's Line 41; and other related auxiliary facilities and appurtenances.

The staff has issued approval for the **Texas LNG Project**, proposed by **Texas LNG Brownsville, LLC**. Texas LNG is requesting authorization to site, construct, modify, and operate liquefied natural gas (LNG) export facilities on the Brownsville Ship Channel in Cameron County, Texas. The Texas LNG Project consists of a new LNG terminal on the north side of the Brownsville Ship Channel, 2.5 miles southwest of the Town of Port Isabel, Texas and 19 miles northeast of the City of Brownsville, Texas population center. Texas LNG will construct the LNG terminal on a 625-acre parcel owned by the Brownsville Navigational District, with an additional 26.5 acres necessary outside of the parcel within the banks of the Brownsville Ship Channel to allow for deep water access to the Brownsville Ship Channel. The project consists of the following facilities: a gas gate station and interconnect facility; a pretreatment facility to remove water, carbon dioxide, hydrogen sulfide, mercury, and heavier (pentane and above) hydrocarbons; a liquefaction facility consisting of two liquefaction trains and ancillary support facilities; two approximately 210,000 cubic meter (m3) aboveground full containment LNG storage tanks with cryogenic pipeline connections to the liquefaction facility and berthing dock; an LNG carrier berthing dock capable of receiving LNG carriers between approximately 130,000 m3 and 180,000 m3 capacity;

a permanent material offloading facility to allow waterborne deliveries of equipment and materials during construction and mooring of tug boats while an LNG carrier is at the berth; a thermal oxidizer, warm wet flare, cold dry flare, spare flare, acid gas flare, and marine flare; and administration, control, maintenance, and warehouse buildings and related parking lots; electrical transmission line and substation, water pipeline, septic system, and stormwater facilities/outfalls. Natural gas would be delivered to the Texas LNG Project site via a non-jurisdictional, intrastate, 30-inch-diameter natural gas pipeline that would be constructed, owned, and operated by a third party, separate from Texas LNG.

Tellurian held separate binding open seasons on two proposed pipelines that will connect areas of constrained shale production and debottleneck natural gas pipeline infrastructure, further enabling the rapidly growing industrial market in Southwest Louisiana. Tellurian's subsidiary Haynesville Global Access Pipeline LLC is seeking to secure prospective shippers for a previously announced natural gas pipeline, the Haynesville Global Access Pipeline (HGAP). HGAP is expected to be a 42-inch diameter, approximately 160-mile interstate pipeline that will interconnect existing pipeline and production facilities in DeSoto Parish to the existing and proposed infrastructure located near Gillis in Calcasieu Parish, Louisiana. HGAP is estimated to cost just over one billion dollars to construct and will have the capacity to transport up to two billion cubic feet of natural gas per day (bcf/d). Construction is projected to begin in 2022, with an in-service date of mid-2023. Tellurian's subsidiary Delhi Connector Pipeline LLC is also conducting a binding open season to secure prospective shippers for its newly proposed Delhi Connector Pipeline (DCPL). DCPL is expected to be a 42-inch diameter, approximately 180-mile interstate pipeline connecting the Perryville/Delhi Hub in Richland Parish, Louisiana to Gillis, Louisiana. DCPL is estimated to cost approximately $1.4 billion to construct and will have the capacity to transport at least two bcf/d of natural gas. Construction is projected to begin as early as 2021, with an in-service date as early as 2023. These two binding open seasons are in addition to Tellurian's previously announced Permian Global Access Pipeline binding open season. The open season concluded June 21, 2019.

Texas Eastern Transmission, L.P. has an application before the FERC seeking authority for the **Cameron Extension Project** in Louisiana. The staff will prepare an Environmental Assessment for the project. The project would provide 750 million cubic feet per day of firm transportation service. FERC is preparing an Environmental Assessment of the project and it is expected to be available March 9, 2020 with a final decision expected June 7, 2020. Texas Eastern proposes to construct and operate a new compressor station (East Calcasieu Compressor Station) in Calcasieu Parish, Louisiana. The new compressor station is comprised of one 30,000 ISO-rated horsepower, natural gas-driven turbine compressor unit and related appurtenances. The project would also consist of three new delivery meter and regulatory stations in Cameron, Beauregard, and Jefferson Davis Parishes, Louisiana; installation of 0.2 mile of 30-inch piping to interconnect with TransCameron Pipeline, LLC's pipeline system in Cameron Parish, Louisiana; installation of miscellaneous equipment at the Gillis Compressor Station in Beauregard Parish, Louisiana; modifications to existing internal pipeline inspection launcher and receiver facilities and two new bypass facilities at existing sites along Texas Eastern's Line 41; and other related auxiliary facilities and appurtenances.

Venture Global LNG, Inc. is proposing to build, own and operate a liquefied natural gas facility, Delta LNG, on a 524-acre site in Plaquemines Parish, Louisiana and the Delta Express Pipeline between the Delta LNG terminal and a natural gas pipeline grid intersection near Alto, Louisiana. Delta LNG will be a natural gas liquefaction (LNG) export terminal with an export capacity of 24 million metric tonnes per year of LNG when fully developed and will accommodate ocean-going vessels with an LNG carrying capacity of up to 185,000 cubic meters. Four full containment LNG storage units, three marine loading docks and onsite power generation will be included. Delta Express Pipeline will consist of approximately 280 miles of two new parallel 42-inch-diameter natural gas pipelines in a single right-of-way path that will originate near Alto to connect to the LNG facility. Four new compressor stations are proposed to be constructed in Richland Parish, Concordia Parish, Point Coupee Parish, and Lafourche Parish, LA. Venture has issued a pre-filing request with the FERC for the project. If approved, the project has an anticipated construction start date of December 2021 with a slated in-service date of November 2024.

Williams reported that the FERC has issued a Certificate of Public Convenience and Necessity authorizing the **Southeastern Trail** expansion project designed to serve Transco pipeline markets in the Mid-Atlantic and Southeastern U.S. in time for the 2020/2021 winter heating season. The Southeastern Trail expansion project will provide 296,375 dekatherms per day of additional firm transportation capacity to utility and local distribution companies located in Virginia, North Carolina, South Carolina and Georgia. Once complete, the project will help meet growing clean energy demands in the Southeast, as well as provide access to new sources of clean domestic natural gas supply, helping push out of the energy mix less environmentally friendly sources of fuel, while enhancing system reliability. The Southeastern Trail expansion project will consist of approximately 7.7 miles of 42-inch pipeline looping facilities in Virginia, horsepower additions at existing compressor stations in Virginia, and piping and valve modifications on other existing facilities in South Carolina, Georgia, and Louisiana to allow for bi-directional flow. Once complete, the project will result in a net reduction of air emissions as legacy facilities are modified with state-of-the-art horsepower technology. Customers served by the project are PSNC Energy, South Carolina Electric & Gas, Virginia Natural Gas, the City of Buford, Georgia, and the City of LaGrange, Georgia. Following the receipt of all necessary regulatory approvals, Williams anticipates beginning construction on the Southeastern Trail expansion project in the fall of 2019 with a target in-service commitment of November 2020. The Southeastern Trail project is Williams' third Transco project to be approved by FERC in the last ten months. With this expansion, the Transco pipeline's system-design capacity is expected to increase to 17.5 million dekatherms per day from its current 17.2 million dekatherms per day mark. Combined with other expansion projects under construction or in various levels of permitting, Williams expects the Transco pipeline's system-design capacity to top 18 million dekatherms per day in time for the 2020/2021 winter heating season.

FERC

Approves Four LNG Export Projects

The Federal Energy Regulatory Commission (FERC) has approved four liquefied natural gas (LNG) projects and related facilities to export natural gas.

Action on the three projects to be located along the Brownsville Ship Channel in Brownsville, Texas, and a fourth project that would expand a currently operating facility near Corpus Christi, Texas, marks a significant addition to the number of LNG export facilities approved by FERC this year. These come in the wake of the Commission's approval of seven other projects earlier this year.

"I'm very proud of the hard work that the Commission and its staff have undertaken to continue our processing of LNG applications," FERC Chairman Neil Chatterjee said. "The Commission has now completed its work on applications for 11 LNG export projects in the past nine months, helping the United States expand the availability of natural gas for our global allies who need access to an efficient, affordable and environmentally friendly fuel for power generation."

The Commission approved, with conditions, three Brownsville Ship Channel projects, proposed by Texas LNG Brownsville, LLC; Rio Grande LNG, LLC and Rio Bravo Pipeline Company; and Annova LNG Common Infrastructure, LLC and three of its affiliates.

Texas LNG Brownsville would build and operate facilities to export approximately 4 million metric tons per year of natural gas as LNG. The Rio Grande LNG Terminal and associated Rio Bravo Pipeline Project would export 27 million metric tons per year. The Annova LNG Brownsville Project would export up to 6 million metric tons per year.

The Commission also approved, with conditions, a proposal by Corpus Christi Stage III, LLC and Corpus Christi Liquefaction LLC to site, build and operate the Stage 3 LNG Project that would allow the company to liquefy for export an additional 11.45 million metric tons per year of LNG at Corpus Christi Liquefaction's LNG terminal now operating in San Patricio and Nueces counties, Texas.

All four LNG project sponsors have applications pending before the U.S. Department of Energy seeking authorization to export gas to countries without Free Trade Agreements with the United States.

The Commission earlier this year approved LNG projects proposed by Venture Global Calcasieu Pass, LLC; Driftwood LNG, LLC; Port Arthur LNG, LLC; Gulf LNG; Eagle LNG Partners Jacksonville, LLC; Venture Global Plaquemines LNG, LLC; and Freeport LNG's Train 4 Expansion Project. Four projects are now pending before the Commission.

Dominion Energy

Cove Point LNG Terminal Loads 100th Commercial Ship

- *100TH LIQUEFIED NATURAL GAS (LNG) SHIP LOADED SINCE THE COVE POINT LNG TERMINAL ENTERED COMMERCIAL SERVICE FOR NATURAL GAS EXPORT IN APRIL 2018*
- *TERMINAL HAS DELIVERED MORE THAN 4 BILLION GALLONS OF LNG TO MORE THAN 20 COUNTRIES, HELPING TO REDUCE GLOBAL RELIANCE ON HIGHER-CARBON COAL AND OIL*
- *MILESTONE HIGHLIGHTS THE FACILITY'S WORLD-CLASS DESIGN, FLEXIBILITY AND OPERATIONAL EXCELLENCE*
- *FACILITY SHOWCASES COMPANY'S COMMITMENT TO ENVIRONMENTAL STEWARDSHIP, INCLUDING INITIATIVES TO PROTECT WATER, AIR AND UNIQUE COASTAL HABITAT*

Dominion Energy's Cove Point LNG Terminal loaded its 100th commercial liquefied natural gas (LNG) ship on Monday, November 11, nineteen months after the facility entered commercial service for natural gas liquefaction and export.

Located in Lusby, Maryland, the Cove Point LNG Terminal became the second largest LNG export facility in the continental U.S. – and the first on the East Coast – when it entered commercial operation on April 9, 2018. Cove Point produces LNG under 20-year contracts for ST Cove Point, a joint venture of Sumitomo Corporation and Tokyo Gas, and for Gail Global (USA) LNG, the U.S. affiliate of GAIL (India) LTD.

"This is a major milestone for Dominion Energy and our country as a whole," said Paul Ruppert, Dominion Energy's President of Gas Transmission and Storage. "It reflects not only the world-class design and operational excellence of our facility, but also the environmental progress we are making by reducing global reliance on coal, oil and other carbon-intensive energy sources," Ruppert continued.

The Cove Point facility is unique among U.S. LNG terminals for its operational flexibility and demonstrated ability to perform all the functions of an LNG facility, including import, export, vaporization and send out, and liquefaction. Since entering commercial service in April 2018, the facility has operated reliably in all weather conditions, including ambient temperatures ranging from 9°F to 105°F. To date, the facility has produced more than 4 billion gallons of LNG, with export ships reaching more than 20 countries across the globe.

"The Cove Point facility showcases our company's commitment to environmental stewardship," Ruppert said. "The facility's waste heat recovery and zero liquid discharge system are truly best in class and show how we can responsibly develop infrastructure while at the same time protecting our air and water," Ruppert concluded.

The Cove Point facility is located along the largest freshwater marsh, a rare ecosystem, on the western shore of the Chesapeake Bay. Following a severe Nor'easter storm in 2010 that damaged the unique marsh environment, the company has dedicated more than 50,000 manhours to restore the marsh and the barrier beach that protects it from brackish water.

EN Engineering

Acquires Colorado-Based Firm QC Data

EN Engineering, a leading utility services firm, has acquired QC Data, an intelligent infrastructure services firm headquartered in Greenwood Village, Colorado.

Headquartered in Warrenville, Illinois, EN Engineering provides comprehensive and dependable engineering, consulting, and automation services to utilities, pipeline companies, and industrial customers. The company operates in key energy and manufacturing regions across the United States.

"We view the addition of QC Data as an ideal partnership as we continue to seek ways to expand our utility and telecom services," stated EN Engineering Chief Executive Officer Steve Knowles. Adding, "In particular, over the last 20 plus years QC Data has become well known for their data-focused expertise related to asset and infrastructure management."

"My team and I are excited to begin our partnership with EN Engineering," said QC Data President Glen Helin. "This transaction is the perfect next step for our organization and for our continued growth and expansion. We look forward to leveraging EN's breadth of knowledge and national footprint to expand our service offerings and strengthen our position as a premier engineering and data services provider."

Established in 1977, QC Data is an industry-leading provider of engineering design and data services. The firm has more than 200 employees across the United States, with managers averaging 25 years of industry experience. The firm brings a comprehensive portfolio including work programs for leading energy, utility, telecommunication, and engineering contracting organizations.

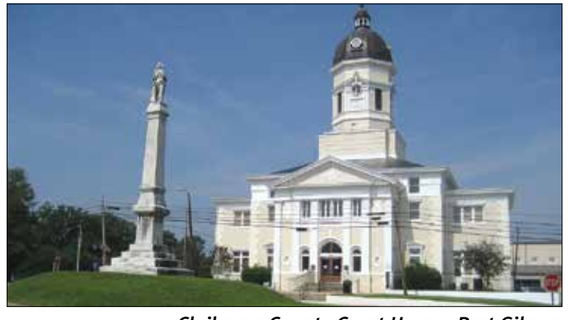
EN Engineering Chief Strategy Officer & Corporate Development Benjamin Newman expanded further about the benefits of this strategic acquisition. "QC Data adds new capabilities as well as several new customers and geographies that are highly complementary to EN's Utility business unit," he said. "In addition, we believe that QC Data's strong history, company culture, and customer relationships will fit in well with EN's existing operations."

For more information about EN Engineering, please visit www.enengineering.com.

The Port Gibson LNG Strategy

Domestic LNG Production & Distribution

The historic City of Port Gibson, a sleepy community that lies on the eastern side of the Mississippi River at Mile 254, in Claiborne County, Mississippi, is about to witness a transformation when the first shovel is placed in the ground on a large industrial development that is about to be constructed on its southern border. The City, first settled by French Colonists in 1729 and having a population of 1,567 in 2010 will be one of the largest recipients of funding through what are known as “Opportunity Zones”; created by the 2017 Tax Act that permits companies and individuals to delay, or even exempt capital gains taxes by investing in economically depressed areas of the country. Claiborne County, Mississippi, in which Port Gibson resides is one such area.



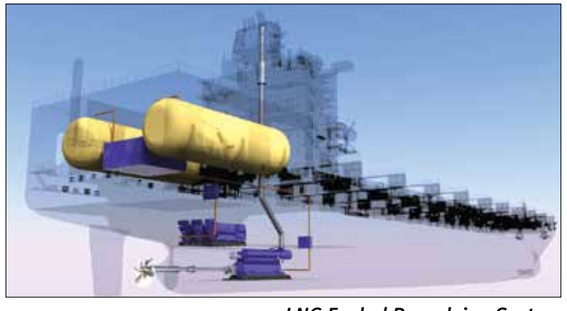
Claiborne County Court House, Port Gibson

HESCO Global Inc. a Texas based company, in partnership with the City of Port Gibson is planning the development of a 6,400 acre industrial site that lies south of the City with Bayou Pierre providing its northern border and stretching south for some two and half miles on the banks of the Mississippi River. A master plan of the site is being produced that will provide for a phased approach to development that will include the installation of two large facilities as the projects anchor tenants; a 1,000 MW gas fired power plant and a mid scale liquefaction facility.

Unlike the large liquefaction facilities that have been constructed on the US Gulf Coast for export of LNG to foreign countries, the LNG produced at Port Gibson will be solely used in the domestic market; a market that has been largely ignored up to now. The project will be supplied with over 200 mmscf/d of gas through a newly constructed 30 inch pipeline that will be tied into two or more intrastate supply lines to provide redundancy to the overall project. This supply will include the delivery of natural gas to the 1,000 MW power plant and for general distribution throughout the site as well as to the LNG plant. Medium capacity liquefaction technology has been selected for this initial phase of the project that will produce one million gallons of LNG per day. With this production stored in a 50,000 m³ tank situated on the banks of Pierre Bayou, LNG will be distributed locally by truck with the majority of the product being transferred to specially designed and constructed LNG river barges for transport of 10,000 m³ parcels to New Orleans and eventually throughout the Mississippi River system.

Why LNG?

Clean burning natural gas is being increasingly used in the US for the generation of electrical power, the production of chemicals and plastics and manufacturing; however very little is being consumed by other industries including the marine industry. New international emission standards adopted by the International Maritime Organization (IMO) will come into force on January 1st, 2020 that will limit the sulfur content of fuels used for ship propulsion to 0.5 percent. This will eliminate the traditional use of high sulfur bunker fuels historically by the industry and force it to use alternative sources. While ultra-low sulfur marine fuels are being produced to meet these standards, ship owners have begun to construct new ships that will burn LNG.



LNG Fueled Propulsion System

This includes 24 large cruise ships, many of which will call at US ports and 4 new container ships that are already in service between Jacksonville and Puerto Rico. The quickly expanding LNG marine fueling business is one of the major focuses of the Port Gibson LNG project.

LNG Fueled Propulsion System

LNG, at its liquid temperature of -163° C, will be transported by river barge down the Mississippi River to a satellite storage and transfer terminal to be constructed within the confines of the Port of New Orleans. This terminal will be the focal point for distribution of LNG to other river barges for transit through the intracoastal canal system to other Gulf Coast ports, for transfer to LNG bunker vessels for ship fueling ship fueling operations within the port and for onward transport to Puerto Rico, another major market for Port Gibson LNG.

LNG Fueled Propulsion System

Initial ports selected for LNG supply will include the Port of Gulfport, Corpus Christi and the Port of Houston-Galveston area. Similar, but smaller satellite terminal facilities will be constructed at these ports to serve local marine bunkering operations, plus truck and rail distribution.

Future plans call for the distribution of LNG from Port Gibson to satellite terminals located at strategic sites along the upper Mississippi River, into the Ohio basin and on to the Great Lakes. This strategy will permit the supply of LNG to marine markets in the upper reaches of the inland river system, the Great Lakes and to areas of the country not served by pipelines.

Puerto Rico

The entire island of Puerto Rico has been designated by the US Government as an Opportunity Zone to entice investment, stimulate the economy and increase employment. Considering the present high price of electricity on the island there is no better single action that can be taken than to provide a means of lowering its cost.

Accordingly, HESCO Global, through its subsidiary HESCO Caribbean plans to supply bulk LNG into the island from the New Orleans terminal. This will be achieved through a Private, Public Partnership between the City of Port Gibson and the Municipality of Fajardo, Puerto Rico. LNG is presently supplied in ISO containers delivered via the new container ships constructed to serve the island. While this method provides quantities of clean burning fuel to mainly private manufacturers generators, it is both limited and relatively expensive. HESCO plans to construct specialized Jones’ Act complaint LNG barges that will transport bulk LNG to a central terminal planned for installation in the southern part of the island. LNG will be stored and transferred to small LNG carriers for distribution to northern locations, power plants and the smaller US islands within the Caribbean chain.

This HESCO Global partnership with the City of Port Gibson, combined with Opportunity Zone funding mechanisms will not only serve to stimulate the economies of Claiborne County, with jobs and business opportunities but will similarly support the economy of Puerto Rico. HESCO’s plans include new, efficient, distributed, LNG fueled power generation on the island that will substantially lower the cost of power to manufacturers and domestic offtakers that will hopefully induce manufacturers that have left the island due to high energy costs to return.

Additionally, it is planned to replicate the HESCO-Port Gibson partnership strategy in other locations throughout the United States that will create a domestic LNG distribution infrastructure, bringing low cost, clean burning gas to areas of the country that are not now served.

PIPELINE FAMILY HALLOWEEN

PIPELINE FAMILY HALLOWEEN

HEARD ON THE LINE

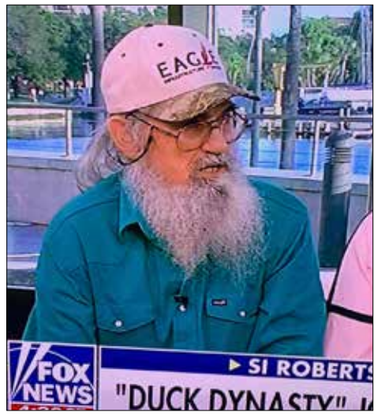
A get together of pipeliners for a Sunday afternoon fish fry.

Kirk Townsend enjoying time with his grandsons.

Si of Duck Dynasty and James Dickens visiting in the aiport.

Aaron McInnis and Jordan McInnis. Jordan is in the military. Aaron and Jordan are the grandsons of Rita and Blacky Seales. Many thanks to Jordan for his service!

Tom Bates, grandson, Tee Bates .He shot this deer in early November in Teague TX..



Si Robertson of Duck Dynasty in a recent interview of Fox and Friends. Notice Si was wearing his Eagle Infrastructure cap.

Maddie, granddaughter of Hugh and Donna Morris received her Gold Belt in November. Way to go Maddie! Congratulations!

Cleveland Integrity Services - Eagle Infrastructure recently sponsored the Pipeliners Club skeet shoot and provided a fantastic food station for the event.

PIPELINE PHOTOS

PIPELINE PHOTOS

OBITUARIES

Robert L. Johnson passed away November 13, 2019 at St. Peters Hospital. Bob was born September 5, 1933 in Chandler OK to Jewel and Fairl Johnson. Bob graduated from high school in Guthrie, OK. In 1952, he joined the Army where he was stationed in Hawaii. When he returned home, he began a career working on a pipeline. Bob worked a job in the Helena valley where he met and married his wife Judy Merritt. They celebrated their 58th wedding anniversary. He worked a short time at the smelter in East Helena. Bob worked pipeline constriction all across the US, worked overseas and spent four years working on the Trans Alaska Pipeline. He was a retired member of IUOE and a member of the Mason lodge No.3. Bob was an avid hunter, fisherman, and golfer spending as much time outdoors as possible. Bob is survived by his wife Judy, daughter Clella (Cody) Yeager of Choteau and son Willie (Peggy) of Helena, five grandchildren, Calon (Kande) Yeager, Chelesee Yeager (Matt Debruycker), Willie Jr. of Butte, Eddie (Mykenzie) Johnson of Butte and Maggie Johnson of Missoula, five great grandchildren, brother Sonny Johnson of Harlan, Iowa and nieces and nephews. He was preceded in death by his parents, his sister Karen Davidson and brother Jerry Johnson. A celebration of his life was held November 20, 2019 at Jorgenson's, 1714 11th Ave. in Helena.

Joseph (Butch) Wade Wootton, 75, of Fresno, Texas, joined his soulmate, Martha Lillie Beth, in Heaven on Monday, November 18, 2019. Butch was born on February 14, 1944 to Charley H. Wootton, Sr. and Berty Tackett Wootton in Alvin, Texas. He is a veteran of the United States Army and proudly served from 1961-1967. He worked for the United States Postal Service for two years and in 1968 began working in pipeline construction until he retired in 2015. Butch and Beth were married on January 18, 1963, and the Lord gave them almost 48 years together. They proudly raised four children together and leave behind Tammie and Buck Caldwell, Charles Wootton, Amanda and Brett Fazio, and Jeanne' Dyer and Kelly Forester. His precious grandchildren called him Papaw and he adored them with his whole heart; Renee' and Nathan Wunderlich, Brandon and Nissa Caldwell, Chase Caldwell, Jagger Fazio, Lillie Fazio, Callie Dyer, and Tatum Forester. He leaves behind his sister, Ada Wofford, and brother, Ronny Wootton. He also leaves his dog companion, Liberty, who walked the property line with him every day. In addition to spending time with family, Butch had an affinity for John Wayne and old western movies, watching war documentaries, visiting presidential and American history museums. You could often find him working hard to maintain his property, and loved volunteering to use his tractor or lawn mower to help his church and community. He sure did love fried catfish and no one could make it quite like him. He gave everything in life his best, including any game you were brave enough to play with him and watch him fight for victory, he loved to win! In the interleaf of his Bible, Butch wrote the following words of wisdom... 'Martha Beth was reborn to her Heavenly father on August 20, 1967, and I was reborn on February 28, 1971, in Arcola, Texas in my pastor's home, which I accredit to the faithful prayers of my beloved wife. On November 4, 2010, Beth passed away and joined her Heavenly father where she will be waiting on the rest of us to join her.' He noted Revelations 21:4 "And God shall wipe away all tears from their eyes and there shall be no more death, neither sorrow, nor crying, neither shall there be any more pain, for the former things are passed away". And in his handwriting, he leaves us this comforting reminder "Oh what a day that will be! Hallelujah! We shall rise!". He was a strong, loving, hard-working man who believed in God, Church and doing the right thing. He was a devoted husband, father, grandfather, and friend. His legacy will remain in all the lives he has touched along his journey. He will be greatly missed.

Funeral services for **Ronald Wayne Dyer** were held on October 31, 2019, in the White Oaks Memorial Chapel with the Rev. Jason Townley officiating. Military rites were conducted by the U.S. Naval Honor Guard. Committal service followed in the Oakdale Cemetery under the direction of White Oaks Funeral Home, Oakdale. Ronnie, 72, of Lake Charles, entered eternal rest on Tuesday, Oct. 29, 2019, in the Harbor Hospice – Lake Charles with his loving family by his side. He was born May 17, 1947, in Oakdale, to the union of Willard L. Dyer and Genevieve Strother Dyer. In 1964, Ronnie joined the U.S. Navy. He was an alumnus of Oakdale High School graduating in 1965. He worked in the industry along the gulf coast. Ronnie worked as a welder and chief inspector on various pipeline and enjoyed traveling across the country. Ronnie also, enjoyed his time at home cooking and boiling crawfish for his family. He will be remembered by his family as a loving husband, father, PawPaw, brother and dear friend to all. He is preceded in death by his parents; two sisters, Marlene Dyer Ray and Lorenda Blose; and his mother-in-law, Bunny Mallett. Those left behind to cherish his memory are his loving wife of 24 years, Angela Mallett Dyer of Lake Charles; five children, Shawnette Dyer (Jeff) Welch of Sugartown, Will (Robyn) Dyer of Covington, Texas, Ronald "T-Ron" (Kim) Dyer II of Moss Bluff, John Dyer of Lake Charles and Corey (Kirsten) McManus of Lake Charles; 11 grandchildren; eight great-grandchildren; one sister, Linda (James) Brabham of Oakdale; one brother, Mike (Brenda) Dyer of Moss Bluff; along with a host of family and friends. Pallbearers were Charles Smith, Matt Medley, Christian Dyer, Tanner Dyer, Anthony Hopkins and Brandon Mallett.

Bruce Mlodzik, age 64, of Princeton, passed away on October 3, 2019, at ThedaCare Regional Medical Center in Neenah after a yearlong battle with bile duct/liver cancer. At his side were his loving wife, Sue, his son, Michael and daughter-in-law, Heather. Bruce was born in Ripon, WI, on March 12, 1955, a son of Florian and Phyllis (Sosinsky) Mlodzik. He grew up in Princeton and graduated from Princeton High School in 1973. On April 8, 1978, Bruce married Carol Sue Otto and enjoyed married life for 41 years. They were blessed with one son, Michael. Bruce was a gifted ball player having hit many home runs. It didn't matter if it was fast pitch, moderate or slow pitch, he could hit them all. Over the years, he played for various teams including, The Bank, Fun Farm, Reimer's Hideaway, Three Stooges, Mr. Bill's, Showdown Corral and Western House. He enjoyed hunting and fishing while he was able, playing cards, shooting pool, going on vacation to Las Vegas with Sue and shooting the breeze with friends. He could talk to anyone and always had a story to tell. Bruce was a hardworking, dedicated man. He worked for Michels Pipeline for 37 years which took him all over the United States. He loved being a grandpa to his "little guy" Lennox and was able to hold and spend a little time with his new grandson, Deacon, before his passing.

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