MIDSTREAM PRIMER

A GUIDE FOR INVESTORS

A supplement to
Oil and Gas Investor
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A supplement to

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About the Cover: Crosstex Energy LP, Dallas, built this 142-mile pipeline to move increasing Barnett shale gas production from north Texas to market.
(Photo by Lowell Georgia)

INTRODUCTION

MIDSTREAM MOJO

The once-mundane, perhaps easily overlooked midstream sector of the energy industry—made up of gas gathering lines, interstate pipelines, processing plants and storage—is suddenly a hot place to be for companies, their financial backers and investors.

A big impetus behind the new interest? The U.S. and Canada will need much more energy infrastructure in the near term. Rising natural gas production in the various U.S. shale plays, East Texas and the Rocky Mountain region dictates more processing and pipeline capacity is needed.

A recent report from Tortoise Capital Advisors estimates at least $22 billion could be spent on internal growth by midstream master limited partnerships (MLPs) through 2010. As these companies respond with large capital programs, investors and investment bankers are seeing more opportunity to fund the sector.

Retail investors are interested too. Looking for a yield vehicle with relatively low risk, they have been flocking to the public MLPs in this space because they have outperformed the Standard & Poor's 500 for several years in a row. What's more, because of recent regulatory changes, institutional investors are also starting to buy these MLPs.

Private equity providers have been in the game too, funding start-up midstream companies and MLPs with big expansion plans.

Given all the interest in such a fast-paced, growing sector, we thought it appropriate to publish this primer. It illustrates the components of the midstream value chain as well as certain technical aspects, from Christmas trees in the field to processing plants to pipelines. And, it explains how MLPs work.

We know you'll find it a useful and readable addition to your knowledge base, convenient for investors, customers and employees.

—Leslie Haines, Editor-In-Chief

TABLE OF CONTENTS

THE MIDSTREAM VALUE CHAIN

BY JEANNIE STELL, FINANCIAL EDITOR, *OIL AND GAS INVESTOR*

The term "midstream" refers to operations that treat gas at the wellhead to remove water, carbon dioxide, hydrogen sulfide and other contaminants, then gather it from production fields and transport it to processing facilities for further separation into liquid products and gas. These products are sold to industrial complexes and end-use consumers. Here are the midstream components.

PHOTOS COURTESY OF CROSSTEX ENERGY LP

Wellhead

Once a well is completed, a wellhead comprised of a casinghead, tubing head and a Christmas tree is installed. The casinghead supports the casing string, seals the well and prevents fluids from moving within the wellhead and escaping into the air. The tubing head supports the tubing string, controls the pressure between the casing and the tubing and has connections to control pressure as well as the gas and liquids.

The Christmas tree is a tree-like device of gauges and valves to regulate, measure and direct the flow of gas and fluids exiting the well. The tree also has a choke to change the well's production rate.

Amine treating plants

Gas at the wellhead, unless it is coalbed methane, normally contains natural gas liquids (NGLs), carbon dioxide (CO_2), hydrogen sulfide (H_2S) and water that can corrode pipelines and waste valuable pipeline capacity.

Operators use various types of equipment, such as free-water knockouts, vertical or horizontal separators, or multi-stage separators using gravity, centrifugal force, or a combination of both to remove water and contaminants. Operators may also require conditioning equipment such as heaters or hydrators near the wellhead.

The gas is sent to an amine treater using various amine solutions to remove H_2S and CO_2. As gas flows upward into the treater, it becomes a "sweetened" gas stream and a "rich" amine stream, which is then routed to a regenerator (a stripper with a boiler) so the amine can be reused in the absorber.

Gathering

Gathering refers to low pressure 4- to 12-inch diameter pipelines that connect gas wells to larger diameter trunk lines. Gathering lines are more capital-intensive than trunk lines because incremental connections to new wells must continually be made to offset depletion from existing wells.

Gathering contracts are usually fee-based but can also be percent-of-index-based. Because gathering lines are also sensitive to the absolute prices of gas, operators with fee-based gathering contracts have less direct commodity price exposure than percent-of-index contract operators.

Compression

Compressor stations are usually placed at 40- to 100-mile intervals along the pipeline. Gas enters the compressor station, where it is compressed. Compression stations compress gas to 100 times the normal atmospheric pressure, or more, using reciprocating compressors driven by gas engines, or centrifugal units driven by gas turbines, or electric motors.

Compression stations fueled by pipeline gas contain regulators to lower the high pressure of gas to be used for fuel. Compressor stations have real-time monitoring of critical conditions such as compressor failure, high temperature, excessive or low pressure, loss of power or leaks.

Processing plants

Gas processing plants separate NGLs into separate liquid products including ethane, propane, butane, isobutene and natural gasoline. NGLs are used as feedstocks for petrochemical plants and refineries and for heating.

The amount of NGLs removed from a particular gas stream is generally a function of the characteristics of the gas produced and the market demand for its products. During times of high gas demand, the BTU content of ethane may be more valuable as a component of the gas stream than as a purity product.

There are two kinds of gas processing plants. Field plants are close to the production source, while straddle plants are near gas pipelines. Straddle plants reprocess NGLs from gas processing plants to remove additional NGLs.

There are two principle techniques for removing NGLs from gas—the absorption method and the cryogenic expander. These two processes account for 90% of total NGL production. There are more than 560 gas processing facilities in the U.S., processing some 70 billion cubic feet of gas per day.

While Texas (181) and Louisiana (72) have the most plants, the substantial expansion of production and reserves in the Rocky Mountain states will require more capacity.

Processing contracts types vary from plant to plant and include fee-based, percent-of-liquids, percent-of-proceeds, percent-of-index, keep whole, margin-band and hybrid contracts.

Transmission lines

Pipelines are the only means of transporting gas. They may be intrastate or interstate and are regulated differently. Most interstates do not own the gas they transport.

Three types of contracts generate pipeline revenues: firm, interruptible and no-notice. A firm transportation contract has a rate schedule that has no planned interruption. An interruptible contract means the service may be interrupted at the pipeline's discretion. A no-notice contract allows customers to receive gas as needed and is subject to the available supply. Pipelines generally have stable cash flows because of steady demand and limited direct commodity exposure.

Fractionation

NGLs from gas processing plants may be sent to fractionation plants for further processing. Fractionators separate liquid products by proceeding from the lightest hydrocarbons to the heaviest. In order, fractionators use deethanizer, depropanizer, debutanizer and butane splitters or deisobutanizer units to siphon off the NGLs. Occasionally, if a certain component of the NGL stream has a market value of less than the cost of extraction, a processing plant may reduce the extraction of that NGL from the gas stream, thereby reducing the amount of total NGLs sent to fractionators. Ethane, for example, may be accepted into the NGL stream to be sent to a fractionator, or may be rejected (not extracted) and allowed to enter the gas pipeline as part of the natural gas stream, as a function of market prices.

Storage

Large volumes of gas can be stored in salt caverns, aquifers and depleted gas reservoirs. Depleted reservoirs are the most economical.

Stored gas is classified as working gas or base gas. Working gas is withdrawn from storage for use. Base gas remains in the storage facility to maintain safe pressure. There are two types of gas storage processes: base load storage and peak load storage. Base load is used to maintain equilibrium between seasonal supply and demand, while peak load is used to meet sudden increases in demand.

Depleted reservoirs are used for base load storage and salt caverns are used for peak load storage.

Gas storage capacity in the U.S. is currently about 4 trillion cubic feet. However, if liquefied natural gas imports increase, more capacity will be needed.

Marketable NGL products

Six marketable products (excluding condensate and sulfur), are produced from the NGL stream.

Ethane is chiefly used in the production of ethylene and can be used as a refrigerant in cryogenic refrigeration systems such as liquefaction plants.

Propane is commonly used as a heat source for engines, barbecues and homes, and vehicle fuel as well as petrochemical feedstock. In the U.S., 190,000 on-road vehicles use propane, and 450,000 forklifts use it for power. It is the third-most popular vehicle fuel in America, behind gasoline and diesel. In other parts of the world, propane used in vehicles is known as autogas. About 9 million vehicles worldwide use autogas.

Butane is sold bottled as a fuel for cooking and camping. It is also used as a petrol component, as a feedstock for petrochemicals, as fuel for cigarette lighters and as a propellant in aerosol sprays.

Isobutane is used as a feedstock for petrochemicals. Recent concerns with depletion of the ozone layer by freon gases have led to increased use of isobutane as a gas for refrigeration systems, especially in domestic refrigerators and freezers, and as a propellant in aerosol sprays.

LPG, or liquefied petroleum gas, sold as fuel, is a mixture of propane with smaller amounts of propylene, butane and butylene. Ethanethiol is added as an odorant in case of leakage.

Natural gasoline, or debutanized gasoline, is an NGL with vapor pressure between condensate and liquefied petroleum gas. Natural gasoline is comprised of propane, butane, pentane, hexane, and heptane and is recovered at normal pressure and temperature. Natural gasoline is much more volatile and unstable than commercial gasoline, and is used as raw feedstock for aviation gas, nylon, plastics, explosives and cosmetics. ■

MAKING GAS MORE VALUABLE

Natural gas straight from the well needs to be processed and fractionated before it is a useful commodity.

BY JOHN HART, EDITOR, *GAS PROCESSORS REPORT*

ALL PHOTOS COURTESY ENTERPRISE PRODUCTS PARTNERS LP

Once natural gas comes out of the well head, it must be processed to remove liquids and impurities and to prepare it to be of pipeline quality. That results in what is called Y-grade or raw-make natural gas liquids (NGLs). These NGLs are then fractionated by applying heat, almost like in a refining process, to separate the gas into its component parts: ethane, propane, isobutane, normal butane and natural gasoline. These carry great value as petrochemical feedstocks.

NGLs are also called condensates because they condense at normal atmospheric pressure. Natural gas that contains high levels of NGLs is called "rich" gas. Natural gas production from the deepwater Gulf of Mexico as well as conventional gas sources of the Rocky Mountains is generally rich in NGLs. Natural gas associated with oil production often is also rich in NGLs because it absorbs some of the hydrocarbons from the oil.

Enterprise Products Partners LP's Mont Belvieu, Texas, fractionator is one of the largest in the U.S. with a gross capacity to fractionate up to 225 million barrels of natural gas liquids per day from eight supply connections.

Fractionation

Fractionation is the separation of the heterogeneous mixture of extracted NGLs or the "Y-stream" into individual components for end-use. Fractionation is also critical in producing propane for heating as well as for fuel and agricultural burning and drying.

Fractionation is accomplished by "cooking" the liquids—controlling the temperature of the stream of mixed liquids to take advantage of the difference in boiling points of separate products. As the temperature of the stream is increased, the lightest component boils off the top of the distillation tower as a gas, where it then condenses into a purity liquid that is routed to storage. The heavier components of the mixture are routed to the next tower where the process is repeated until all components have been separated.

Pricing and the frac spread

For the most part, NGL prices track oil and natural gas prices. Ethane prices are usually more aligned with gas while propane and butane are usually more aligned with oil. While oil is traded in dollars per barrel and natural gas is traded in dollars per MMBTU, the various individual NGLs such as butane are traded in cents per gallon. Ethane is 36.5% of the barrel and propane is 31.8% of the barrel. Butane is 11.2%, isobutene is 6.2% and pentane-plus or natural gasoline is 14.3% of the NGL barrel.

Currently, NGL prices remain close to the record levels set in August 2006. In late May 2007, the entire NGL barrel was $48.07 at Mont Belvieu, Texas—a near record, and $50.47 per barrel at Conway, Kansas—a record for that location.

Why? U.S. demand for ethane and propane is high as feedstocks are necessary for producing ethylene, while demand for natural gasoline and isobutane is also robust as both are motor gasoline additives that improve the octane rating. Another reason is that wholesale gasoline prices are high.

One of the most important terms in the midstream sector is "fractionation spread" or the "frac spread." Simply put, this is a calculation showing the relationship between the price of raw natural gas and the price of the various NGLs separated from it by the gas-processing industry.

Currently, the frac spread is valued at $58.60 per barrel at Conway and $49.55 at Mont Belvieu, based on spot natural prices, according to data tracked by Hart's *Gas Processors Report*.

Mount Belvieu is east of Houston in the middle of a high concentration of petrochemical plants, storage, pipeline, fractionation and waterborne facilities. It is the largest NGL-consuming area in North America and has the largest fractionation complex in the world. It is operated by Enterprise Products Partners LP, a Houston master limited partnership (MLP).

With its strategic location on the Texas Gulf Coast, the Mont Belvieu market is the price setter or NGL price reference point for North American NGL markets. In other words, it is the "Henry Hub" of the NGL market. Just as the Henry Hub in Louisiana is the benchmark for the natural gas market, Mont Belvieu is the benchmark for the NGL market.

The other major U.S. NGL market hub is at Conway; however, Mont Belvieu is still viewed as the price-setter for the domestic and international NGL market.

Construction at Enterprise Products Partners LP's Pioneer cryogenic plant in Opal, Wyoming. The plant will remove impurities from gas before it is fractionated. Capacity is 750 million cubic feet per day.

NGL outlook

In the short term, NGL demand is very good. However, long-term demand could soften. Energy consultant Peter Fasullo of EnVantage Inc., Houston, warned attendees during the annual Gas Processors Association Convention, held in San Antonio in March 2007, that "ethane-on-ethane" competition is possible in the future because of all the new cryogenic plants being built and the possible influx of ethane-rich liquefied natural gas imports coming in at the new Trunkline Terminal south of Lake Charles, Louisiana.

If the gas-processing industry builds new cryogenic capacity in addition to cryogenic plants under construction, then the industry could be extracting 780,000 barrels per day of ethane, which could create a significant overhang in the market.

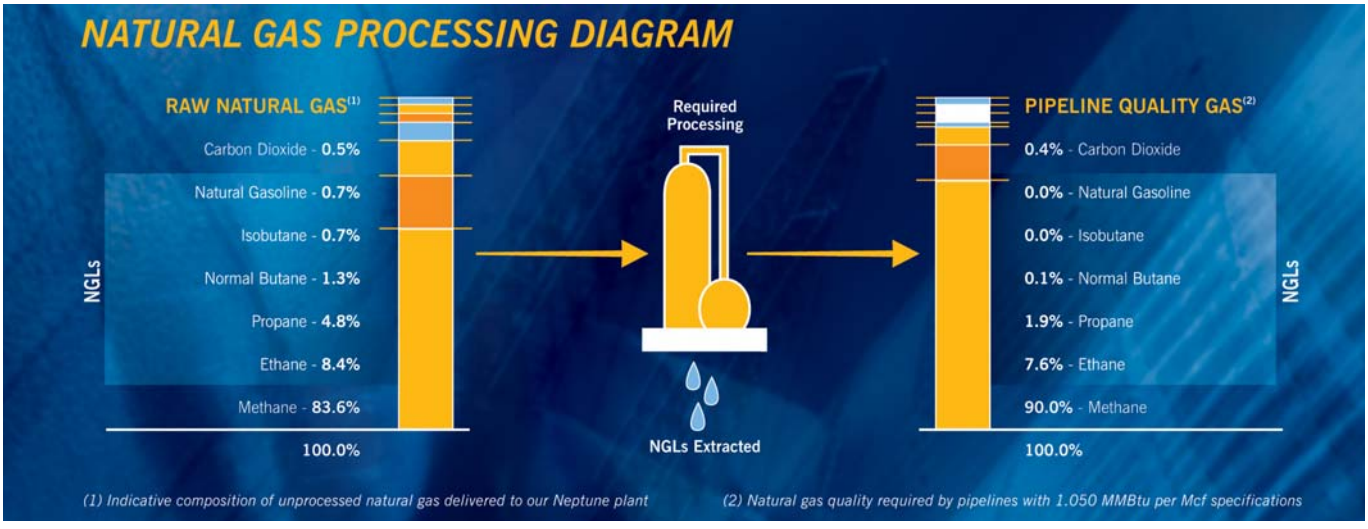
Fasullo estimates roughly 3 billion cubic feet per day of new cryogenic capacity will come on line by 2008. The majority of the liquids produced from these new plants could be ethane.

"Overall, for the industry, ethane constitutes about 39% of the U.S. NGL barrel," Fasullo explains. "In areas where these projects are being built, ethane could be as much as 50% of the barrel. A great deal of new investment is betting on ethane to be a viable component in the future."

The problem is, Fasullo doesn't expect any new ethylene capacity coming on line to utilize the new ethane supply. In addition, ethylene production competition is increasing from the Middle East and Asia.

Still, the NGL market should remain profitable as long as the U.S. economy remains strong because NGL performance is directly linked to the economy as a whole, and to oil and gas prices. ■

—John Hart is editor of Hart's Gas Processors Report. *He is based in McLean, Virginia.*



Processing separates NGLs into ethane, propane, butane, isobutane and natural gasoline. These products are used as feedstock for making fuels, plastics, refrigerants, cosmetics and petrochemicals.

PIPELINE POWER

A building boom is under way for U.S. natural gas pipelines.

BY LESLIE HAINES, EDITOR-IN-CHIEF, *OIL AND GAS INVESTOR*

Natural gas and oil pipelines represent two different industries. Gas lines use compression to move the gas along whereas oil pipelines use pump pressure. The Federal Energy Regulatory Commission (FERC) regulates interstate gas pipelines while the Department of Transportation regulates oil pipelines.

There are some 260,000 miles of interstate and inter-provincial natural gas pipelines in North America, and thousands more miles of localized gas-gathering lines, but more such infrastructure is needed. Energy and Environmental Analysis Inc., a consulting firm, estimates some $61 billion (in 2003 dollars) will need to be spent by the end of this decade to meet growing gas infrastructure needs.

Some 45,000 miles of new pipe will be needed, with $19 billion of that necessary just to replace older pipe. (These numbers do not include the proposed Alaskan or Canadian Arctic gas pipeline projects, which continue to work their way through a drawn-out permitting process.)

Long-distance pipelines transport gas under pressure, typically 1,000 pounds per square inch. Gas moves through the pipe at about 15 miles per hour. As it travels, local distribution companies, utilities, large industrial customers and gas-fired power plants make withdrawals from the pipe.

Compression stations along the way restore pressure to keep the gas moving.

In 1821, a gas well in Fredonia, New York, was hooked up to a short pipeline, the nation's first, to move the gas to light two nearby buildings. By 1947, as the nation's pipeline infrastructure grew, gas from Texas could be piped to either U.S. coast.

From 1950 to 1975, the number of miles of gas pipeline in the U.S. tripled. Today another boom is on, as increasing gas production must be handled

Railcars loaded with 42-inch pipe are bound for a project of Boardwalk Pipeline Partners LP Houston. (Photo courtesy of Boardwalk Pipeline Partners LP)

New gas production is creating a historic opportunity to build large-diameter interstate pipelines. Here, the Entrega Gas Pipeline construction project, now part of the Rockies Express system. (Photo courtesy of Entrega Gas Pipeline LLC)

10 LARGEST U.S. INTERSTATE PIPELINE SYSTEMS

*(As of 2005, ranked by capacity in million cubic feet per day)**

Pipeline Company	System Capacity	System Mileage
Columbia Gas Transmission a)	8,700	12,750
Transco Pipeline Co. b)	8,161	10,469
Northern Natural Gas Co. c)	7,923	15,854
ANR Pipeline Co. d)	6,844	10,600
Tennessee Gas Pipeline Co. e)	6,686	14,200
Texas Eastern Transmission f)	6,523	9,179
El Paso Natural Gas Co.	6,152	10,661
Dominion Transmission Co.	5,734	7,800
Northwest Pipeline Corp. b)	4,500	4,046
Natural Gas Pipeline Co. Of America g)	4,485	10,000

* Latest data available. a) Owned by NiSource Inc. b) Owned by Williams Cos. c) Owned by MidAmerican Energy Holdings d) Owned by TransCanada. e) Owned by El Paso Corp. f) Owned by Spectra Energy Transmission Co. g) Owned by Kinder Morgan Inc. Source: Company filings with Federal Energy Regulatory Commission

from the North Texas Barnett shale, the Piceance Basin in Colorado, the Pinedale/Jonah complex in Wyoming and from the deepwater Gulf of Mexico.

Construction plans

Hart's *PipeLine and Gas Technology* magazine estimates at least 23,000 miles of gas and oil gathering and pipeline systems are under construction or in the permitting phase in North America. The vast majority of the construction is for moving natural gas, although some work is planned and already under way to transport more volumes of Canadian heavy crude oil to refineries in the U.S. Midwest.

INTELLIGENT PIGS

Pipeline pigs are tools that are placed into and travel through the length of a pipeline. They are driven by product flow. Their purpose is to clean out the interior and remove deposits and debris, perform internal inspection, batch or separate different products moving through the pipeline as well as reduce corrosion.

Pigs are used during all phases of a pipeline's life. Since the 1930s when pipeline pigging was invented, there has been a steady stream of technical advances.

There are a number of types of pigs.

In-line inspection tools or smart pigs have electronic sensors to measure metal wall loss and magnetic flux leakage among others. These pigs provide the operator with information on the line's condition—pitting, gouges, general corrosion—so the pipeline company's engineers can make better-informed decisions about repairs, replacements, preventative maintenance or even new procedures for pipeline construction.

Utility pigs are used to clean, separate and de-water to reduce corrosion and increase throughput.

Sealing pigs seal the line to perform functions such as removing liquids or provide a seal between two dissimilar products within the same line.

Gel pigs are used to optimize de-watering and cleaning and drying tasks. The gels can be water-based or made with chemicals and solvents.

A worker readies a pig to go through a pipeline.
(Photo courtesy of Enduro Pipeline Services and *PipeLine and Gas Technology)*

This crew working for Boardwalk Pipeline Partners LP joins segments of pipe near the Carthage Hub in East Texas.
(Photo courtesy of Boardwalk Pipeline Partners LP)

Average land costs are estimated at $1.9 million per mile for large interstate gas pipelines. This varies depending on whether the pipeline is traversing roads, rivers and streams, mountainous terrain or remote areas, as well as the diameter of the pipe itself. Most long interstate lines are of 36- or 42-inch diameter pipe.

In 2005 alone, per FERC data, nearly $84 billion was spent by gas pipelines on new construction and expansion of existing pipelines as well as on new or additional compression. Since 2000, when the industry spent about $68 billion, that number has increased every year.

During the 12 months to June 2006, companies filed with FERC for more than 1,400 miles of gas pipeline construction on land and 6 miles offshore.

According to a recent A.G. Edwards & Sons report, in 2006 and first-half 2007, some $5- to $6 billion of internal capital spending for projects will be brought on stream, indicating the midstream companies recognize the need for additional infrastructure.

More than $2 billion of gas pipeline and gathering additions are under way in northern Louisiana and East Texas. The Rockies Express Pipeline is a $4.4-billion line that will transport gas from western Wyoming to Ohio. Its first leg was opened for business in May 2007. It will carry 2 billion cubic feet of gas daily and is the largest pipeline to be built in the Lower 48 in 20 years.

Kinder Morgan Energy Partners and its partners announced their intent to build the $1.25-billion Midcontinent Express Pipeline that will move natural gas from East Texas and Oklahoma southeast to a pipeline interconnect in Alabama. ■

GAS STORAGE

Because the gas transmission business is seasonal, well-placed gas storage helps pipelines maximize their business.

Contributed by Interstate Natural Gas Association of America

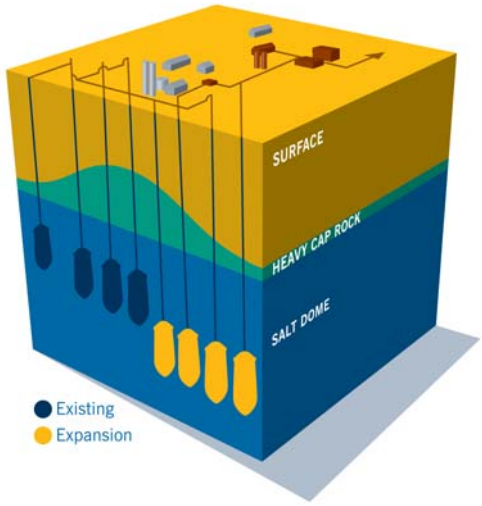
The natural gas transmission business is generally seasonal, meaning the volume of gas moved in a pipeline system changes with the seasons.

Natural gas demand used to be at its highest in winter, primarily a result of home heating requirements. This is when pipelines would typically move large quantities of natural gas for their customers. In past summers, demand for natural gas was reduced, so pipeline deliveries were lower. However, in recent years, mostly because of increased demand from natural gas-fired power plants, demand has become less seasonal.

Because of this shift, well-placed natural gas storage has become even more important to natural gas operations. To maximize the use of the pipeline capacity all year and create additional flexibility in a pipeline system, pipeline companies operate gas storage fields accessible to the pipeline transmission system.

Most gas storage fields are depleted gas reservoirs, but leaching underground caverns in salt domes has created some storage fields. Both types of gas storage fields are extremely safe. In either case, the pipeline company injects natural gas into the storage field when demand is low, such as the summer, and withdraws it from the storage field during times of high demand, such as winter. The storage field allows a pipeline company to make use of seasonal pipeline capacity, and deliver gas quickly to customers during peak demand times.

The gas injection season is from April 1 to October 31 and withdrawals start November 1 and run until March 31. ■



This schematic from Enterprise Products Partners LP shows storage in a salt dome.

Falcon Gas Storage is expanding its Hill-Lake storage facility in Eastland County, Texas, to meet demand for high-deliverability, multi-cycle gas storage and transportation services along the Waha-Dallas/Fort Worth-Carthage energy corridor, where gas production is rising.
(Photo courtesy of Falcon Gas Storage)

MASTER LIMITED PARTNERSHIPS PROLIFERATE

Some 56 MLPs have an aggregate market cap of $120 billion, with more planning to come public this year.

BY GARY CLOUSER, CONTRIBUTING EDITOR

Considered the lowest-risk segment of the energy chain, the midstream sector, with its fee-based, long-lived assets, is increasingly a match for the master limited partnership structure.

As more baby-boomer retail investors seek investments with yield, MLPs have grown very attractive. As a result of recent regulatory changes, institutional investors are increasingly adding MLPs to their portfolios as well.

Combine these trends with the U.S. need for more energy infrastructure, and you have a winning combination creating more MLPs in which to invest, with announcements coming almost weekly.

The MLP structure has been around for about 25 years, but it has gained more attention recently because of the soaring number of energy-infrastructure MLPs, caused by the strong demand for infrastructure expansion. That momentum has been propelled by the financial performance of MLPs as well, points out Merrill Lynch's Gabe Moreen in a report on MLPs. During the past decade, he says, the energy MLP sector has outperformed the market with annualized returns of 17% versus the S&P 500's return of 9%.

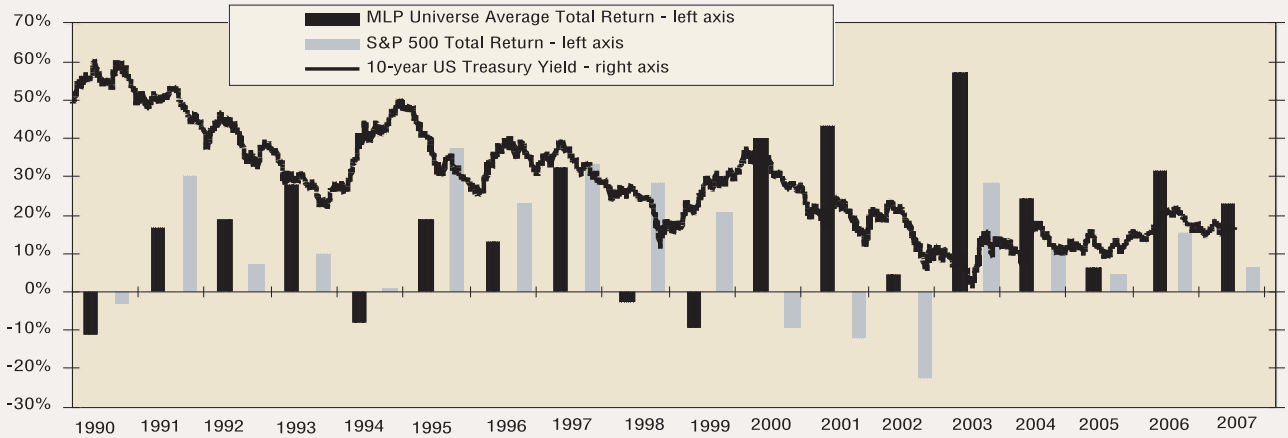
Midstream MLPs continue to outperform traditional stocks in the S&P 500.

What's more, the typical MLP is not as vulnerable to commodity price changes as E&P companies.

"Ten years ago, there were about a dozen midstream MLPs with an aggregate equity market capitalization of approximately $8 billion. Today, there are 56 midstream MLPs with an aggregate equity market capitalization of about $120 billion," says David LaBonte, director of research and partner of Los Angeles- and Houston-based Kayne Anderson Capital Advisors L.P.

"Looking ahead," he says, "we expect the absolute number of midstream MLPs to grow and the market capitalization to increase as multiples continue to expand."

LONG-TERM TOTAL RETURN-MLP AGE UNIVERSE



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Infl:	5.4%	4.2%	3.0%	3.0%	2.6%	2.8%	2.9%	2.3%	1.6%	2.2%	3.4%	2.8%	1.6%	2.3%	2.7%	3.4%	3.2%	2.6%*
Distr. :	NM	NM	0.0%	0.9%	7.5%	2.8%	1.9%	4.6%	6.6%	4.0%	4.1%	7.9%	4.7%	4.6%	8.2%	10.2%	11.1%	11.6%*

2007 total return represent year-to-date calculations (as of May 16, 2007). * A.G. Edwards' estimate.
Source: A.G. Edwards & Sons, Inc., FactSet and Baseline.
Note: Total return calculations do not include commissions or transaction costs.

The MLP has been a core focus for Kayne Anderson's investments for the past eight to nine years. It manages in excess of $4 billion invested directly in MLPs and another $1.5 billion invested in related securities such as publicly traded general partners, shipping companies and other infrastructure companies, says J.C Frey, portfolio manager and partner.

Companies opting to form MLPs believe strongly their assets will receive a higher value if owned by MLP investors who understand the assets better than traditional oil and gas or utility investors, LaBonte says.

Retail investors have historically owned MLPs, but the American Jobs Creation Act in 2004 has enabled institutional ownership to increase.

This legislation continued a provision adding net income from an interest in a publicly traded partnership to the list of sources from which a regulated investment must derive 90% of its income to maintain its tax status as a regulated investment company. Another factor likely responsible for the increased institutional interest is that MLPs now enjoy an aggregate market capitalization in excess of $100 billion, a milestone reached in fourth-quarter 2006, which means there is sufficient trading volume to build and liquidate positions.

MLPs defined

An MLP is generally a limited partnership interest traded on a public exchange whose operations are managed by a general partner. An interest in an MLP is a partnership unit rather than a share, and these units trade predominately on the New York Stock Exchange and Nasdaq.

BIRTH OF AN MLP HOLDING COMPANY

The midstream sector is a vibrant space with a lot of mergers, acquisitions and IPOs occuring in the past 18 months.

The latest new twist was in May 2007, when the general partner of Enterprise Products Partners LP said it was buying equity interest in two other midstream MLPs for $2.8 billion. This makes it the first publicly traded midstream partnership to take positions in multiple general partnerships. This deal in effect creates a holding company.

Enterprise GP Holdings L.P., Houston, which owns the general partner of Enterprise Products, paid about $2.8 billion to acquire equity interests in the general partners and limited partner interests of Teppco Partners L.P. of Houston and Energy Transfer Equity L.P. of Dallas, Texas.

"These acquisitions reflect our ongoing strategy of pursuing attractive investments in general partners that offer long-term distribution growth, increase the value of Enterprise GP Holdings and add multiple streams of cash flow," says Michael A. Creel, president and chief executive of Enterprise GP Holdings LP.

"Based on current distribution rates, Enterprise GP Holdings will now receive over $260 million of distributions per year originating from five publicly traded partnerships," he says.

With these deals, Enterprise GP Holdings becomes the first publicly traded partnership to own interest—directly or indirectly—in five similar entities: Enterprise Products Partners, Teppco Partners, Energy Transfer Equity (ETE), Energy Transfer Partners LP (ETP) and Duncan Energy Partners L.P. (Duncan Energy, also in Houston, was a spin-off of Enterprise Products Partners and was founded to own midstream assets.)

The aggregated assets of the partnerships consist of about 59,500 miles of pipelines that transport natural gas, natural gas liquids (NGLs), refined products, crude oil and petrochemicals; 103 billion cubic feet of working natural gas storage capacity; 168 million barrels of NGL storage capacity; 27 million barrels of refined products and crude oil terminal capacity; 39 natural gas processing and treating facilities; 14 NGL and petrochemical fractionation and butane isomerization plants; and a world-class NGL import/export facility.

This deal came on the heels of Natural Gas Partners, an Irving, Texas-based energy investment firm, selling 55% of its stake in Energy Transfer Equity and the majority of its stake in LE GP, the general partner of ETE, to Enterprise GP Holdings for $744 million.

"While we are pleased to have obtained partial liquidity for our investment in ETE, at an attractive price, we are equally excited about the continued growth prospects for ETE and ETP. Management has demonstrated an unparalleled record of creating value for its unit-holders, and we will continue to be a significant owner and supporter of the companies," said Kenneth Hersh, CEO of NGP Energy Capital Management.

—Gary Clouser, Contributing Editor

"The MLP structure has led to an increase in energy infrastructure investment, which could have suffered from the same declines witnessed by…other transportation infrastructure."

—David LaBonte, Kayne Anderson Capital Advisors LP

Most of the publicly traded, energy-related MLPs involve midstream or infrastructure businesses: interstate and intrastate pipelines, gas-gathering and processing facilities and terminals.

According to the Internal Revenue Service, they must derive 90% of their income from qualifying sources such as natural resource activities, real estate or income and gains from commodities, according to the Merrill Lynch report.

The taxable income of MLPs is not taxed at the partnership level, and the companies normally return most of their cash flow to the limited partners as distributions. MLPs are not corporations. Partners in an MLP only pay taxes on a portion of the distribution in the current year as the rest is considered return of capital, ultimately recaptured upon the sale of the units.

"MLPs are managed like corporations, but are taxed as partnerships," says Ron Londe, analyst at A.G. Edwards & Sons in St. Louis.

"MLPs have traditionally been considered income-oriented investments with modest growth potential. However, over the past few years, a new breed of growth MLP has emerged, offering unitholders above-average current yields, capital appreciation potential, distribution growth well above inflation rates, plus the added benefit of tax deferred income," he says. (On May 31, 2007, Wachovia announced it plans to acquire A.G. Edwards in a cash and stock deal valued at $6.8 billion.)

LaBonte attributes the out-performance to five factors: investment activity (acquisitions and expansions) fueling distribution growth rates of more than 8% annually; increased demand for yield-oriented securities driven by the aging of the baby boomers; a favorable interest rate environment; attractive valuations on an absolute and relative basis; and increased institutional investor interest.

"Favorable fundamentals and an expanding investor audience fuel price appreciation for our MLP universe," Londe says.

He was the principal author in a research note published in May, which said: "Although acquisition activity has slowed due to competitive bidding and higher asset valuations, a plethora of highly profitable, low-risk internal growth projects has increased the visibility for distribution growth during 2007, 2008 and beyond. Even though the MLPs have had outstanding performance year-to-date, up 21.3%, we believe that during the second half of 2007, total returns can continue to outpace other income vehicles."

A.G. Edwards estimates that for 2007, MLPs should be able to raise distributions by about 12%.

"Long-term investors have been served well by MLPs. We believe the stable cash-generating nature of MLPs, augmented by periodic acquisitions, will allow MLPs to keep distributions growing above the rate of inflation, which we view as a unique feature among high-yield income investments," according to the research note.

Options on MLPs are also becoming more prevalent, Londe notes, in reporting that the Philadelphia Stock Exchange recently initiated options trading on many of the MLPs. "We believe the availability of options will help to increase trading volumes and will raise the overall visibility of the sector," he says.

Kayne Anderson's LaBonte says, "The MLP structure can provide a cost-of-capital advantage compared to the traditional corporate structure. MLPs are considered for tax purposes by the IRS to be pass-through entities. Consequently, a unique advantage of MLPs is the pass-through of income tax liability directly to the investor, who then benefits from depreciation, which serves to reduce the MLPs' cost of equity capital."

Infrastructure needs

"The MLP structure has led to an increase in energy infrastructure investment, which could have suffered from the same declines witnessed by electric transmission lines or other transportation infrastructure of the U.S.," LaBonte says.

"It has also allowed the industry to make investments necessary to connect new producing areas such as in the Rockies, Canada, North Texas and LNG [liquefied natural gas] gasification regions to consuming markets as these markets constantly move around. This structural feature in effect encourages investing in regulated midstream assets such as pipelines and storage facilities by providing a more attractive rate of return."

The majority of midstream businesses generate relatively stable and growing cash flows since they typically receive a fee for service. Generally, the business activities of MLPs are considered to be in the mature stage of the business lifecycle, which is characterized by modest earnings growth and significant cash flow generation, LaBonte says.

"In our opinion, the business activities and cash flow attributes of midstream MLPs are a big reason why income-oriented investors have found these unique investment vehicles to be attractive."

Today MLPs are investing in multibillion-dollar expansion projects versus making acquisitions, which have become too pricey in many cases. Too, the U.S. needs a lot more midstream infrastructure capacity to be built: gas-gathering systems, pipelines, processing plants and gas storage.

"Much of this development can be explained by the current potential economic returns that can be generated by each investment," says LaBonte. "With more MLPs being formed in recent years, the demand for energy infrastructure assets has increased, causing acquisition multiples to expand.

"For example, five years ago, a natural gas pipeline system with good connectivity in an active

producing region could probably have been purchased for about eight times one-year forward cash flow. Today, the acquisition multiple for that same system would probably be in excess of 10 x."

While it is true MLPs have seen their equity costs of capital improve during the period, the return of expansion projects are generally superior to most acquisition opportunities as companies have less competition in building the asset and often can maximize the cash flow by adding on more services once the commodity is in their system.

"To illustrate, MLPs such as Energy Transfer Partners and Enterprise Products Partners LP are in the process of completing multibillion-dollar expansion projects where the expansion multiples range from 6 to 8 x," LaBonte says.

David Schulte, managing director of Tortoise Capital Advisors, estimates MLPs will spend more than $22 billion on internal growth projects through 2010. Tortoise Capital Advisors, based in Kansas City, is an investment advisor specializing in managing portfolios of securities of MLPs and other energy infrastructure companies. The company serves as investment advisor for Tortoise Energy Infrastructure Co. As of April 30, 2007, Tortoise Capital Advisors managed investments of about $2.9 billion, an increase of about $2.1 billion since February 2005.

"Internal growth midstream project spending is expended to finance refined product infrastructure projects to support growing populations centers, pipeline and storage terminal projects to increase the movement of crude oil from Canada to the United States, and natural gas projects to develop infrastructure that efficiently connects new areas of supply to growing areas of demand," Schulte says.

Acquisitions are more expensive than organic growth.

"Based on our estimates, acquisitions are about eight to 10 times EBITDA [earnings before interest, taxes, depreciation and amortization] versus four to seven times EBITDA for organic growth projects," Schulte says.

"We anticipate acquisitions will also drive MLP distribution growth and estimate that MLPs currently own less than 50% of the energy infrastructure assets in the United States. M&A activity has averaged $5.4 billion annually from 2001 through 2006. We expect this trend could continue through at least 2010. In aggregate, we estimate approximately $44 billion of capital requirements by MLPs through 2010," Schulte says.

"Direct transactions have grown to represent 43% of MLP secondary equity issuances in 2006, a 20% increase from 2005. Buying securities directly from MLPs typically allows capital providers to purchase stock at discounted prices providing our investors a unique access to less liquid investments with potentially higher returns.

"MLP investment returns have resulted from relatively attractive current distributions of 6% to 8%, plus growth of approximately 6%. The added return has been due to low, long-term interest rates, allowing MLP yields to trade lower in recent years." ■

IDRs EXPLAINED

As competition intensifies for an increasingly large pot of MLP investments, more consideration is being given to the percentages of incentive distribution rights (IDRs) paid to the general partner.

Most MLPs have a general partner responsible for managing the assets in the partnership, as most MLPs don't officially have employees. As compensation for managing the assets, the general partner receives a portion of the cash distributed back to the unit-holders or investors. That percentage is typically 2%. Distributions to the general partner above the 2% ownership interest are known as IDRs.

As the amount of cash distributions paid by the GP to its limited partners meets certain targets, the GP receives payments equal to an increasing percentage of such distributions. So, as cash flow thresholds are met, the GP's stake grows beyond the original 2%.

Some MLPs have IDR caps as high 50%. By contrast, distribution to Enterprise Products Partners' general partner has a cap that cannot exceed 25%. At Duncan Energy Partners, the general partner does not receive IDRs. The general partners of Valero's and Teppco's limited partnerships recently lowered their IDR caps to 25% from 50%.

That is significant because reducing the distribution to the general partner leaves more cash for growth projects and results in a lower cost to raise necessary capital for acquisitions and expansions, which is a competitive advantage.

Some general partners are willing to take lower percentage caps on IDRs because they are confident that will help the MLP attract investors. The idea is that in the long run, the general partner will benefit by that growth, much as a rising tide lifts all boats.

The prospect of the general partner taking a lower portion of distributions, combined with the growth potential, makes it a more attractive investment. Partners benefit from a larger slice of the distributions, and the stock price also appreciates as The Street looks favorably on the partnership's approach. ■

TRACKING PERFORMANCE

MLP market capitalization has nearly doubled in the past two years.

In June 2006, Alerian Capital Management LLC, New York, launched the Alerian MLP Index (NYSE: AMZ), in cooperation with Standard & Poor's Corp. and the Coalition of Publicly Traded Partnerships, Washington, D.C.

The Alerian MLP index is a composite of the 50 most prominent energy master limited partnerships (MLPs). It is calculated by Standard & Poor's using a float-adjusted market capitalization methodology. The index is disseminated in real-time on a price-return basis.

The index's market capitalization has nearly doubled to $75 billion in the past two years, says Mary Lyman, executive director of the Coalition of Publicly Traded Partnerships.

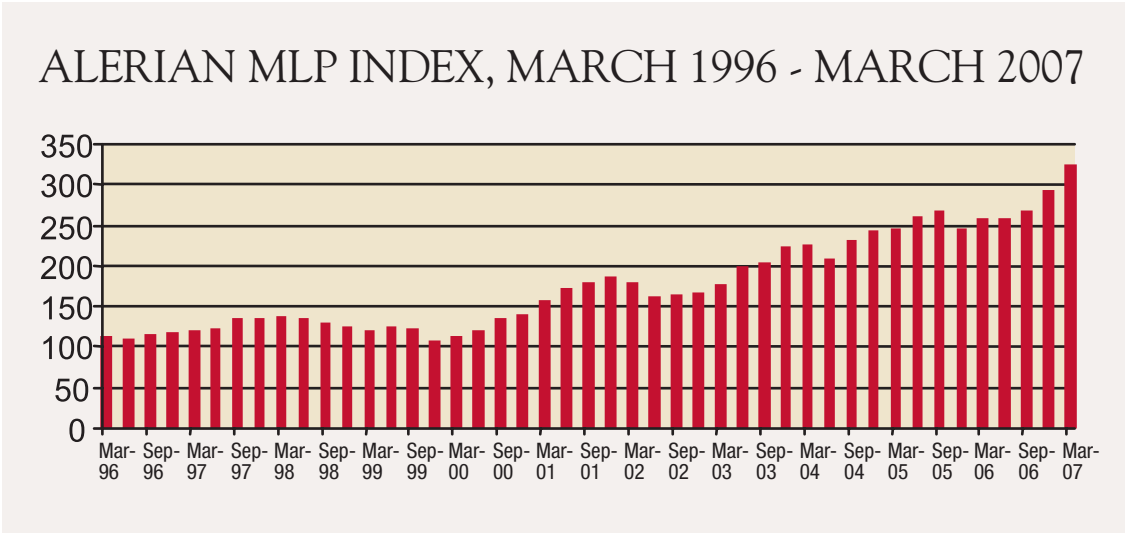
"The analysts I've talked to expect it to double again before the end of the decade," she says. "I believe that tremendous growth lies ahead given the strong need for new energy infrastructure investment and the continued migration of existing assets into the MLP structure. This benchmark will be tremendously helpful to investors trying to track the performance of these companies."

On March 16, 2007, Alerian added the following companies to the index: Atlas Energy Resources LLC, BreitBurn Energy Partners LP, Buckeye GP Holdings LP, Duncan Energy Partners LP, Hiland Holdings GP LP, Legacy Reserves LP, Targa Resources Partners LP, Penn Virginia GP Holdings LP, Teekay Offshore Partners LP and Universal Compression Partners LP.

Because the following MLPs had average daily trading volume of less than 25,000 units per day, they were removed from the index after the market close March 16: Enbridge Energy Management LLC, Genesis Energy LP, Global Partners LP, Holly Energy Partners LP, Hiland Partners LP, K-Sea Transportation Partners LP, Martin Midstream Partners LP, Inergy Holdings LP, Natural Resource Partners LP and TransMontaigne Partners LP.

In accordance with the existing index methodology, the index's 50 constituents were rebalanced on a float-adjusted, market capitalization-weighted basis. ■

> MLPs are typically toll-road business models. They receive a specified tariff for hauling a product over a certain distance; do not take title to the commodity; do not have balance sheet exposure; are largely agnostic to the level of commodity prices, because these prices do not enter the revenue equation; and do not have significant credit risk as commodity prices balloon. As the energy and investment communities continue to argue over whether oil will trade at $30 or $100 per barrel in 2010, the more certain bet is on the growth trajectory of U.S. energy demand and the high-return capital spending projects that will have to take place to support it.
>
> —*Alerian Capital Management*



The Alerian MLP index shows performance of 50 publicly traded MLPs, calculated by S&P, for the period March 1996 to March 2007.
(Chart courtesy of Alerian Capital Management)

ALERIAN MLP INDEX AS OF MARCH 2007

Company Name	Ticker	Price	Adj Mkt Cap	Weight
Alliance Holdings GP LP	AHGP	$23.84	286,080,000	0.43%
Atlas Pipeline Partners LP	APL	$47.50	531,053,572	0.81%
AmeriGas Partners LP	APU	$31.71	1,013,114,839	1.54%
Alliance Resource Partners LP	ARLP	$34.63	715,695,482	1.09%
Atlas Energy Resources LLC	ATN	$26.79	190,966,487	0.29%
BreitBurn Energy Partners LP	BBEP	$31.34	184,279,200	0.28%
Buckeye GP Holdings LP	BGH	$20.68	217,140,000	0.33%
Buckeye Partners LP	BPL	$49.45	1,908,652,870	2.90%
Boardwalk Pipeline Partners LP	BWP	$38.50	826,287,000	1.26%
Calumet Specialty Products Partners LP	CLMT	$44.90	466,640,550	0.71%
Copano Energy LLC	CPNO	$33.27	1,252,422,734	1.90%
Duncan Energy Partners LP	DEP	$25.51	373,748,475	0.57%
Dorchester Minerals LP	DMLP	$20.89	518,658,132	0.79%
DCP Midstream Partners LP	DPM	$38.18	336,747,600	0.51%
Enbridge Energy Partners LP	EEP	$53.47	2,616,824,865	3.98%
Enterprise Products Partners LP	EPD	$31.36	8,772,823,833	13.34%
Enterprise GP Holdings LP	EPE	$38.81	459,181,669	0.70%
Eagle Rock Energy Partners LP	EROC	$19.50	262,356,546	0.40%
Energy Transfer Equity LP	ETE	$35.85	749,085,750	1.14%
Energy Transfer Partners LP	ETP	$57.00	4,050,119,413	6.16%
Ferrellgas Partners LP	FGP	$23.08	863,946,463	1.31%
Hiland Holdings GP LP	HPGP	$30.37	212,954,440	0.32%
Kinder Morgan Energy Partners LP	KMP	$51.66	7,511,481,913	11.42%
Kinder Morgan Management LLC	KMR	$50.14	2,512,484,263	3.82%
Legacy Reserves LP	LGCY	$24.65	169,914,915	0.26%
Linn Energy LLC	LINE	$33.00	873,531,516	1.33%
Magellan Midstream Holdings LP	MGG	$25.92	570,182,976	0.87%
Magellan Midstream Partners LP	MMP	$44.90	2,920,000,177	4.44%
MarkWest Energy Partners LP	MWE	$34.66	891,947,244	1.36%
Targa Resources Partners LP	NGLS	$25.55	483,753,480	0.74%
Inergy LP	NRGY	$31.37	963,302,947	1.46%
Natural Resource Partners LP	NRP	$31.38	764,438,116	1.16%
NuStar Energy LP	NS	$65.04	2,332,145,876	3.55%
NuStar GP Holdings LLC	NSH	$27.50	1,026,987,500	1.56%
ONEOK Partners LP	OKS	$65.68	2,954,238,435	4.49%
Plains All American Pipeline LP	PAA	$56.02	4,602,455,702	7.00%
Penn Virginia GP Holdings LP	PVG	$24.39	169,498,305	0.26%
Penn Virginia Resource Partners LP	PVR	$25.35	651,206,329	0.99%
Regency Energy Partners LP	RGNC	$27.45	585,912,711	0.89%
Star Gas Partners LP	SGU	$3.79	237,399,717	0.36%
Suburban Propane Partners LP	SPH	$41.40	1,257,408,790	1.91%
Sunoco Logistics Partners LP	SXL	$58.31	925,280,181	1.41%
TC Pipelines LP	TCLP	$36.86	555,954,961	0.85%
Teekay LNG Partners LP	TGP	$37.19	397,391,142	0.60%
Teekay Offshore Partners LP	TOO	$31.14	245,663,460	0.37%
TEPPCO Partners LP	TPP	$43.97	3,154,815,970	4.80%
Universal Compression Partners LP	UCLP	$30.90	166,551,000	0.25%
US Shipping Partners LP	USS	$18.99	194,171,011	0.30%
Williams Partners LP	WPZ	$45.05	1,373,422,323	2.09%
Crosstex Energy LP	XTEX	$33.49	476,499,319	0.72%

MIDSTREAM GLOSSARY

COMPILED BY JEANNIE STELL, FINANCIAL EDITOR, *OIL AND GAS INVESTOR*

(Photo courtesy of Enterprise Product Partners LP)

Base gas—The amount of gas needed in a storage asset to provide the pressure to turn over the normal storage volume.

Base load gas—The minimum amount of gas is consumed at a steady rate; the normal level of gas demand.

BTU—British thermal unit; a unit of measurement for energy representing the amount of heat necessary to raise the temperature of one pound of water one degree Fahrenheit.

Coalbed methane (CBM)—Methane found in coal seams; one of the fastest-growing new sources of natural gas supply.

Compression—To transport gas through a pipeline, it must be compressed to save space and to push it farther down the line; most gas is compressed at 1,000 psi (per square inch).

Cryogenic—Very low-temperature facility such as those used to store liquid natural gas.

Cycling—A storage process in which the same quantity of gas is injected into and withdrawn from storage within a prescribed time period.

Distribution pipeline system—Main pipelines, services and equipment that transport gas from a local supply source to the sales meters.

Field plants—Plants that remove natural gas liquids (NGLs) from raw natural gas collected in a field gathering system or from gas shipped to the plant for the purpose of removing the NGLs.

Field storage—A subsurface reservoir, usually a depleted natural gas field, used for storing natural gas.

Fractionation—The separation of a "raw make" stream of natural gas liquids into individual liquid hydrocarbons.

Fraction spread (frac spread)—The difference in price between natural gas liquids and natural gas on a BTU-equivalent basis.

Henry Hub—An interstate pipeline interchange that also serves as the delivery point for Nymex natural gas futures contracts, located in Vermilion Parish, Louisiana. Many natural gas sales contracts are priced as of the Henry Hub benchmark price.

Hydrocarbon—An organic compound made up of carbon and hydrogen atoms used as sources of energy and including natural gas, coal and crude oil.

Injection season—April 1 through October 31. Months during which producers and pipelines inject natural gas into storage facilities in preparation for winter. U.S. capacity is 4 TCF.

Land and lease fuel—Natural gas used near the production site for drilling operations and for facilities such as heaters and field compressors.

Liquefaction—Any process that changes the state of natural gas from a gaseous phase to a liquid phase.

Looping—Laying additional pipeline next to an existing pipeline to increase the capacity of the system.

MMCF—A volume unit of million cubic feet, commonly used to measure gas. Also used as

MCF (thousand cubic feet), BCF (billion cubic feet) and TCF (trillion cubic feet); 1 MMCF has a heating value of 1 MMBTU.

Methane—Commonly known as natural gas, it is the most common hydrocarbon gas and is colorless, odorless and flammable.

NGLs—Natural gas liquids; light hydrocarbon mixtures removed from natural gas streams at processing plants through condensation or absorption; includes ethane, butane, propane, isobutene and natural gasoline.

Parking—Temporarily storing gas for a pipeline customer so the customer does not have to sell the gas at a low price.

Pipeline quality gas—Gas with impurities removed; 95% methane.

Pricing differential—The difference between a pipeline's contractual cost of gas supply and a market price.

Production decline rate—A measure of the decrease of production from subsurface reserves that takes place during a period of time.

Spurs—Small, lateral pipelines that branch out from a main line to provide connections.

Straddle plant—A natural gas processing plant constructed near a transmission pipeline, downstream from the fields where the gas in the pipeline has been produced; also called an "online" plant. It does not purchase and resell natural gas, but provides only a processing service for the gas owner.

Stripper wells—Natural gas wells that produce less than 6 MCF per day of gas, primarily from onshore reserves.

Take-or-pay clause—Under a take-or-pay clause, the contracted amount of product (gas) that the buyer is obligated to pay for, regardless of whether the buyer takes delivery of that amount of product.

Treating—Removal from raw gas from the wellhead, contaminates such as carbon dioxide or hydrogen sulfide, to allow for safe and efficient transportation and processing.

Utilization factor—A ratio of the maximum demand of a pipeline system or part of a system to its rated capacity.

Variable cost—The total cost incurred to produce energy, excluding fixed costs, which are incurred regardless of whether the resource is operating. Variable costs usually include fuel, increased maintenance and additional labor.

Wellhead price—The price received by the producer for sales at the well; price includes the charge for natural gas liquids removed from the gas as well as gathering and compression charges.

Withdrawal season—November 1 through March 30. The span of time in which gas storage quantities are depleted for consumption, primarily for heating season. ■

(Photo courtesy of Crosstex Energy LP)

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