CNX Resources Corp
Form 10-K
February 07, 2019

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

x **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.**

For the fiscal year ended December 31, 2018
OR

o **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from __________ to __________
Commission file number: 001-14901

CNX Resources Corporation
(Exact name of registrant as specified in its charter)

Delaware	**51-0337383**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

CNX Center
1000 CONSOL Energy Drive Suite 400
Canonsburg, PA 15317-6506
(724) 485-4000
(Address, including zip code, and telephone number, including area code, of registrant’s principal executive offices)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of exchange on which registered
Common Stock ($.01 par value)	New York Stock Exchange
Preferred Share Purchase Rights	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes x No o
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes o No x
Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No o
Indicate by check mark whether the registrant has submitted electronically, if any, every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes x No o
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company, ” and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):
Large accelerated filer x Accelerated filer o Non-accelerated filer o Smaller Reporting Company o Emerging Growth Company o

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes o No x

The aggregate market value of voting stock held by nonaffiliates of the registrant as of June 30, 2018, the last business day of the registrant's most recently completed second fiscal quarter, based on the closing price of the common stock on the New York Stock Exchange on such date was $1,652,490,069.

The number of shares outstanding of the registrant's common stock as of January 18, 2019 is 198,335,252 shares.

DOCUMENTS INCORPORATED BY REFERENCE:

Portions of CNX's Proxy Statement for the Annual Meeting of Shareholders to be held on May 29, 2019, are incorporated by reference in Items 10, 11, 12, 13 and 14 of Part III.

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GLOSSARY OF CERTAIN OIL AND GAS TERMS

The following are certain terms and abbreviations commonly used in the oil and gas industry and included within this Form 10-K:

Bbl - One stock tank barrel, or 42 U.S. gallons liquid volume, used in reference to oil or other liquid hydrocarbons.
Bcf - One billion cubic feet of natural gas.
Bcfe - One billion cubic feet of natural gas equivalents, with one barrel of oil being equivalent to 6,000 cubic feet of gas.
Btu - One British Thermal unit.
BBtu - billion British Thermal units.
Mbbls - One thousand barrels of oil or other liquid hydrocarbons.
Mcf - One thousand cubic feet of natural gas.
Mcfe - One thousand cubic feet of natural gas equivalents, with one barrel of oil being equivalent to 6,000 cubic feet of gas.
MMbtu - One million British Thermal units.
MMcfe - One million cubic feet of natural gas equivalents, with one barrel of oil being equivalent to 6,000 cubic feet of gas.
Tcfe - One trillion cubic feet of natural gas equivalents, with one barrel of oil being equivalent to 6,000 cubic feet of gas.
NGL - Natural gas liquids - those hydrocarbons in natural gas that are separated from the gas as liquids through the process.
net - “net” natural gas or “net” acres are determined by adding the fractional ownership working interests the Company has in gross wells or acres.
TIL - turn-in-line; a well turned to sales.
blending - process of mixing dry and damp gas in order to meet downstream pipeline specifications.
proved reserves - quantities of oil, natural gas, and NGLs which, by analysis of geological and engineering data, can be estimated with reasonable certainty to be economically producible from a given date forward, from known reservoirs, and under existing economic conditions, operating methods and government regulations prior to the time at which contracts providing the right to operate expire, unless evidence indicates that renewal is reasonably certain, regardless of whether deterministic or probabilistic methods are used for the estimation.
proved developed reserves (PDPs) - proved reserves which can be expected to be recovered through existing wells with existing equipment and operating methods.
proved undeveloped reserves (PUDs) - proved reserves that can be estimated with reasonable certainty to be recovered from new wells on undrilled proved acreage or from existing wells where a relatively major expenditure is required for completion.
reservoir - a porous and permeable underground formation containing a natural accumulation of producible natural gas and/or oil that is confined by impermeable rock or water barriers and is separate from other reservoirs.
development well - a well drilled within the proved area of an oil or gas reservoir to the depth of a stratigraphic horizon known to be productive.
exploratory well - a well drilled to find a new field or to find a new reservoir in a field previously found to be productive of oil or gas in another reservoir. Generally, an exploratory well is any well that is not a development well, an extension well, a service well or a stratigraphic test well.
gob well - a well drilled or vent hole converted to a well which produces or is capable of producing coalbed methane or other natural gas from a distressed zone created above and below a mined-out coal seam by any prior full seam extraction of the coal.
service well - a well drilled or completed for the purpose of supporting production in an existing field. Specific purposes of service wells include, among other things, gas injection, water injection and salt-water disposal.
play - a proven geological formation that contains commercial amounts of hydrocarbons.

royalty interest - the land owner's share of oil or gas production, typically 1/8.
throughput - the volume of natural gas transported or passing through a pipeline, plant, terminal, or other facility during a particular period.
working interest - an interest that gives the owner the right to drill, produce and conduct operating activities on a property and receive a share of any production.
wet gas - natural gas that contains significant heavy hydrocarbons, such as propane, butane and other liquid hydrocarbons.

FORWARD-LOOKING STATEMENTS

We are including the following cautionary statement in this Annual Report on Form 10-K to make applicable and take advantage of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 for any forward-looking statements made by, or on behalf of us. With the exception of historical matters, the matters discussed in this Annual Report on Form 10-K are forward-looking statements (as defined in Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act)) that involve risks and uncertainties that could cause actual results to differ materially from projected results. Accordingly, investors should not place undue reliance on forward-looking statements as a prediction of actual results. The forward-looking statements may include projections and estimates concerning the timing and success of specific projects and our future production, revenues, income and capital spending. When we use the words “believe,” “intend,” “expect,” “may,” “should,” “anticipate,” “could,” “e “plan,” “predict,” “project,” "will," or their negatives, or other similar expressions, the statements which include those words are usually forward-looking statements. When we describe strategy that involves risks or uncertainties, we are making forward-looking statements. The forward-looking statements in this Annual Report on Form 10-K speak only as of the date of this Annual Report on Form 10-K; we disclaim any obligation to update these statements unless required by securities law, and we caution you not to rely on them unduly. We have based these forward-looking statements on our current expectations and assumptions about future events. While our management considers these expectations and assumptions to be reasonable, they are inherently subject to significant business, economic, competitive, regulatory and other risks, contingencies and uncertainties, most of which are difficult to predict and many of which are beyond our control. These risks, contingencies and uncertainties relate to, among other matters, the following:

- prices for natural gas and natural gas liquids are volatile and can fluctuate widely based upon a number of factors beyond our control including oversupply relative to the demand for our products, weather and the price and availability of alternative fuels;
- our dependence on gathering, processing and transportation facilities and other midstream facilities owned by CNX Midstream Partners LP (NYSE: CNXM) (CNXM) and others;
- uncertainties in estimating our economically recoverable natural gas reserves, and inaccuracies in our estimates;
- the high-risk nature of drilling and developing natural gas wells;
- our identified drilling locations are scheduled out over multiple years, making them susceptible to uncertainties that could materially alter the occurrence or timing of their drilling;
- challenges associated with strategic determinations, including the allocation of capital and other resources to strategic opportunities;
- our development and exploration projects, as well as CNXM’s midstream system development, require substantial capital expenditures;
- the impact of potential, as well as any adopted environmental regulations including any relating to greenhouse gas emissions on our operating costs as well as on the market for natural gas and for our securities;
- environmental regulations can increase costs and introduce uncertainty that could adversely impact the market for natural gas with potential short and long-term liabilities;
- our operations are subject to operating risks that could increase our operating expenses and decrease our production levels which could adversely affect our results of operation and our operations are also subject to hazards and any losses or liabilities we suffer from hazards, which occur in our operations may not be fully covered by our insurance policies;
- decreases in the availability of, or increases in the price of, required personnel, services, equipment, parts and raw materials in sufficient quantities or at reasonable costs to support our operations;
- if natural gas prices decrease or drilling efforts are unsuccessful, we may be required to record write-downs of our proved natural gas properties;
- changes in assumptions impacting management’s estimates of future financial results as well as other assumptions such as movement in our stock price, weighted-average cost of capital, terminal growth rates and industry multiples,

could cause goodwill and other intangible assets we hold to become impaired and result in material non-cash charges to earnings;

- a loss of our competitive position because of the competitive nature of the natural gas industry, consolidation within the industry or overcapacity in the industry adversely affecting our ability to sell our products and midstream services, which could impair our profitability;
- deterioration in the economic conditions in any of the industries in which our customers operate, a domestic or worldwide financial downturn, or negative credit market conditions;
- hedging activities may prevent us from benefiting from price increases and may expose us to other risks;
- existing and future government laws, regulations and other legal requirements and judicial decisions that govern our business may increase our costs of doing business and may restrict our operations;
- significant costs and liabilities may be incurred as a result of pipeline operations and related increase in the regulation of gas gathering pipelines;

- our ability to find adequate water sources for our use in shale gas drilling and production operations, or our ability to dispose of, transport or recycle water used or removed in connection with our gas operations at a reasonable cost and within applicable environmental rules;
- failure to find or acquire economically recoverable natural gas reserves to replace our current natural gas reserves;
- risks associated with our debt;
- a decrease in our borrowing base, which could decrease for a variety of reasons including lower natural gas prices, declines in natural gas proved reserves, asset sales and lending requirements or regulations;
- changes in federal or state income tax laws;
- cyber-incidents could have a material adverse effect on our business, financial condition or results of operations;
- construction of new gathering, compression, dehydration, treating or other midstream assets by CNXM may not result in revenue increases and may be subject to regulatory, environmental, political, legal and economic risks;
- our success depends on key members of our management and our ability to attract and retain experienced technical and other professional personnel;
- terrorist activities could materially and adversely affect our business and results of operations;
- we may operate a portion of our business with one or more joint venture partners or in circumstances where we are not the operator, which may restrict our operational and corporate flexibility and we may not realize the benefits we expect to realize from a joint venture;
- acquisitions and divestitures we anticipate may not occur or produce anticipated benefits;
- the outcomes of various legal proceedings, including those which are more fully described in our reports filed under the Exchange Act;
- there is no guarantee that we will continue to repurchase shares of our common stock under our current or any future share repurchase program at levels undertaken previously or at all;
- negative public perception regarding our industry could have an adverse effect on our operations;
- CONSOL Energy may not be able to satisfy its indemnification obligations in the future and such indemnities may not be sufficient to hold us harmless from the full amount of liabilities for which CONSOL Energy will be allocated responsibility;
- the separation of CONSOL Energy could result in substantial tax liability; and
- other factors discussed in this 2018 Form 10-K under “Risk Factors,” as updated by any subsequent Forms 10-Q, which are on file with the Securities and Exchange Commission.

PART I

ITEM 1. Business

General

CNX Resources Corporation (CNX or the Company) is a premiere independent oil and gas company that is focused on the exploration, development, production, gathering, processing and acquisition of natural gas properties primarily in the Appalachian Basin. Our operations are centered on unconventional shale formations, primarily the Marcellus Shale and Utica Shale.

CNX was incorporated in Delaware in 1991 under the name CONSOL Energy Inc. (CONSOL Energy), but its predecessors had been mining coal, primarily in the Appalachian Basin, since 1864. CNX entered the natural gas business in the 1980s initially to increase the safety and efficiency of its Virginia coal mines by capturing methane from coal seams prior to mining, which makes the mining process safer and more efficient. The natural gas business grew from the coalbed methane production in Virginia into other unconventional production, including hydraulic fracturing in the Marcellus Shale and Utica Shale in the Appalachian Basin. This growth was accelerated with the 2010 asset acquisition of the Appalachian Exploration & Production business of Dominion Resources, Inc.

On November 28, 2017, CNX completed the tax-free spin-off of its coal business resulting in two independent, publicly traded companies: CONSOL Energy, a coal company, formerly known as CONSOL Mining Corporation; and CNX, a natural gas exploration and production company. As a result of the separation of the two companies, CONSOL Energy and its subsidiaries now hold the coal assets previously held by CNX, including its Pennsylvania Mining Complex, Baltimore Marine Terminal, its direct and indirect ownership interest in CONSOL Coal Resources LP, formerly known as CNXC Coal Resources LP, and other related coal assets previously held by CNX. The coal company, previously reported as the Company's Pennsylvania Mining Operations division, has been reclassified in the Audited Consolidated Financial Statements in Item 8 of this Annual Report on Form 10-K (the Form 10-K) to discontinued operations in 2017 as well as all prior periods presented.

CNX operates, develops and explores for natural gas in Appalachia (Pennsylvania, West Virginia, Ohio, and Virginia). Our primary focus is the continued development of our Marcellus Shale acreage and delineation and development of our unique Utica Shale acreage and stacked pay opportunity set. We believe that our concentrated operating area, our legacy surface acreage position, our regional operating expertise, our extensive data set from development, as well as from non-operated participation wells and our held-by-production acreage position provides us a significant competitive advantage over our competitors. Over the past ten years, CNX's natural gas production has grown by approximately 570% to produce a total of 507.1 net Bcfe in 2018, which includes approximately 27 Bcfe of production related to assets that were sold during the year. For additional information, see Note 6 - Acquisitions and Dispositions in the Notes to the Audited Consolidated Financial Statements in Item 8 of this Form 10-K and incorporated herein.

Our land holdings in the Marcellus Shale and Utica Shale plays cover large areas, provide multi-year drilling opportunities and, collectively, have sustainable lower-risk growth profiles. We currently control approximately 539,000 net acres in the Marcellus Shale and approximately 627,000 net acres that have Utica Shale potential in Ohio, West Virginia, and Pennsylvania. We also have approximately 2.5 million net acres in our coalbed methane play.

Highlights of our 2018 production include the following:
- Total average production of 1,389,325 Mcfe per day;
- 92% Natural Gas, 8% Liquids; and
- 57% Marcellus, 30% Utica, 12% coalbed methane, and 1% other.

At December 31, 2018, our proved natural gas, NGL, condensate and oil reserves (collectively, "natural gas reserves") had the following characteristics:

- 7.9 Tcfe of proved reserves;
- 94.4% natural gas;
- 57.0% proved developed;
- 98.6% operated; and
- A reserve life ratio of 15.54 years (based on 2018 production).

The following map provides the location of CNX's E&P operations by region:
CNX defines itself through its core values which serve as the compass for our road map and guide every aspect of our business as we strive to achieve our corporate mission:

- Responsibility: Be a safe and compliant operator; be a trusted community partner and respected corporate citizen; act with pride and integrity;
- Ownership: Be accountable for our actions and learn from our outcomes, both positive and negative; be calculated risk-takers and seek creative ways to solve problems; and
- Excellence: Be prudent capital allocators; be a lean, efficient, nimble organization; be a disciplined, reliable, performance-driven company.

These values are the foundation of CNX's identity and are the basis for how management defines continued success. We believe CNX's rich resource base, coupled with these core values, allows management to create value for the long-term. The U.S. electric power industry generates more than half of its output by burning fossil fuels. We believe that the use of natural gas as one of the principal fuel sources for electricity in the United States will continue for many years; in fact, the Energy Information Agency (EIA) forecasts that U.S. electricity generation from natural gas will increase by 40% by 2030 and by more than 50% by 2040. Natural gas is the dominant choice for space and water heating fuel in the U.S. domestic residential sector, and EIA forecasts gas consumption for this use to increase modestly over the next decades. Plentiful natural gas is also creating growing opportunities as feedstock for chemicals, plastics, and fertilizer manufacturing in the U.S. and for rapidly expanding exports, as the U.S. becomes a net exporter of the fuel. Additionally, we believe that, as both worldwide economies and U.S. export facilities expand, the demand for our natural gas will grow as well.

CNX's Strategy

CNX's strategy is to increase shareholder value through the development and growth of its existing natural gas assets and selective acquisition of natural gas and NGL acreage leases within its footprint. Our mission is to empower our team to embrace and drive innovative change that creates long-term per share value for our investors, enhances our communities and delivers energy solutions for today and tomorrow. We will also continue to focus on the monetization of non-core assets to accelerate value creation and to minimize any shortfall between operating cash flows and our growth capital requirements.

We expect natural gas to continue to be the dominant contributor to the domestic electricity generation mix, while fueling industrial growth in the U.S. economy. EIA forecasts that natural gas will be the single dominant fuel (including renewables and nuclear as "fuels") for electricity generation out through 2050, and that total domestic natural gas consumption will increase 19% in that time. The Gas Exporting Countries Forum (GECF) forecasts global demand for gas to increase by 46% to 5.43 trillion cubic meters by 2040, according to the "Global Gas Outlook 2040". It also stated that generating electricity and the industrial sector will contribute the most to the growing demand and that the share of natural gas in the global energy balance will increase from 22% to 26% by 2040. With the recent growth of natural gas exports to Mexico and Canada, the United States becoming a net exporter of natural gas, and increasing liquefied natural gas (LNG) demand, we expect new markets to open in the coming years. We believe that our growth in natural gas production, our low drilling and operating costs, our leverage and liquidity positions, and our vast acreage will allow CNX to take advantage of these markets.

CNX's Capital Expenditure Budget

In 2019, CNX expects capital expenditures of approximately $1,000-$1,080 million. The 2019 budget includes $575-$625 million of drilling and completion ("D&C") capital and approximately $175 million of capital associated with land, midstream, and water infrastructure and $250-$280 million of capital for CNX Midstream Partners LP ("CNXM"). The company continuously evaluates multiple factors to determine incremental activity throughout the year, and as such may update guidance accordingly.

DETAIL OPERATIONS

Our operations are located throughout Appalachia and include the following plays:

Marcellus Shale

We have the rights to extract natural gas in Pennsylvania, West Virginia, and Ohio from approximately 539,000 net Marcellus Shale acres at December 31, 2018.

The Upper Devonian Shale formation, which includes both the Burkett Shale and Rhinestreet Shale, lies above the Marcellus Shale formation in southwestern Pennsylvania and northern West Virginia. The Company holds approximately 45,000 acres of incremental Upper Devonian acres; however, these acres have historically not been disclosed separately as they generally coincide with our Marcellus acreage.

On January 3, 2018, the Company acquired the remaining 50% membership interest in CONE Gathering LLC (which has since been renamed CNX Gathering LLC), which holds the general partner interest and incentive distribution rights in CNXM, the entity that constructs and operates the gathering system for most of our Marcellus shale production. See **"Midstream Gas Services"** for a more detailed explanation.

Utica Shale

We have the rights to extract natural gas in Pennsylvania, West Virginia, and Ohio from approximately 627,000 net Utica Shale acres at December 31, 2018. Approximately 356,000 Utica acres coincide with Marcellus Shale acreage in Pennsylvania, West Virginia, and Ohio. During the third quarter of 2018, CNX closed on the sale of substantially all of its Ohio Utica Joint Venture Assets, including approximately 35,000 net acres in the wet gas Utica Shale areas of Belmont, Guernsey, Harrison, and Noble Counties (See Note 6 - Acquisitions and Dispositions in the Notes to the Audited Consolidated Financial Statements in Item 8 of this Form 10-K for more information).

Coalbed Methane (CBM)

We have the rights to extract CBM in Virginia from approximately 308,000 net CBM acres in Central Appalachia. We produce CBM natural gas primarily from the Pocahontas #3 seam and still have a nominal drilling program.

We also have the rights to extract CBM from approximately 2,100,00 net CBM acres in other states including West Virginia, Pennsylvania, Ohio, Illinois, Indiana and New Mexico with no current plans to drill CBM wells in these areas.

Other Gas

We have the rights to extract natural gas from other shale and shallow oil and gas positions primarily in Illinois, Indiana, New York, Ohio, Pennsylvania, Virginia, and West Virginia from approximately 968,000 net acres at December 31, 2018. The majority of our shallow oil and gas leasehold position is held by production and all of it is extensively overlain by existing third-party gas gathering and transmission infrastructure. In March 2018, CNX Gas completed the sale of substantially all of its shallow oil and gas assets in Pennsylvania and West Virginia, including approximately 833,000 net acres (See Note 6 - Acquisitions and Dispositions in the Notes to the Audited Consolidated Financial Statements in Item 8 of this Form 10-K for more information).

Summary of Properties as of December 31, 2018

	Marcellus Segment	**Utica Segment**	**CBM Segment**	**Other Gas Segment**	**Total**
Estimated Net Proved Reserves (MMcfe)	5,595,409	1,067,617	1,209,638	8,671	7,881,335
Percent Developed	54 %	49 %	77 %	100 %	57 %
Net Producing Wells (including oil and gob wells)	355	45	4,152	71	4,623
Net Acreage Position:					
Net Proved Developed Acres	42,853	12,090	231,415	3,244	289,602
Net Proved Undeveloped Acres	26,324	7,046	—	—	33,370
Net Unproved Acres(1)	515,073	252,473	2,227,764	965,118	3,960,428
Total Net Acres(2)	584,250	271,609	2,459,179	968,362	4,283,400

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(1) Net acres include acreage attributable to our working interests in the properties. Additional adjustments (either increases or decreases) may be required as we further develop title to and further confirm our rights with respect to our various properties in anticipation of development. We believe that our assumptions and methodology in this regard are reasonable.

(2) Acreage amounts are only included under the target strata CNX expects to produce with the exception of certain CBM acres governed by separate leases, although the reported acres may include rights to multiple gas seams (e.g. we have rights to the Marcellus segment that are disclosed under the Utica segment and we have rights to Utica segment that are disclosed under the Marcellus segment). We have reviewed our drilling plans, and our acreage rights and have used our best judgment to reflect the acres in the strata we expect to primarily produce. As more information is obtained or circumstances change, the acreage classification may change.

Producing Wells and Acreage

Most of our development wells and proved acreage are located in Virginia, West Virginia, Ohio and Pennsylvania. Some leases are beyond their primary term, but these leases are extended in accordance with their terms as long as certain drilling commitments or other term commitments are satisfied.

The following table sets forth, at December 31, 2018, the number of producing wells, developed acreage and undeveloped acreage:

	Gross	**Net(1)**
Producing Gas Wells (including gob wells)	6,453	4,623
Producing Oil Wells	149	1
Net Acreage Position:		
Proved Developed Acreage	289,602	289,602
Proved Undeveloped Acreage	33,370	33,370
Unproved Acreage	4,940,180	3,960,428
Total Acreage	5,263,152	4,283,400

(1) Net acres include acreage attributable to our working interests in the properties. Additional adjustments (either increases or decreases) may be required as we further develop title to and further confirm our rights with respect to our various properties in anticipation of development. We believe that our assumptions and methodology in this regard are reasonable.

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The following table represents the terms under which we hold these acres:

	Gross Unproved Acres	Net Unproved Acres	Net Proved Undeveloped Acres
Held by production/fee	4,797,145	3,896,613	18,524
Expiration within 2 years	87,553	37,115	7,628
Expiration beyond 2 years	55,482	26,700	7,218
Total Acreage	4,940,180	3,960,428	33,370

The leases reflected above as Gross and Net Unproved Acres with expiration dates are included in our current drill plan or active land program. Leases with expiration dates within two years represent approximately 1% of our total net unproved acres and leases with expiration dates beyond two years represent approximately 1% of our total net unproved acres. In each case, we deemed this acreage to not be material to our overall acreage position. Additionally, based on our current drill plans and lease management we do not anticipate any material impact to our consolidated financial statements from the expiration of such leases.

Development Wells (Net)

During the years ended December 31, 2018, 2017 and 2016, we drilled 83.9, 90.0 and 36.0 net development wells, respectively. Gob wells and wells drilled by operators other than our primary joint venture partners at that time are excluded from net development wells. In 2018, there were 22.0 net development wells and no exploratory wells drilled but uncompleted. There were no dry development wells in 2018, 2017, or 2016. As of December 31, 2018, there are 8.0 gross completed developmental wells ready to be turned in-line. The following table illustrates the net wells drilled by well classification type:

	For the Year Ended December 31,		
	2018	2017	2016
Marcellus segment	65.9	9.0	—
Utica segment	12.0	17.0	13.0
CBM segment	6.0	64.0	23.0
Other Gas segment	—	—	—
Total Development Wells (Net)	83.9	90.0	36.0

Exploratory Wells (Net)

There were no exploratory wells drilled during the year ended December 31, 2018. There were 4.0 net exploratory wells drilled during the year ended December 31, 2017 and no exploratory wells drilled during the year ended December 31, 2016. As of December 31, 2018, there are 4.0 net exploratory wells in process. The following table illustrates the exploratory wells drilled by well classification type:

	For the Year Ended December 31,								
	2018			2017			2016		
	Producing	Dry	Still Eval.	Producing	Dry	Still Eval.	Producing	Dry	Still Eval.
Marcellus segment	—	—	—	—	—	—	—	—	—
Utica segment	—	—	—	4.0	—	—	—	—	—
CBM segment	—	—	—	—	—	—	—	—	—
Other Gas segment	—	—	—	—	—	—	—	—	—
Total Exploratory Wells (Net)	—	—	—	4.0	—	—	—	—	—

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Reserves

The following table shows our estimated proved developed and proved undeveloped reserves. Reserve information is net of royalty interest. Proved developed and proved undeveloped reserves are reserves that could be commercially recovered under current economic conditions, operating methods and government regulations. Proved developed and proved undeveloped reserves are defined by the Securities and Exchange Commission (SEC).

	Net Reserves (Million cubic feet equivalent) as of December 31,		
	2018	**2017**	**2016**
Proved developed reserves	4,494,878	4,409,065	3,683,302
Proved undeveloped reserves	3,386,457	3,172,547	2,568,346
Total proved developed and undeveloped reserves(1)	7,881,335	7,581,612	6,251,648

(1) For additional information on our reserves, see Other Supplemental Information–Supplemental Gas Data (unaudited) to the Consolidated Financial Statements in Item 8 of this Form 10-K.

Discounted Future Net Cash Flows

The following table shows our estimated future net cash flows and total standardized measure of discounted future net cash flows at 10%:

	Discounted Future Net Cash Flows (Dollars in millions)		
	2018	**2017**	**2016**
Future net cash flows	$13,132	$7,841	$2,419
Total PV-10 measure of pre-tax discounted future net cash flows (1)	$6,172	$4,140	$1,559
Total standardized measure of after tax discounted future net cash flows	$4,655	$3,131	$955

(1) We calculate our present value at 10% (PV-10) in accordance with the following table. Management believes that the presentation of the non-Generally Accepted Accounting Principles (GAAP) financial measure of PV-10 provides useful information to investors because it is widely used by professional analysts and sophisticated investors in evaluating oil and gas companies. Because many factors that are unique to each individual company impact the amount of future income taxes estimated to be paid, the use of a pre-tax measure is valuable when comparing companies based on reserves. PV-10 is not a measure of the financial or operating performance under GAAP. PV-10 should not be considered as an alternative to the standardized measure as defined under GAAP. We have included a reconciliation of the most directly comparable GAAP measure-after-tax discounted future net cash flows.

Reconciliation of PV-10 to Standardized Measure

	As of December 31,		
	2018	2017	2016
	(Dollars in millions)		
Future cash inflows	$26,610	$19,262	$11,303
Future production costs	(7,730)	(7,234)	(5,851)
Future development costs (including abandonments)	(1,600)	(1,711)	(1,550)
Future net cash flows (pre-tax)	17,280	10,317	3,902
10% discount factor	(11,108)	(6,177)	(2,343)
PV-10 (Non-GAAP measure)	6,172	4,140	1,559
Undiscounted income taxes	(4,147)	(2,476)	(1,483)
10% discount factor	2,630	1,467	879
Discounted income taxes	(1,517)	(1,009)	(604)
Standardized GAAP measure	$4,655	$3,131	$955

Gas Production

The following table sets forth net sales volumes produced for the periods indicated:

	For the Year Ended December 31,		
	2018	2017	2016
Natural Gas			
Sales Volume (MMcf)			
Marcellus	255,127	209,687	186,812
Utica	148,117	70,708	71,277
CBM	60,268	65,373	68,971
Other	4,714	19,125	21,693
Total	468,226	364,893	348,753
NGL			
Sales Volume (Mbbls)			
Marcellus	5,227	4,604	3,922
Utica	853	1,851	2,787
Other	1	1	1
Total	6,081	6,456	6,710
Oil and Condensate			
Sales Volume (Mbbls)			
Marcellus	286	346	360
Utica	78	204	470
Other	35	39	65
Total	399	589	895
Total Sales Volume (MMcfe)			
Marcellus	288,203	239,387	212,504
Utica	153,704	83,038	90,820
CBM	60,268	65,373	68,971
Other	4,929	19,368	22,092
Total	507,104	407,166	394,387

***Oil, NGLs, and Condensate are converted to Mcfe at the rate of one barrel equals six Mcf based upon the approximate relative energy content of oil and natural gas.**

Note: 2018 production includes approximately 27 Bcfe of production related to assets that were sold during the year. For additional information, see Note 6 - Acquisitions and Dispositions in the Notes to the Audited Consolidated Financial Statements in Item 8 of this Form 10-K and incorporated herein.

CNX expects a minimum base for 2019 annual natural gas production volumes of 495-515 Bcfe, which equates to an approximately 5% annual increase, based on the midpoint of guidance, compared to 2018 volumes when excluding production from assets that were sold.

Average Sales Price and Average Lifting Cost

The following table sets forth the total average sales price and the total average lifting cost for all of our natural gas and NGL production for the periods indicated. Total lifting cost is the cost of raising gas to the gathering system and does not include depreciation, depletion or amortization. See Part II Item 7 Management's Discussion and Analysis of Financial Condition and Results of Operations in this Form 10-K for a breakdown by segment.

	For the Year Ended December 31,		
	2018	**2017**	**2016**
Average Sales Price - Gas (Mcf)	$2.97	$2.59	$1.92
(Loss) Gain on Commodity Derivative Instruments - Cash Settlement- Gas (Mcf)	$(0.15)	$(0.11)	$0.70
Average Sales Price - NGLs (Mcfe)*	$4.55	$4.03	$2.42
Average Sales Price - Oil (Mcfe)*	$9.89	$7.56	$6.15
Average Sales Price - Condensate (Mcfe)*	$8.43	$6.59	$4.58
Total Average Sales Price (per Mcfe) Including Effect of Derivative Instruments	$2.97	$2.66	$2.63
Total Average Sales Price (per Mcfe) Excluding Effect of Derivative Instruments	$3.11	$2.76	$2.01
Average Lifting Costs Excluding Ad Valorem and Severance Taxes (per Mcfe)	$0.19	$0.22	$0.24
Average Sales Price - NGLs (Bbl)	$27.30	$24.18	$14.52
Average Sales Price - Oil (Bbl)	$59.34	$45.36	$36.90
Average Sales Price - Condensate (Bbl)	$50.58	$39.54	$27.48

***Oil, NGLs, and Condensate are converted to Mcfe at the rate of one barrel equals six Mcf based upon the approximate relative energy content of oil and natural gas.**

Sales of NGLs, condensates and oil enhance our reported natural gas equivalent sales price. Across all volumes, when excluding the impact of hedging, sales of liquids added $0.14 per Mcfe, $0.17 per Mcfe, and $0.09 per Mcfe for 2018, 2017, and 2016, respectively, to average gas sales prices. CNX expects to continue to realize a liquids uplift benefit as additional wells are turned-in-line, primarily in the liquid-rich areas of the Marcellus shale. We continue to sell the majority of our NGLs through the large midstream companies that process our natural gas. This approach allows us to take advantage of the processors’ transportation efficiencies and diversified markets. Certain of CNX’s processing contracts provide for the ability to take our NGLs “in-kind” and market them directly if desired. The processed purity products are ultimately sold to industrial, commercial, and petrochemical markets.

We enter into physical natural gas sales transactions with various counterparties for terms varying in length. Reserves and production estimates are believed to be sufficient to satisfy these obligations. In the past, we have delivered quantities required under these contracts. We also enter into various natural gas swap transactions. These gas swap transactions exist parallel to the underlying physical transactions and represented approximately 356.3 Bcf of our produced gas sales volumes for the year ended December 31, 2018 at an average price of $2.76 per Mcf. The notional volumes associated with these gas swaps represented approximately 312.2 Bcf of our produced gas sales volumes for the year ended December 31, 2017 at an average price of $2.60 per Mcf. As of January 18, 2019, these physical and swap transactions represent approximately 376.0 Bcf of our estimated 2019 production at an average price of $2.71 per Mcf, 468.6 Bcf of our estimated 2020 production at an average price of $2.55 per Mcf, 410.3 Bcf of our estimated 2021 production at an average price of $2.44 per Mcf, approximately 276.6 Bcf of our estimated 2022 production at an average price of $2.48 per Mcf, and approximately 127.0 Bcf of our estimated 2023 production at an average price of $2.35 per Mcf.

The hedging strategy and information regarding derivative instruments used are outlined in Part II, Item 7A Qualitative and Quantitative Disclosures About Market Risk and in Note 21 - Derivative Instruments in the Notes to the Audited Consolidated Financial Statements in Item 8 of this Form 10-K.

Midstream Gas Services

E&P Midstream Gas Services

CNX has traditionally designed, built and operated natural gas gathering systems to move gas from the wellhead to interstate pipelines or other local sales points. In addition, overtime CNX has acquired extensive gathering assets. CNX now owns or operates approximately 2,500 miles of natural gas gathering pipelines as well as a number of natural gas processing facilities. These assets are part of the E&P Division (See Note 24 - Segment Information in the Notes to the Audited Consolidated Financial Statements in Item 8 of this Form 10-K for more information).

CNX's Midstream Division (see below) owns substantially all of CNX's Marcellus Shale gathering systems. With respect to the Utica Shale, CNX primarily contracts with third-party gathering services.

CNX has developed a diversified portfolio of firm transportation capacity options to support its production growth plan. CNX plans to selectively acquire firm capacity on an as-needed basis, while minimizing transportation costs and long-term financial obligations. Optimization of our firm transportation portfolio may also include, from time to time and as appropriate, releasing firm transportation to others. CNX also benefits from the strategic location of our primary production areas in southwestern Pennsylvania, northern West Virginia, and eastern Ohio. These areas are currently served by a large concentration of major pipelines that provide us with access to major gas markets without the necessity of transporting our gas out of the region and it is expected that recently-approved and pending pipeline projects will increase the take-away capacity from our region. In addition to firm transportation capacity, CNX has developed a processing portfolio to support the projected volumes from its wet gas production areas and has the operational and contractual flexibility to potentially convert a portion of currently processed wet gas volumes to be marketed as dry gas volumes, or vice-versa, as economically appropriate.

CNX has the advantage of having natural gas production from CBM and lower Btu Utica wells in close proximity to higher Btu Marcellus wells. Separately, the low Btu CBM gas and the high Btu Marcellus gas may need processing in order to meet downstream pipeline specifications. However, the geographic proximity and interconnected gathering system servicing these wells allow CNX to blend this gas together and in some cases eliminate the need for the costly processing of gas that does not meet pipeline specification. These different gas types allow us more flexibility in bringing Marcellus and Utica shale wells on-line at qualities that meet interstate pipeline specifications.

Midstream Division

On January 3, 2018, CNX closed its previously announced acquisition of Noble Energy’s (Noble) 50% membership interest in CONE Gathering LLC, which holds the general partner interest and incentive distribution rights in CONE Midstream Partners LP. In conjunction with the closing, CONE Midstream Partners LP was renamed CNX Midstream Partners LP (CNX Midstream or CNXM) and CONE Gathering LLC was renamed CNX Gathering LLC (CNX Gathering) (See Note 6 - Acquisitions and Dispositions in the Notes to the Audited Consolidated Financial Statements in Item 8 of this Form 10-K for more information). Also on January 3, 2018, the Company’s board of directors authorized CNX Midstream to enter into an amendment to its gas gathering agreement with CNX Gas Company LLC, a wholly-owned subsidiary of CNX.

CNX Gathering develops, operates and owns substantially all of CNX’s Marcellus Shale gathering systems. Prior to its acquisition of Noble’s interest, CNX accounted for its interest in CNX Gathering under the equity method of accounting. Subsequent to the acquisition, CNX is the single sponsor of CNXM, and beginning in the first quarter of 2018 CNX Gathering was consolidated into the Company’s financial statements as the Midstream Division (See Note 24 - Segment Information in the Notes to the Audited Consolidated Financial Statements in Item 8 of this Form 10-K for more information. We believe that the network of right-of-ways, vast surface holdings, experience in building and operating gathering systems in the Appalachian basin, and increased control and flexibility will give CNX Gathering an advantage in building the midstream assets required to execute our Marcellus Shale development plan.

Natural Gas Competition

The United States natural gas industry is highly competitive. CNX competes with other large producers, as well as a myriad of smaller producers and marketers. CNX also competes for pipeline and other services to deliver its products to customers. According to data from the Natural Gas Supply Association and the Energy Information Agency (EIA), the five largest U.S. producers of natural gas produced about 14% of dry natural gas production during the first ten months of 2018. The EIA reported 485,383 producing natural gas wells in the United States at December 31, 2017 (the latest year for which government statistics are available), which is approximately 15% lower than 2016.

CNX expects natural gas to continue to be a significant contributor to the domestic electric generation mix in the long-term, as well as to fuel industrial growth in the U.S. economy. According to the EIA, natural gas represented 35% of U.S. electricity generation during the twelve months ended October 31, 2018, up from 32% in 2017. According to the EIA, from January through June of 2018, net natural gas exports from the United States averaged 0.87 billion cubic feet per day (Bcf/d), more than double the average daily net exports during all of 2017 (0.34 Bcf/d). The United States, which became a net natural gas exporter on an annual basis in 2016 for the first time in almost 60 years, has continued to export more natural gas than it imports for five of the first six months in 2018. U.S. natural gas exports have increased primarily with the addition of new LNG export facilities in the Lower 48 states. The EIA also states that U.S. exports of LNG through the first half of 2018 rose 58% compared with the same period in 2017. CNX expects the high level of U.S. gas exports to continue in the future. In addition, there is potential for natural gas to become a significant contributor to the transportation market. The EIA currently expects overall demand for U.S. natural gas in 2019 to increase 1.3% from 2018. CNX estimates 2019 in-basin (Ohio, West Virginia, and Pennsylvania) demand to increase by approximately 3% compared with 2018. Our increasing gas production will allow CNX to participate in growing markets.

CNX gas operations are primarily located in the eastern United States, specifically the Appalachian Basin. The gas market is highly fragmented and not dominated by any single producer. We believe that competition among producers is based primarily on acreage position, low drilling and operating costs as well as pipeline transportation availability to the various markets.

Continued demand for CNX's natural gas and the prices that CNX obtains are affected by natural gas use in the production of electricity, pipeline capacity, U.S. manufacturing and the overall strength of the economy, environmental and government regulation, technological developments, the availability and price of competing alternative fuel supplies, and national and regional supply/demand dynamics.

Non-Core Mineral Assets and Surface Properties

CNX owns significant natural gas assets that are not in our short-term or medium-term development plans. We continually explore the monetization of these non-core assets by means of sale, lease, contribution to joint ventures, or a combination of the foregoing in order to bring the value of these assets forward for the benefit of our shareholders. We also control a significant amount of surface acreage. This surface acreage is valuable to us in the development of the gathering system for our Marcellus Shale and Utica Shale production. We also derive value from this surface control by granting rights of way or development rights to third-parties when we are able to derive appropriate value for our shareholders.

Water Division

CNX Water Assets LLC (CNX Water) is a wholly-owned subsidiary of CNX and supplies turnkey solutions for water sourcing, delivery and disposal for our natural gas operations, and supplies solutions for water sourcing as well as delivery and disposal for third-parties. In coordination with our midstream operations, CNX Water works to develop solutions that coincide with our midstream operations to offer gas gathering and water delivery solutions in one package to third-parties.

Employee and Labor Relations

At December 31, 2018, CNX had 564 employees, none of whom are subject to a collective bargaining agreement.

Industry Segments

Financial information concerning industry segments, as defined by accounting principles generally accepted in the United States, for the years ended December 31, 2018, 2017 and 2016 is included in Note 24 - Segment Information in the Notes to the Audited Consolidated Financial Statements in Item 8 of this Form 10-K and incorporated herein.

Financial Information about Geographic Areas

All of the Company's assets and operations are located in the continental United States.

Laws and Regulations

General

Our natural gas and midstream operations are subject to various federal, state and local (including county and municipal level) laws and regulations. These laws and regulations cover virtually every aspect of our operations including, among other things: use of public roads; construction of well pads, impoundments, tanks and roads; pooling and unitizations; water withdrawal and procurement for well stimulation purposes; well drilling, casing and hydraulic fracturing; stormwater management; well production; well plugging; venting or flaring of natural gas; pipeline construction and the compression and transmission of natural gas and liquids; reclamation and restoration of properties after natural gas operations are completed; handling, storage, transportation and disposal of materials used or generated by natural gas operations; the calculation, reporting and payment of taxes on gas production; and gathering of natural gas production. Numerous governmental permits, authorizations and approvals under these laws and regulations are required for natural gas and midstream operations. These laws and regulations, and the permits, authorizations and approvals issued pursuant to those laws and regulations, are intended to protect, among other things: air quality; ground water and surface water resources, including drinking water supplies; wetlands; waterways; endangered plants and wildlife; state natural resources and the health and safety of our employees and the communities in which we operate.

Additionally, the electric power generation industry, which consumes significant quantities of natural gas, remains subject to extensive regulation regarding the environmental impact of its power generation activities, which could impact demand for our natural gas.

We endeavor to conduct our natural gas and midstream operations in compliance with all applicable federal, state and local laws and regulations. However, because of extensive and comprehensive regulatory requirements against a backdrop of variable geologic and seasonal conditions, permit exceedances and violations during operations can and do occur. Such exceedances and violations generally result in fines or penalties but could make it more difficult for us to obtain necessary permits in the future. The possibility exists that new legislation or regulations may be adopted which would have a significant impact on our natural gas or midstream operations or on our customers' ability to use our natural gas and may require us or our customers to change their operations significantly or incur substantial costs. See “Risk Factors -- *Existing and future governmental laws, regulations and other legal requirements and judicial decisions that govern our business may increase our costs of doing business and may restrict our operations*” for additional discussion regarding additional laws and regulations affecting our business, operations and industry.

Environmental Laws

Many of the laws and regulations referred to above are state level environmental laws and regulations, which vary according to the state in which we are conducting operations. However, our natural gas and midstream operations are also subject to numerous federal level environmental laws and regulations.

In addition to routine reviews and inspections by regulators to confirm compliance with applicable regulatory requirements, CNX has established protocols for ongoing assessments to identify potential environmental exposures. These assessments take into account industry and internal best management practices and evaluate compliance with laws and regulations and include reviews of our third-party service providers, including, for instance, waste management facilities.

Hydraulic Fracturing Activities. Hydraulic fracturing is typically regulated by state oil and natural gas commissions and similar agencies, but the U.S. Environmental Protection Agency (“EPA”) has asserted certain regulatory authority over hydraulic fracturing and has moved forward with various regulatory actions, including the issuance of new regulations requiring green completions for hydraulically fractured wells, and has disclosed its intent to develop regulations to require companies to disclose information regarding the chemicals used in hydraulic fracturing. Some states, including states in which we operate, have adopted regulations that could impose more stringent disclosure and/or well construction requirements on hydraulic fracturing operations, or otherwise seek to ban some or all of these activities.

Scrutiny of hydraulic fracturing activities also continues in other ways. In June 2015, the EPA issued its draft report on the potential impacts of hydraulic fracturing on drinking water and groundwater. The draft report found no systemic negative impacts from hydraulic fracturing. In December 2016, the EPA released its final report on the impacts of hydraulic fracturing on drinking water. While the language was changed and included the possibility of negative impacts from hydraulic fracturing, it also included the guidance to industry and regulators on how the process can be performed safely. We cannot predict whether any other legislation or regulations will be enacted and if so, what its provisions will be.

Clean Air Act. The federal Clean Air Act and corresponding state laws and regulations regulate air emissions primarily through permitting and/or emissions control requirements. This affects natural gas production and processing operations. Various activities in our operations are subject to regulation, including pipeline compression, venting and flaring of natural gas, and hydraulic fracturing and completion processes, as well as fugitive emissions from operations. We obtain permits, typically from state or local authorities, to conduct these activities. Additionally, we are required to obtain pre-approval for construction or modification of certain facilities, to meet stringent air permit requirements, or to use specific equipment, technologies or best management practices to control emissions. Further, some states and the federal government have proposed that emissions from certain proximate and related sources should be aggregated to provide for regulation and permitting of a single, major source. Federal and state governmental agencies continue to investigate the potential for emissions from oil and natural gas activities, and further regulation could increase our cost or temporarily restrict our ability to produce. For example, the EPA sets National Ambient Air Quality Standards for certain pollutants and such changes which could cause us to make additional capital expenditures or alter our business operations in some manner. See *"Risk Factors - Regulation of greenhouse gas emissions at the federal or state level may increase our operating costs and reduce the value of our natural gas assets and such regulation, as well as uncertainty concerning such regulation, could adversely impact the market for natural gas, as well as for our securities."* for additional discussion regarding certain laws and regulations related to air emissions and related matters.

Clean Water Act. The federal Clean Water Act ("CWA") and corresponding state laws affect our natural gas operations by regulating storm water or other regulated substance discharges, including pollutants, sediment, and spills and releases of oil, brine and other substances, into surface waters, and in certain instances imposing requirements to dispose of produced wastes and other oil and gas wastes at approved disposal facilities. The discharge of pollutants into jurisdictional waters is prohibited, except in accordance with the terms of a permit issued by the EPA, the U.S. Army Corps of Engineers, or a delegated state agency. These permits require regular monitoring and compliance with effluent limitations and reporting requirements govern the discharge of pollutants into regulated waters. Federal and state regulatory agencies can impose administrative, civil and/or criminal penalties for non-compliance with discharge permits or other requirements of the CWA and analogous state laws and regulations. See *"Risk Factors -Environmental regulations can increase costs and introduce uncertainty that could adversely impact the market for natural gas with potential short and long-term liabilities*." for additional discussion regarding certain laws and regulations related to clean water, the disposal or use of water and related matters.

Endangered Species Act. The Endangered Species Act and related state regulation protect plant and animal species that are threatened or endangered. Some of our operations are located in areas that are or may be designated as protected habitats for endangered or threatened species, including the Northern Long-Eared and Indiana bats, which has a seasonal impact on our construction activities and operations. New or additional species that may be identified as requiring protection or consideration may lead to delays in permits and/or other restrictions.

Safety of Gas Transmission and Gathering Pipelines. Natural gas pipelines serving our operations are subject to regulation by the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration ("PHMSA") pursuant to the Natural Gas Pipeline Safety Act of 1968, ("NGPSA"), as amended by the Pipeline Safety Act of 1992, the Accountable Pipeline Safety and Partnership Act of 1996, the Pipeline Safety Improvement Act of 2002 ("PSIA"), the Pipeline Inspection, Protection, Enforcement and Safety Act of 2006, and the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 (the "2011 Pipeline Safety Act"). The NGPSA regulates safety requirements in the design, construction, operation and maintenance of natural gas pipeline facilities, while the PSIA establishes mandatory inspections for all U.S. oil and natural gas transmission pipelines in high-consequence areas. Additionally, certain states, such as West Virginia, also maintain jurisdiction over intrastate natural gas lines. See "*Risk Factors -- We may incur significant costs and liabilities as a result of pipeline operations and related increase in the regulation of gas gathering pipelines*." for additional discussion regarding gas transmission and gathering pipelines.

Resource Conservation and Recovery Act. The federal Resource Conservation and Recovery Act (RCRA) and corresponding state laws and regulations affect natural gas operations by imposing requirements for the management, treatment, storage and disposal of hazardous and non-hazardous wastes, including wastes generated by natural gas operations. Facilities at which hazardous wastes have been treated, stored or disposed of are subject to corrective action orders issued by the EPA that could adversely affect our financial results, financial condition and cash flows. On December 28, 2016 the EPA entered into a consent order to resolve outstanding litigation brought by environmental and citizen groups regarding the applicability of RCRA to wastes from oil and gas development activities. The consent order requires the EPA to revise the applicability determination by March 15, 2019.

Federal Regulation of the Sale and Transportation of Natural Gas

Federal Energy Regulatory Commission. Regulations and orders issued by the Federal Energy Regulatory Commission (FERC) impact our natural gas business to a certain degree. Although the FERC does not directly regulate our natural gas production activities, the FERC has stated that it intends for certain of its orders to foster increased competition within all phases of the natural gas industry. Additionally, the FERC has jurisdiction over the transportation of natural gas in interstate commerce, and regulates the terms, conditions of service, and rates for the interstate transportation of our natural gas production. The FERC possesses regulatory oversight over natural gas markets, including anti-market manipulation regulation. The FERC has the ability to assess civil penalties, order disgorgement of profits and recommend criminal penalties for violations of the Natural Gas Act or the FERC's regulations and policies thereunder.

Section 1(b) of the Natural Gas Act exempts natural gas gathering facilities from regulation by the FERC. However, the distinction between federally unregulated gathering facilities and FERC-regulated transmission facilities is a fact-based determination, and the classification of facilities is the subject of ongoing litigation. We own certain natural gas pipeline facilities that we believe meet the traditional tests which the FERC has used to establish a pipeline's status as a gatherer not subject to the FERC jurisdiction.

Natural gas prices are currently unregulated, but Congress historically has been active in the area of natural gas regulation. We cannot predict whether new legislation to regulate natural gas sales might be enacted in the future or what effect, if any, any such legislation might have on our operations.

Health and Safety Laws

Occupational Safety and Health Act. Our natural gas operations are subject to regulation under the federal Occupational Safety and Health Act (OSHA) and comparable state laws in some states, all of which regulate health and safety of employees at our natural gas operations. Additionally, OSHA's hazardous communication standard, the EPA community right-to-know regulations under Title III of the federal Superfund Amendment and Reauthorization Act and comparable state laws require that information be maintained about hazardous materials used or produced by our natural gas operations and that this information be provided to employees, state and local governments and the public.

Climate Change Laws and Regulations

Climate change continues to be a legislative and regulatory focus. There are a number of proposed and final laws and regulations that limit greenhouse gas emissions, and regulations that restrict emissions could increase our costs should the requirements necessitate the installation new equipment or the purchase of emission allowances. These laws and regulations could also impact our customers, including the electric generation industry, making alternative sources of energy more competitive. Additional regulation could also lead to permitting delays and additional monitoring and administrative requirements, as well as to impacts on electricity generating operations. See *"Risk Factors - Regulation of greenhouse gas emissions at the federal or state level may increase our operating costs and reduce the value of our natural gas assets and such regulation, as well as uncertainty concerning such regulation, could adversely impact the market for natural gas, as well as for our securities."* for additional discussion regarding certain laws and regulations related to climate change, greenhouse gas and related matters.

Title to Properties

CNX acquires ownership or leasehold rights to oil and natural gas properties prior to conducting operations on those properties. The legal requirements of such ownership or leasehold rights generally are established by state statutory or common law. As is customary in the natural gas industry, we have generally conducted only a summary review of the title to oil and gas rights that are not yet in our development plans, but which we believe we control. This summary review is conducted at the time of acquisition or as part of a review of our land records. Prior to the commencement of development operations on natural gas and coalbed methane properties, we conduct a thorough title examination and perform curative work with respect to significant title defects. Our discovering title defects which we are unable to cure may adversely impact our ability to develop those properties and we may have to reduce our estimated gas reserves including our proved undeveloped reserves. In accordance with the foregoing, we have completed title work on substantially all of our natural gas and coalbed methane properties that are currently producing and believe that we have satisfactory title to our producing properties in accordance with standards generally accepted in the industry.

Available Information

CNX maintains a website at www.cnx.com. CNX makes available, free of charge, on this website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after such reports are available, electronically filed with, or furnished to the SEC. Those reports are also available at the SEC's: website www.sec.gov. Apart from SEC filings, we also use our website to publish information which may be important to investors, such as presentations to analysts.

Executive Officers of the Registrant

Incorporated by reference into this Part I is the information set forth in Part III, Item 10 under the caption "Executive Officers of CNX" (included herein pursuant to Item 401(b) of Regulation S-K).

ITEM 1A. Risk Factors

Investment in our securities is subject to various risks, including risks and uncertainties inherent in our business. The following sets forth factors related to our business, operations, financial position or future financial performance or cash flows which could cause an investment in our securities to decline and result in a loss.

Prices for natural gas and NGLs are volatile and can fluctuate widely based upon a number of factors beyond our control, including oversupply relative to the demand for our products, weather and the price and availability of alternative fuels. An extended decline in the prices we receive for our natural gas and NGLs will adversely affect our business, operating results, financial condition and cash flows.

Our financial results are significantly affected by the prices we receive for our natural gas and NGLs. Natural gas, NGLs, oil and condensate prices are very volatile and can fluctuate widely based upon supply from energy producers relative to demand for these products and other factors beyond our control. The disposition in 2017 of our entire coal operations has increased our exposure to fluctuations in the price of natural gas, NGLs, oil and condensate.

In particular, the U.S. natural gas industry continues to face concerns of oversupply due to the success of Marcellus and other new shale plays. The oversupply of natural gas in 2012 resulted in domestic prices hovering around ten-year lows, and drilling continued in these plays, despite these lower gas prices, to meet drilling commitments. Although gas prices have arguably recovered as of 2018, continued volatility remains a strong possibility.

Our producing properties are geographically concentrated in the Appalachian Basin, which exacerbates the impact of regional supply and demand factors on our business, including the pricing of our gas. The success of the Marcellus Shale and Utica Shale plays has resulted in growth in natural gas production in this region, with production per day in Pennsylvania, West Virginia and Ohio more than tripling since 2011. Not all of the natural gas produced in this region can be consumed by regional demand and must therefore be exported to other regions through pipelines. This export causes gas purchased and sold locally to be priced at a discount to many other market hubs, such as the benchmark Louisiana Henry Hub price. This discount, or negative basis, to the Henry Hub price is forecasted to continue in future years. While we expect many of the planned interstate pipeline projects to reduce this discount, it could widen further if these projects to move gas out of the basin are delayed or denied for any reason, such as permitting issues or environmental lawsuits.

An extended period of lower natural gas prices can negatively affect us in several other ways, including reduced cash flow, which decreases funds available for capital expenditures to replace reserves or increase production. Also, our access to other sources of capital, such as equity or long-term debt markets, could be severely limited or unavailable.

Our drilling plans also include some activity in areas of shale formations that may also contain NGLs, condensate and/or oil. The prices for NGLs, condensate and oil are also volatile for reasons similar to those described above regarding natural gas. As a result of increasing supply, condensate and oil prices have exhibited great volatility. In addition, similar to the oversupply of natural gas, increased drilling activity by third-parties in formations containing NGLs has led to a decline of over 40% since 2014 in the uplift we receive, on an Mcf equivalent basis when excluding hedging impact, from NGLs. Our results of operations may be adversely affected by a continued depressed level of, or further downward fluctuations in, NGLs, condensate and oil prices.

Apart from issues with respect to the supply of products we produce, demand can fluctuate widely due to a number of matters beyond our control, including:

- weather conditions in our markets that affect the demand for natural gas;
- changes in the consumption pattern of industrial consumers, electricity generators and residential users of electricity and natural gas;
- with respect to natural gas, the price and availability of alternative fuel sources used by electricity generators;
- technological advances affecting energy consumption and conservation measures reducing demand;
- the costs, availability and capacity of transportation infrastructure;
- proximity and capacity of natural gas pipelines and other transportation facilities;
- changes in levels of international demand and tariffs associated with international export; and

- the impact of domestic and foreign governmental laws and regulations, including environmental and climate change regulations and delays.

Our business depends on gathering, processing and transportation facilities and other midstream facilities owned by CNXM and others. The disruption of, capacity constraints in, or proximity to pipeline systems could limit sales of our natural gas and NGLs and cash flows from operations, and any decrease in availability of pipelines or other midstream facilities interconnected to third parties' or CNXM's gathering systems could adversely affect our operations or our investment in CNXM.

We gather, process and transport our natural gas to market by utilizing pipelines and facilities owned by others, including CNXM. If pipeline or facility capacity is limited, or if pipeline or facility capacity is unexpectedly disrupted for any reason, our natural gas sales and/or sales of NGLs could be reduced, which could negatively affect our profitability. If we cannot access processing pipeline transportation facilities, we may have to reduce our production of natural gas. If our sales of natural gas or NGLs are reduced because of transportation or processing constraints, our revenues will be reduced and our unit costs will increase. If pipeline quality standards change or we cannot meet applicable standards, we might be required to install additional processing equipment which could increase our costs. Further, in some circumstances we need to meet predetermined specifications with respect to our blending of dry and damp gas; changes in the production mix could negatively impact our ability to efficiently meet our specified requirements. Pipelines could also curtail our flows until the natural gas delivered to their pipeline is in compliance. Any reduction in our production of natural gas or increase in our costs could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Further, a significant portion of our natural gas is sold on or through a single pipeline, Texas Eastern Transmission, which could experience capacity issues, operational disruptions and unexpected downtime. Any reduction in capacity on the Texas Eastern pipeline could result in curtailments and reduce our production of natural gas. A reduction in capacity could also reduce the demand for our natural gas, which would reduce the price we receive for our production.

In addition to our relationship with CNXM, we have various third-party firm transportation, natural gas processing, gathering and other agreements in place, many of which have minimum volume delivery commitments. We are obligated to pay fees on minimum volumes to our service providers regardless of actual volume throughput. Reductions in our drilling program may result in insufficient production to utilize our full firm transportation and processing capacity. If we have insufficient production to meet the minimum volumes, our cash flow from operations will be reduced, which may require us to reduce or delay our planned investments and capital expenditures or seek alternative means of financing, all of which may have a material adverse effect our business, financial condition, results of operations and cash flows.

Our investment in midstream infrastructure through CNXM is intended, among other items, to connect our wells to other existing gathering and transmission pipelines. Our infrastructure development and maintenance programs, through CNXM, can involve significant risks, including those relating to timing, cost overruns and operational efficiency, which risks can be further affected by other issues. For example, approximately 34% of our 2018 production flowed through CNXM's Majorsville and McQuay Stations. An operational issue at either of those stations would materially impact CNX's production, cash flow and results of operation. CNXM's assets connect to other pipelines or facilities owned and operated by unaffiliated third parties. The continuing operation of third-party pipelines, processing and fractionation plants, compressor stations and other midstream facilities is not within our or CNXM's control. These third-party pipelines, processing and fractionation plants, compressor stations and other midstream facilities may become unavailable because of testing, turnarounds, line repair, maintenance, changes to operating conditions, delivery or receipt parameters, unavailability of firm transportation, lack of operating capacity, force majeure events, regulatory requirements and curtailments of receipt or deliveries due to insufficient capacity or because of damage from severe weather conditions or other operational issues.

We face uncertainties in estimating our economically recoverable natural gas reserves, and inaccuracies in our estimates could result in lower than expected revenues, higher than expected costs and decreased profitability.

Natural gas reserves are economically recoverable when the price at which they are expected to be sold exceeds their expected cost of production and sales. Natural gas reserves require subjective estimates of underground accumulations of natural gas, and assumptions concerning natural gas prices, production levels, reserve estimates and operating and development costs. As a result, estimated quantities of proved natural gas reserves and projections of future production rates and the timing of development expenditures may prove to be incorrect. For example, a significant amount of our proved undeveloped reserves extensions and discoveries during the last three years were due to the addition of wells on our Marcellus Shale acreage more than one offset location away from existing production with reliable technology, which may be more susceptible to positive and negative changes in reserve estimates than our proved developed reserves. Over time, material changes to reserve estimates may be made, taking into account the results of actual drilling, testing and production. Also, we make certain assumptions regarding natural gas prices, production levels, and operating and development costs that may prove to be incorrect. Any significant variance from these assumptions to actual figures could greatly affect our estimates of our natural gas reserves, the economically recoverable quantities of natural gas attributable to any particular group of properties, the classifications of natural gas reserves based on risk of recovery and estimates of the future net cash flows. Numerous changes over time to the assumptions on which our reserve estimates are based, as described above, often result in the actual quantities of natural gas we ultimately recover being different from reserve estimates. The PV-10 measure of pre-tax discounted future net cash flows and the standardized measure of after tax discounted future net cash flows from our proved reserves included within this Annual Report on Form 10-K are not necessarily the same as the current market value of our estimated natural gas reserves. We base the estimated discounted future net cash flows from our proved natural gas reserves on historical average prices and costs. However, actual future net cash flows from our natural gas properties also will be affected by factors such as:

- geological conditions;
- our acreage position, and our ability to acquire additional acreage, including third-party swaps to develop our position efficiently;
- changes in governmental regulations and taxation;
- the amount and timing of actual production;
- future prices and our hedging position;
- future operating costs;
- operational risks and results; and
- capital costs of drilling, completion and gathering assets.

The timing of both our production and our incurrence of expenses in connection with the development and production of natural gas properties will affect the timing of actual future net cash flows from proved reserves and thus their actual present value. In addition, the 10% discount factor we use when calculating discounted future net cash flows may not be the most appropriate discount factor based on interest rates in effect from time to time and risks associated with us or the oil and natural gas industry in general. If natural gas prices decline by $0.10 per Mcf, then the pre-tax present value using a 10% discount rate of our proved natural gas reserves as of December 31, 2018 would decrease from $6.2 billion to $6.0 billion.

Each of the factors impacting reserve estimation may in fact vary considerably from the assumptions used in estimating the reserves. For these reasons, estimates of natural gas reserves may vary substantially. Actual production, revenues and expenditures with respect to our natural gas reserves will likely vary from estimates, and these variances may be material. As a result, our estimates may not accurately reflect our actual natural gas reserves.

Developing and producing natural gas wells is a high-risk activity.

Our growth is materially dependent upon the success of our drilling program. Drilling for natural gas and oil involves numerous risks, including the risk that an encountered well does not produce in sufficient quantities to make the well economically viable. The cost of drilling, completing and operating wells is substantial and uncertain, and drilling operations may be curtailed, delayed or canceled as a result of a variety of factors beyond our control, including those discussed in "*Our operations are subject to operating risks that could increase our operating expenses and decrease our production levels which could adversely affect our results of operations. Our operations are also subject to hazards, and any losses or liabilities, we suffer from such hazards may not be fully covered by our insurance policies*" set forth below.

Our future drilling activities may not be successful, and if they are unsuccessful, such failure will have an adverse effect on our future results of operations and financial condition. Our overall drilling success rate or our drilling success rate within a particular geographic area may decline. We may be unable to drill identified or budgeted wells within our expected time frame, or at all. We may be unable to drill a particular well because, in some cases, we identify a drilling location before we have leased all of the interests required to drill the well in that location. Similarly, our drilling schedule may vary from our capital budget. The final determination with respect to the drilling of any scheduled or budgeted wells will be dependent on a number of factors, including:

- the results of delineation efforts and the acquisition, review and analysis of seismic data;
- the availability of sufficient capital resources to us and any other participants in a well for the drilling of the well;
- whether we are able to acquire on a timely basis all of the leasehold interests required for the well, including through swap transactions with other operators;
- whether we are able to obtain, on a timely basis or at all, the permits required to drill the wells;
- whether production levels align with estimates;
- economic and industry conditions at the time of drilling, including prevailing and anticipated prices for natural gas and oil and the availability of drilling rigs and crews;

- the formation as to which we drill, as the cost structure between wet gas which requires additional processing and dry gas varies; and
- our financial resources and results.

Our business strategy focuses on horizontal drilling and production in the Marcellus and Utica Shale plays in the Appalachian Basin. Drilling horizontal wells is technologically difficult and involves risks relating to our ability to fracture stimulate the planned number of stages and to successfully run casing the length of the well bore and involves a higher risk of failure when compared to vertical wells. Additionally, drilling a horizontal well involves higher costs, which results in the risks of our drilling program being spread over a smaller number of wells, and that, in order to be profitable, each horizontal well will need to produce at a higher level in order to cover the higher drilling costs. Similarly, the average lateral length of the horizontal wells we drill has generally been increasing. Longer-lateral wells are typically more expensive and require more time for preparation and permitting. In addition, we use multi-well pads instead of single-well sites. The use of multi-well pad drilling increases some operational risks because problems affecting the pad, or a single well could adversely affect production from all of the wells on the pad. Pad drilling can also make our overall production, and therefore our revenue and cash flows, more volatile, because production from multiple wells on a pad will typically commence simultaneously. While we believe that we are better served by drilling horizontal wells using multi-well pads, the risk component involved in such drilling will be increased in some respects, with the result that we might find it more difficult to achieve economic success in our drilling program.

Our operations are subject to operating risks that could increase our operating expenses and decrease our production levels, which could adversely affect our results of operations. Our operations are also subject to hazards, and any losses or liabilities we suffer from such hazards may not be fully covered by our insurance policies.

Our exploration for and production of natural gas and CNXM's gathering, compression and transportation operations involve numerous operational risks. The cost of drilling, completing and operating our shale gas wells, shallow oil and gas wells and coalbed methane (CBM) wells is often uncertain, and a number of factors can delay, suspend, or prevent drilling operations, decrease production and/or increase the cost of our natural gas operations at particular sites for varying lengths of time thereby adversely affecting our operating results. The risks that may have a significant impact on our natural gas operations include those relating to, among other things, unexpected drilling conditions (pressure or irregularities in geologic formations or wells, material and equipment failures, fires, ruptures, landslides, mine subsidence, explosions or other accidents and environmental concerns and adverse weather conditions); similar operational or design issues relating to pipelines, compressor stations, pump stations, related equipment and surrounding properties, including with respect to materials and equipment developed, designed or installed or properties owned or operated by third-parties; challenges relating to transportation, pipeline infrastructure and capacity for treatment or disposal of waste water generated in drilling, completion and production operations and failure to obtain, or delays in the issuance of, permits at the state or local level and the resolution of regulatory concerns.

The realization of any of these risks could adversely affect our ability to conduct our operations, materially increase our costs, or result in substantial loss to us as a result of claims for:

- personal injury or loss of life;
- damage to and destruction of property, natural resources and equipment, including our properties and our natural gas production or transportation facilities;
- pollution and other environmental damage to our properties or the properties of others;
- potential legal liability and monetary losses;
- damage to our reputation within the industry or with customers;
- regulatory investigations and penalties;

- suspension of our operations; and
- repair and remediation costs.

The occurrence of any of these events in our gas operations that prevents delivery of natural gas to a customer and is not excusable as a force majeure event under our supply agreement, could result in economic penalties, suspension or ultimately termination of the supply agreement.

Although we and CNXM maintain insurance for a number of risks and hazards, we may not be insured or fully insured against the losses or liabilities that could arise from a significant accident or disruption in our operations. We may elect not to obtain insurance for any or all of these risks if we believe that the cost of available insurance is excessive relative to the risks presented. In addition, pollution and environmental risks generally are not fully insurable. The occurrence of an event that is not fully covered by insurance could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Our identified drilling locations are scheduled out over multiple years, making them susceptible to uncertainties that could materially alter the occurrence or timing of their drilling.

Our management team has specifically identified and scheduled certain drilling locations as an estimation of our future multi-year drilling activities on our existing acreage. These drilling locations represent a significant part of our growth strategy. Our ability to drill and develop these locations depends on a number of uncertainties, including natural gas and oil prices, the availability and cost of capital, drilling and production costs, the acquisition on acceptable terms of any leasehold interests we do not control but that are necessary to complete the drilling unit, including potentially through third-party swap transactions, availability of drilling services and equipment, drilling results, lease expirations, transportation constraints, regulatory and zoning approvals and other factors. Because of these uncertain factors, we do not know if the numerous drilling locations we have identified will ever be drilled. We will require significant additional capital over a prolonged period in order to pursue the development of these locations, and we may not be able to raise or generate the capital required to do so. Any drilling activities we are able to conduct on these locations may not be successful or result in our ability to add additional proved reserves or may result in a downward revision of our estimated proved reserves, which could have a material adverse effect on our business and results of operations.

Strategic determinations, including the allocation of capital and other resources to strategic opportunities, are challenging, and our failure to appropriately allocate capital and resources among our strategic opportunities may adversely affect our financial condition.

Our future growth prospects are dependent upon our ability to identify optimal strategies for investing our capital resources to produce superior rates of return. In developing our business plan, we consider allocating capital and other resources to various aspects of our businesses including well development (primarily drilling), reserve acquisitions, exploratory activity, corporate items (including share and debt repurchases) and other alternatives. We also consider our likely sources of capital, including cash generated from operations and borrowings under our credit facilities. Notwithstanding the determinations made in the development of our business plan, business opportunities not previously identified periodically come to our attention, including possible acquisitions and dispositions. If we fail to identify optimal business strategies or fail to optimize our capital investment and capital raising opportunities and the use of our other resources in furtherance of our business strategies, our financial condition and future growth may be adversely affected. Moreover, economic or other circumstances may change from those contemplated by our business plan, and our failure to recognize or respond to those changes may limit our ability to achieve our objectives.

Our development and exploration projects, as well as CNXM's midstream system development, require substantial capital expenditures and if we fail to generate sufficient cash flow or obtain required capital or financing on satisfactory terms, our natural gas reserves may decline, and financial results may suffer.

As part of our strategic determinations, we expect to continue to make substantial capital expenditures in the development and acquisition of natural gas reserves. Further, CNXM will need to make substantial capital expenditures to fund its share of growth capital expenditures associated with its Anchor Systems, as well as to fund its share of expenditures associated with its 5% controlling interests in the Additional Systems or to purchase or construct new midstream systems. If CNXM is unable to make sufficient or effective capital expenditures, it will be unable to maintain and grow its business.

CNXM's amended gathering agreement with us, CNXM's largest customer, includes minimum well commitments; however, that gas gathering agreement and the gas gathering agreements CNXM has with other third-parties impose obligations on CNXM to invest capital which is not fully protected against volumetric risks associated with lower-than-forecast volumes flowing through its gathering systems. To the extent CNXM's customers are not contractually obligated to, and determine not to, develop their properties in the areas covered by CNXM's acreage dedications, the resulting decreases in the development of reserves by CNXM customers could result in reduced volumes serviced by CNXM and a commensurate decline in revenues and cash flows.

There is no assurance that we or CNXM will have sufficient cash from operations, borrowing capacity under each company’s respective credit facilities or the ability to raise additional funds in the capital markets to meet our capital requirements. If cash flow generated by our operations or available borrowings under either company’s credit facilities are not sufficient to meet our capital requirements, or we are unable to obtain additional financing, we could be required to curtail the pace of the development of our natural gas properties and midstream activities, which in turn could lead to a decline in our reserves and production, and could adversely affect our business, financial condition and results of operations.

Regulation of greenhouse gas emissions at the federal or state level may increase our operating costs and reduce the value of our natural gas assets and such regulation, as well as uncertainty concerning such regulation, could adversely impact the market for natural gas, as well as for our securities.

The issue of global climate change continues to attract considerable public and scientific attention with underlying concern about the impacts of human activity, especially the emissions of greenhouse gases ("GHGs") such as carbon dioxide ("CO2") and methane, on the environment.

The EPA, under the Climate Action Plan, elected to regulate GHGs under the Clean Air Act ("CAA") to limit emissions of CO2 from natural gas-fired power plants. On August 3, 2015, the EPA finalized the Carbon Pollution Standards to cut carbon emissions from new, modified and reconstructed power plants, which became effective on October 23, 2015. In August 2015, the EPA finalized the Clean Power Plan Rule to cut carbon pollution from existing power plants, which became effective on December 22, 2015. While consolidated petitions challenging the Clean Power Plan Rule are ongoing at the circuit court level, a mid-litigation application to the Supreme Court has resulted in a current stay of the Clean Power Plan Rule. In April 2017, the EPA announced that it was initiating a review of the Clean Power Plan consistent with President Trump's Executive Order 13783, and in October 2017 published a proposed rule to formally repeal the Clean Power Plan. On August 20, 2018, the EPA issued the proposed "Affordable Clean Energy Rule." The comment period on the proposal closed on October 31, 2018, and the EPA is considering the comments submitted. On November 21, 2018, the EPA filed a status report in which the EPA indicated that it expected to take final rulemaking action on a replacement rule for the Clean Power Plan by the first part of 2019.

The EPA has adopted regulations under existing provisions of the federal Clean Air Act that establish Prevention of Significant Deterioration, or PSD, construction and Title V operating permits for large stationary sources. Facilities requiring PSD permits may also be required to meet "best available control technology" (BACT) standards. Rulemaking related to GHG could alter or delay our ability to obtain new and/or modified source permits.

The EPA has also adopted rules to control volatile organic compound emissions from certain oil and gas equipment and operations as part of its initiative to reduce methane emissions. In response to subsequent judicial involvement, the EPA issued a proposed rule in July 2017 that would stay the methane rule for two years, but this rule is not yet final and is subject to public notice, comment, and legal challenges.

Additionally, the application of the CAA to CNX and CNXM facilities, as well as the application of state sponsored permitting programs provide regulatory uncertainty and therefore present risks, including risks regarding hitting production objectives, and cost for controls and compliance. Some states in which we operate, including Pennsylvania are contemplating measures, or have issued mandates, to reduce emissions of GHGs, primarily through the planned development of GHG emission inventories and potential cap-and-trade programs. Most of these types of programs require major source of emissions or major producers of fuels to acquire and surrender emission allowances, with the number of allowances available being reduced each year until a target goal is achieved. The cost of these allowances could increase over time. While new laws and regulations that are aimed at reducing GHG emissions will increase demand for natural gas, they may also result in increased costs for permitting, equipping, monitoring and reporting GHGs associated with natural gas production and use.

Environmental regulations can increase costs and introduce uncertainty that could adversely impact the market for natural gas with potential short and long-term liabilities.

We and CNXM are subject to various stringent federal, state and local laws and regulations relating to the discharge of materials into, and protection of, the environment. Numerous governmental authorities, such as the EPA and analogous state agencies, have the power to enforce compliance with these laws and regulations and the permits issued under them, oftentimes requiring difficult and costly response actions. These laws and regulations may impose numerous obligations that are applicable to our, CNXM’s and our respective customers' operations. Failure to comply with these laws, regulations and permits may result in joint and several or strict liability or the assessment of administrative, civil and criminal penalties, the imposition of remedial obligations, and/or the issuance of injunctions limiting or preventing some or all of our operations. Private parties, including the owners of the properties through which CNXM’s gathering systems pass, may also have the right to pursue legal actions to enforce compliance, as well as to seek damages for non-compliance, with environmental laws and regulations or for personal injury or property damage. We may not be able to recover all or any of these costs from insurance. There is no assurance that changes in or additions to public policy regarding the protection of the environment will not have a significant impact on our operations and profitability.

Our operations, and those of CNXM, also pose risks of environmental liability due to leakage, migration, releases or spills from our operations to surface or subsurface soils, surface water or groundwater. Certain environmental laws impose strict as well as joint and several liability for costs required to investigate, remediate, and restore sites where hazardous substances, hydrocarbons or solid wastes have been stored or released. We may also be subject to fines and penalties for such releases. We may be required to remediate contaminated properties currently or formerly operated by us regardless of whether such contamination resulted from the conduct of others or from consequences of our own actions that were in compliance with all applicable laws at the time those actions were taken. In addition, claims for damages to persons or property, including natural resources, may result from the environmental, health and safety impacts of our operations.

The Federal Endangered Species Act (ESA) and similar state laws protect species endangered or threatened with extinction. Protection of endangered and threatened species may cause us to modify gas well pad siting or pipeline right of ways, or to develop and implement species-specific protection and enhancement plans and schedules to avoid or minimize impacts to endangered species or their habitats. A number of species indigenous to the areas where we operate are protected under the ESA, including the Northern Long-Earned and Indiana bats. Further consideration for listing species within our operating region is expected, and CNX considers this uncertainty, as well as the cost to comply with stringent mitigation requirements, a risk to cost and operational timing.

CNX utilizes pipelines extensively for its natural gas and water businesses. Stream encroachment and crossing permits from the Army Corps of Engineers (ACOE) are often required for certain impacts these pipelines cause to streams and wetlands. In June 2017, the EPA and the Army Corps of Engineers proposed a rule that would initiate the first step in a two-step process intended to review and revise the definition of “waters of the United States” under the Clean Water Act. The EPA moved forward with the first step on December 11, 2018, when it issued a proposed, revised rule which would replace a prior 2015 rule with pre-2015 regulations, and which narrowed language defining “waters of the United States” under the Clean Water Act that existed prior to that time. This proposal is subject to public comment and the rulemaking process. The second step would be a notice-and-comment rulemaking in which federal agencies will conduct a substantive reevaluation of such definition. While we cannot at this time predict the final form that the rule will ultimately take, such rulemaking could lead to additional mitigation costs and severely limit CNX’s operations.

Other regulations applicable to the natural gas industry are under constant review for amendment or expansion at both the federal and state levels. Any future changes may increase the costs of producing natural gas and other hydrocarbons, which would adversely impact our cash flows and results of operations. For example, hydraulic fracturing is an important and common practice that is used to stimulate production of hydrocarbons from tight unconventional shale formations. The process involves the injection of water, sand and chemicals under pressure into formations to fracture the surrounding rock and stimulate production. The process is typically regulated by state oil and gas agencies. The disposal of produced water and other wastes in underground injection disposal wells is regulated by the EPA under the federal Safe Drinking Water Act or by various states in which we conduct operations under counterpart state laws and regulations. The imposition of new environmental initiatives and regulations could include restrictions on our ability to conduct hydraulic fracturing operations or to dispose of waste resulting from such operations.

We may not be able to obtain required personnel, services, equipment, parts and raw materials in a timely manner, in sufficient quantities or at reasonable costs to support our operations.

We rely on third-party contractors to provide key services and equipment for our operations. We contract with third-parties for well services, related equipment, and qualified experienced field personnel to drill wells, construct pipelines and conduct field operations. We also utilize third-party contractors to provide land acquisition and related services to support our land operational needs. The demand for these services, this equipment and for qualified and experienced field personnel to drill wells, construct pipelines and conduct field operations, geologists, geophysicists, engineers, and other professionals in the oil and natural gas industry can fluctuate significantly, often in correlation with natural gas and oil prices, causing periodic shortages. Weather may also play a role with respect to the relative availability of certain materials. Historically, there have been shortages of drilling and workover rigs, pipe, compressors and other equipment as demand for rigs and equipment has increased along with the number of wells being drilled. The costs and delivery times of equipment and supplies are substantially greater in periods of peak demand, including increased demand fo