Energy Outlook

North America | 2016

FROM THE RESEARCH DESK

We are pleased to present you with the 2016 edition of JLL's **North American Energy Outlook**!

For the fourth year running, JLL has led the commercial real estate industry in providing in-depth and actionable content sourced from our deep bench of research and brokerage professionals. In the face of global uncertainty, JLL's expertise is needed more than ever to help navigate you through troubled waters.

This year's Energy Outlook kicks off with a fresh look at global macroeconomic trends and a conversation on the recovery timeline to expect once oil prices stabilize. Structural changes are currently redefining the energy industry, and the net effect on property markets is then discussed, with a focus on the performance of office and industrial inventories in energy-centric cities. Not surprisingly, the word "*sublease*" comes up once or twice.

Emerging methods for reducing occupancy costs outside traditional sublease arrangements are also featured, which may benefit companies attempting to offload excess space. New this year is a deep dive into the world of renewable energy and how it may or may not influence the health of real estate markets today and into the future. Lastly, the trends, deals and fundamentals being seen throughout the United States and Canada are presented on pages dedicated to each of the energy-centric markets.

On behalf of the entire JLL Research team, please enjoy the 2016 Energy Outlook!

– Eli & Rachel

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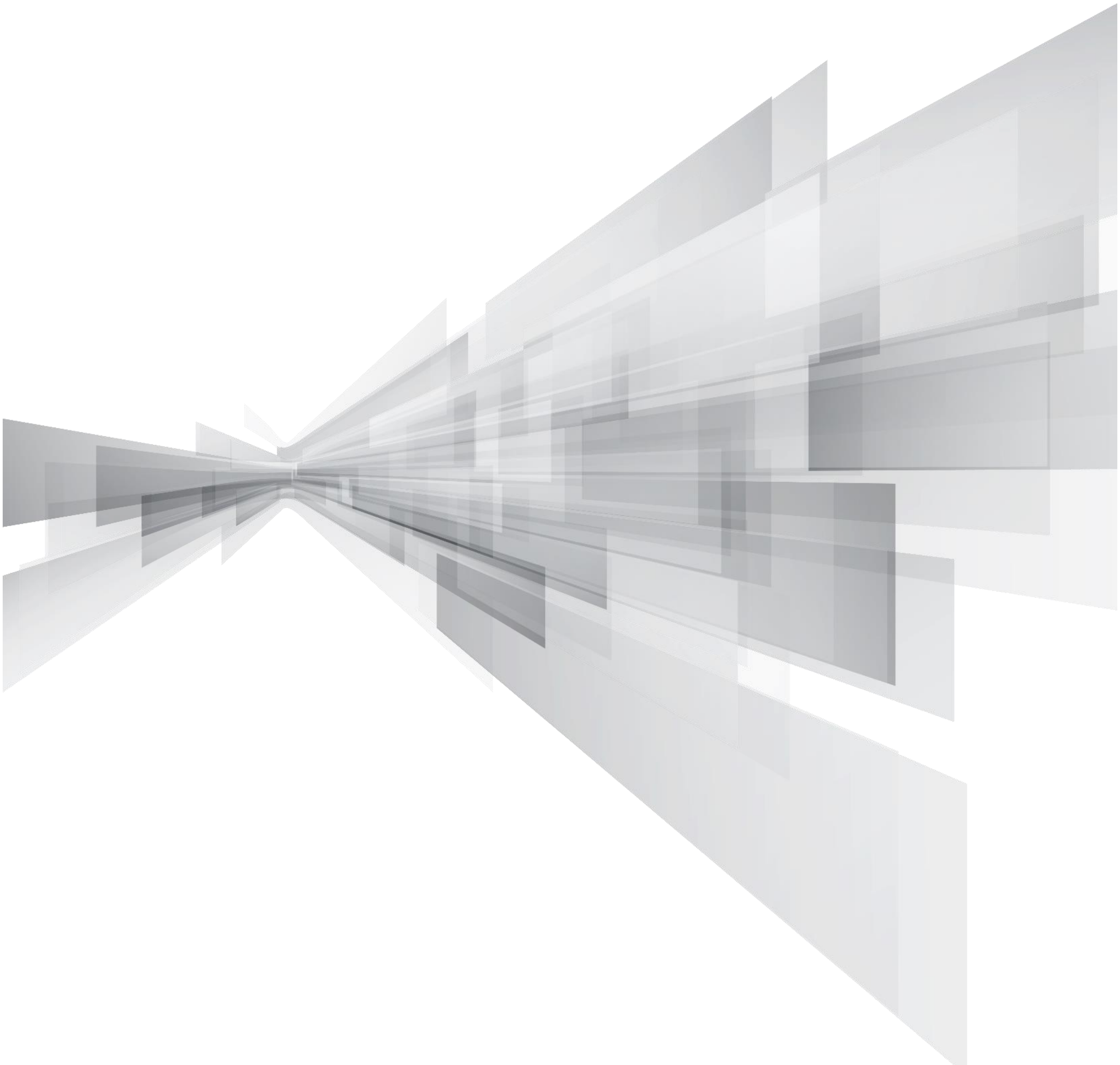

THEME 1

MACROECONOMIC FACTORS INFLUENCING ENERGY MARKETS

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How are CRE markets adapting to the longer-than-expected oil downturn, and how long until leasing starts again?

!

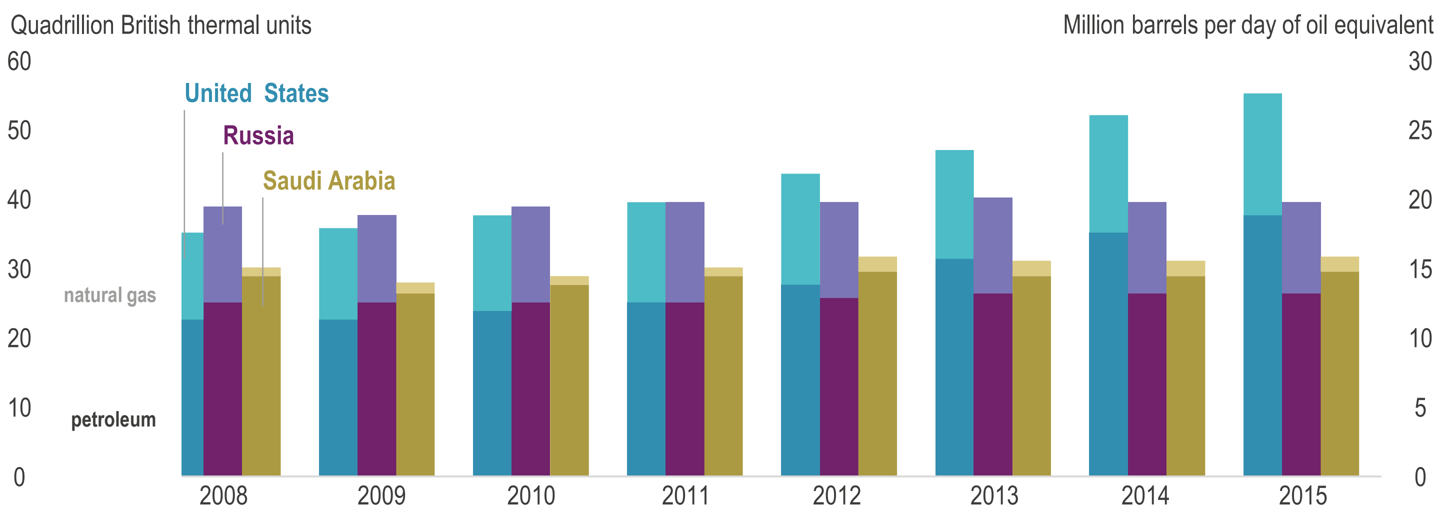
Oil price stability is just the first step—working through the office space glut will take years.

It's been more than two years since crude oil prices began their precipitous drop, and today, global benchmarks Brent and West Texas Intermediate (WTI) are hovering in the mid-$40s per barrel as the downturn reverberates throughout the North American energy markets. OPEC's commitment to maintaining market share has had lasting implications for supply and demand, and prices remain sensitive to the cartel's announcements. Though OPEC members recently agreed in theory to a minor production cut to be fully hammered out in their next meeting in November, whether or not this actually occurs is anyone's guess and the effect on pricing will likely be minimal either way.

An unintentional consequence of OPEC's stance through the oil glut was to transition the U.S. into a swing-producer role as new technologies and the structure of the North American energy industry has resulted in much quicker adjustments to prices and other market conditions. While North America's position as the swing producer tends to have a negative connotation, in reality it is a reflection of the efficiency and pricing revolution that has occurred. As oil prices slowly climb from their February trough, rigs in both the U.S. and Canada are coming back online. The Permian and Eagle Ford basins are seeing the largest gains, adding 75 rigs total from their respective bottoms. Production flexibility will be essential to successful operations as the remainder of the down cycle plays out in North American energy markets.

Despite low oil prices, the U.S. marked its fourth year as the world's top producer of petroleum and natural gas in 2015, accounting for over twice the production of Saudi Arabia, according to the U.S. Energy Information Administration (EIA). Significant supply increases in the U.S. are directly attributable to production from oil and gas shale formations as lifting costs and break-even prices have decreased substantially in recent years. When strictly examining crude oil production, the U.S. has grown substantially year-over-year but remains third behind Russia and Saudi Arabia.

MAJOR COUNTRIES' PETROLEUM & NATURAL GAS PRODUCTION



Source: U.S. Energy Information Administration (EIA). Note: Oil production reflects average annual barrels per day of crude oil including condensate

THEME 1

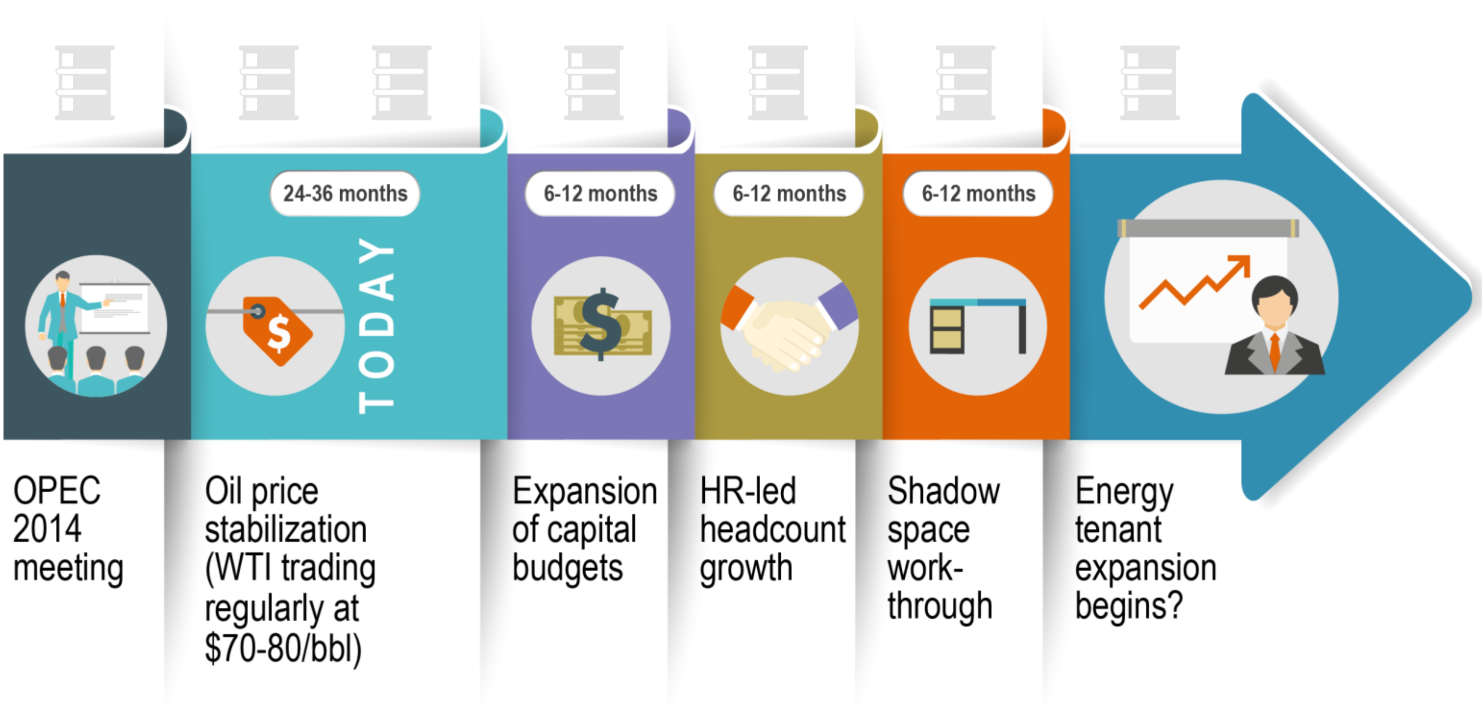
MACROECONOMIC FACTORS INFLUENCING ENERGY MARKETS

OUTLOOK

Wading through a sea of global uncertainty, energy companies are balancing the potential impact of these macroeconomic forces and timing the cycle as it turns to recovery. While headlines about extreme workforce and capital expenditure cuts are tapering off, energy companies are still working to stem the losses of a protracted downturn. This will create a substantial lag in response time, even after pricing reaches a level where exploration and production can resume at profitable levels. However, stable crude oil pricing is only one critical component needed to return battered office markets in cities like Houston and Calgary to equilibrium.

Following price stabilization, energy companies will slowly begin to expand their budgets and grow headcount before working through excess space. Only then will market fundamentals in energy-centric metros across North America move out of the red and into the black. For most firms with substantial numbers of office employees, this could mean two to three years before expansionary leasing activity begins again.

ENERGY MARKET RECOVERY TIMELINE



Source: JLL Research

THEME 2

STATE OF OIL AND GAS COMPANIES

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More than two years into the downturn, how are oil and gas companies faring? How are consolidations and cost-cutting measures influencing their real estate decisions?

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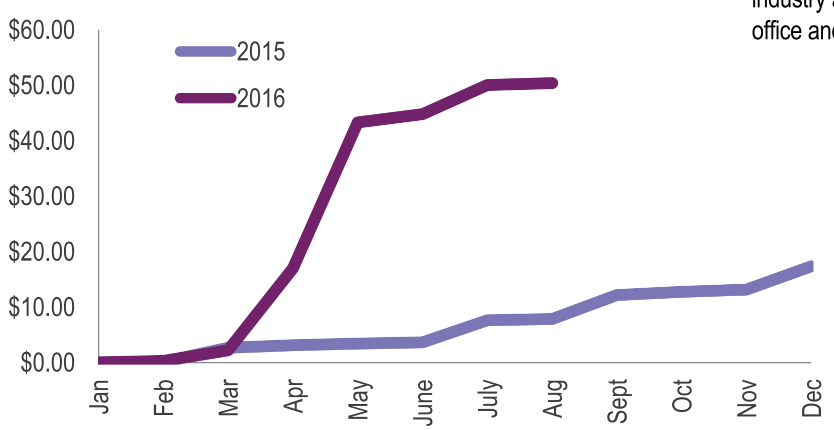
Surviving the downturn is the name of the game with layoffs, M&A and bankruptcies dominating the news. Subleasing excess space is the primary option for reducing CRE costs, though other options are emerging.

Since June 2014, global energy prices have taken a sharp downturn, leaving producers and sellers of oil and natural gas scrambling. As a result, the oil and gas industry in particular has seen companies dissolve and restructure through bankruptcy, explore mergers and acquisitions (M&A) and cut back on employment. As companies took on increased levels of debt over the boom years, many found themselves on unstable footing as revenue plummeted following the price collapse. An explosion of lending and spending based on $100+ oil has resulted in a deluge of bankruptcy filings as upstream and midstream companies sought to repair balance sheets or exit the market altogether.

BANKRUPTCIES

While North American oil and gas producers recorded 44 bankruptcies in 2015 accounting for over $17 billion in debt, 2016 has seen bankruptcies skyrocket, as 58 companies with over $50 billion of debt filed, and this was just through August. Among the 102 bankruptcies since the beginning of 2015, Texas is home to nearly half, including Linn Energy, Energy XXI and Midstates Petroleum. Given the trend seen today and in light of heavy debt loads and a stalling price recovery, the news is likely going to get worse before it gets better, but we are definitely in the latter half of the downturn.

TOTAL BANKRUPTCY DEBT (U.S.BILLIONS)



Source: Haynes and Boone's Oil Patch Bankruptcy Monitor

MERGERS AND ACQUISITIONS

Mergers and acquisitions have also taken center stage throughout this downturn. 2016 was expected to be a high-profile year for M&A activity, though perceived differences in the value of assets between negotiating parties, tax implications and regulatory concerns are to blame for the lower volume. Through the first half of the year, 2016 has seen both the lowest number of deals and the lowest value total in five years during the same time span. The year has still seen a fair share of large deals to be sure—TransCanada acquired Columbia Pipeline Group for $13 billion, Technip SA and FMC Technologies combined in a $13 billion deal, and most recently, Canadian pipeline operator Enbridge agreed to buy Spectra Energy in a substantial $28 billion deal. The most notable news in energy M&A in 2016, however, was the breakup of two enormous multibillion-dollar mergers between Williams and Energy Transfer and between Baker Hughes and Halliburton. Though the effects of the most recent round of M&As have yet to be seen, these major transactions are reshaping the industry and will likely continue to alter the space requirements of major office and industrial energy occupiers across North America.

Bankruptcy filings (2015-2016)			
Texas	46	Oklahoma	2
Canada	17	Alabama	1
Delaware	17	Arizona	1
Colorado	5	Massachusetts	1
Louisiana	4	Utah	1
New York	4	Virginia	1
Alaska	2		

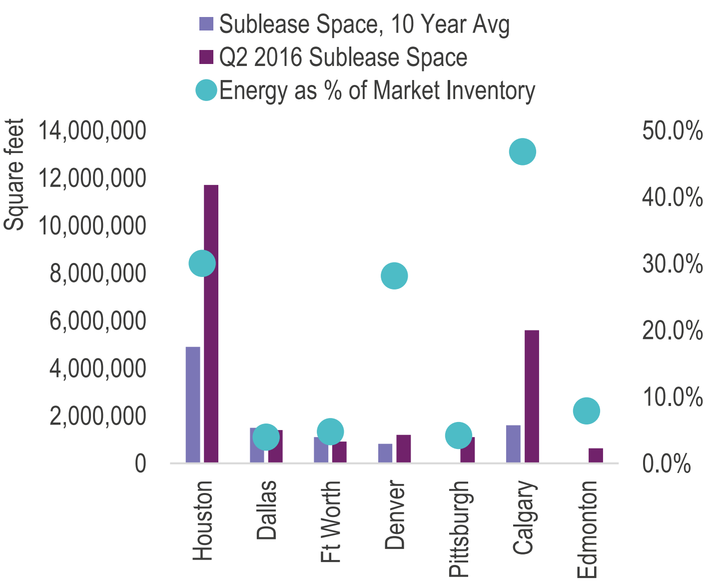
THEME 2

STATE OF OIL AND GAS COMPANIES

CHANGES IN WORKFORCE

Workforce reductions have been widespread for the world's oil and gas giants in 2016. Between 12 major energy companies alone, more than 72,000 jobs are expected to be lost globally by year's end, with the multiplier effect adding tens of thousands more to this number over time. Alternatively, large firms like Baker Hughes have transitioned to wage cuts as a means to achieve cost savings and retain talent while holding off on further layoffs. As job cuts have worked their way from field roughnecks up to management, many highly skilled positions such as engineers, analysts and geologists have been eliminated, and with them, their need for office space. Firms downsizing white-collar positions or giving up planned expansion space have caused an unprecedented flood of both sublease and direct space to market, especially in energy-heavy metros like Houston and Calgary. At midyear 2016, there was 22.6 million square feet of sublease space available in these seven energy office markets, over double the 10-year average of the group: this block of space equates to the entire office market of Jacksonville, Florida. In Houston, for example, Shell Oil recently announced plans to vacate its namesake tower in the CBD entirely, bringing its sublease total to 875,000 square feet. This occurred mere months after its recent merger partner, BG Group, put its entire 300,000-square-foot CBD Houston space on the market for sublease at its eponymous tower.

OFFICE ENERGY TENANTS & SUBLEASING



Source: JLL Research

COPING STRATEGIES

As the down cycle creates a newer, leaner oil and gas industry through bankruptcies, M&A and job cuts, the companies emerging post-recovery are likely to look very different. Extreme measures taken to stay profitable—or even solvent—in the short term will undoubtedly impact real estate footprints long into the future. Primarily, and based on pricing fluctuations seen in the market over the last two years, this means modeling their business metrics predicated on the "new normal" of oil hovering around half the price seen during the 2011–2014 peak.

From a CRE standpoint, this means utilizing more diverse occupancy strategies. Key to this will be thoroughly vetting expansion plans while simultaneously moving toward more efficient space layouts for employees; both will result in a smaller office footprint. In addition, consolidation into single, enormous campuses or leases—a trend defining the last decade of oil and gas company movement—may have run its course, as tenants will look to be nimble by taking less space with more flexible terms. This has coalesced into some energy tenants opting to move into sublease options. As an example, energy companies make up the majority of full-floor subleases being signed in Houston in 2016.

Co-working has also emerged as an option for this industry, with operations opening up in every major city. Some specific locations like "Coalition" in Chicago and "Start" in Houston are already adding energy firms to their rosters. While most co-working tenants today are smaller in size and focused on renewable energy, expect more mainstream energy firms to follow in years to come.

Another emerging space utilization and cost-cutting technique being seen in energy markets is called "chalk-lining." Chalk-lining is a flexible sublease arrangement where excess space is not physically demised, but rather a tenant carves out a block of space on a floor for another tenant. This allows companies to cohabitate in a mutually beneficial relationship according to specific space needs. Firms with excess space are able to minimize the cost and disruption of building out demising walls while simultaneously reducing their rent obligation.

As these trends take root, they will have substantial implications for both existing and future office space needs in energy-centric markets given the move toward a slimmer and more flexible industry footprint.

THEME 3

THE IMPACT TO UPSTREAM, MIDSTREAM AND DOWNSTREAM

?

How is the downturn affecting CRE decisions by companies in each energy sector, and what are the implications for the future?

!

***Upstream* – stemming the flow and surviving through downturn**
***Midstream* – healthy despite upstream weakness and regulatory hurdles**
***Downstream* – cheap inputs driving revolution and wide expansion**

UPSTREAM

Upstream energy focuses on exploration and production in the oil and gas business. The sector has been the hardest hit of the downturn, receiving the brunt of negative impact surrounding low oil prices. Energy companies who, based on the continuation of $100-a-barrel oil, over-hired talent, over-spent capital and over-leased office space during the 2010–2014 boom cycle, have been streamlining operations to cut costs amid falling revenues. Oilfield service companies like Schlumberger and Baker Hughes have been slammed particularly hard, even more so than integrated exploration and production (E&P) firms. This has resulted in energy tenants downsizing massively, exploring M&A options to drive synergies and realize efficiencies, and, most notably, releasing record amounts of sublease space into property markets across North America. Energy occupancy in the seven office markets detailed in this report totals approximately 113.4 million square feet, or 19.6 percent of the total market inventory. This is largely composed of upstream tenants whose industry and decisions influence a broad sphere of office users in their respective markets.

ENERGY TENANT OFFICE OCCUPANCY BY MARKET

Office market	Total energy occupancy (m.s.f.)	Percent of market inventory
Houston	61.5	30.0%
Calgary	31.7	46.8%
Denver	7.9	28.1%
Dallas	6.4	3.9%
Pittsburgh	2.1	4.2%
Fort Worth	1.9	4.7%
Edmonton	1.9	7.9%

Source: JLL Research

MIDSTREAM

Midstream operations encompasses energy transportation and storage, providing a link between upstream and downstream. While the shale boom led to corresponding growth in the midstream sector, a new lower-oil-price environment and subsequent production declines now means fewer barrels are flowing through the pipeline network. This drop-off in volume combined with increasing regulatory scrutiny and public opposition to new infrastructure has created some distress and churn in the midstream sector, though many companies remain resilient.

Pipeline giant Kinder Morgan made its first job cuts over the summer, eliminating just 120 positions, or 1 percent of its workforce. Master limited partnerships (MLP) Enterprise Products Partners and Magellan Midstream have weathered the oil slump fairly well, posting consistent earnings gains. In Canada, companies have struggled to add to pipeline capacity and move product to global markets, which further hinders real estate demand in energy-centric metros like Calgary and Edmonton.

As future pipeline development remains uncertain in both the U.S. and Canada, midstream companies will continue to lose out on significant revenue due to a lack of infrastructure, especially given growth in continental oil and gas output. However, in the face of volatile demand and weakened value, most are responding with a focus on gaining scale and synergies from mergers, acquisitions and asset sales. Notably, since the downturn, nearly every top midstream firm in North America has participated in or explored M&A activity in what's been called a "wave of consolidation."

The net effect of changes within the midstream sector on commercial real estate has been relatively sedate, however, with some firms downsizing and/or putting their space on the sublease market while others maintain boom-period occupancy.

THEME 3 THE IMPACT TO UPSTREAM, MIDSTREAM AND DOWNSTREAM

DOWNSTREAM

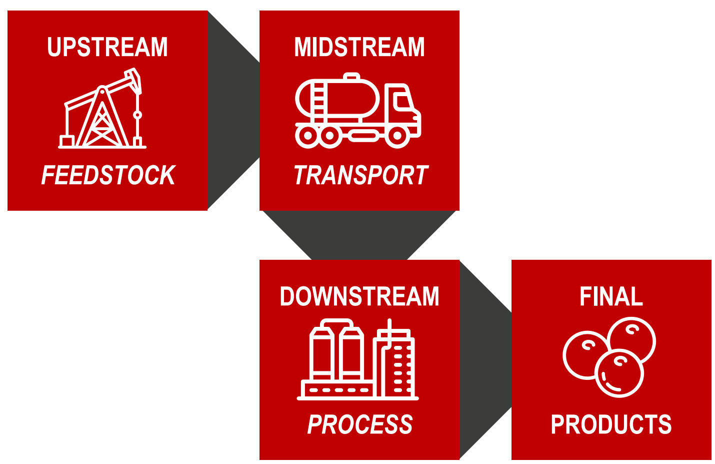
The downstream sector includes the refining and processing of oil and gas into chemicals, plastics and other products. The shale boom and subsequent decline in oil prices have had the opposite effect on the downstream sector, fueling a revolution in the petrochemical industry. Cheaper energy inputs have driven a massive increase in the manufacture of intermediate chemicals and finished plastics products, creating booming demand for industrial manufacturing, warehouse and refinery space in key downstream markets. The American Chemistry Council reports 268 projects with a total investment of $170.0 billion currently planned or under way across the U.S. This is up from less than $10.0 billion in 2010. A staggering $50.0 billion of these projects are located near Houston, off Texas's Gulf Coast, with major players including Cheniere, LyondellBasell, Exxon, Chevron Phillips and Freeport LNG, among others.

In western Pennsylvania, Shell has proposed plans for an estimated $6.0 billion dollar ethane cracker, the first project of its kind to be built off the Gulf Coast in more than 20 years. Ten natural gas producers have already signed long-term deals to anchor the cracker, and Shell is working to acquire rights-of-way for 95 miles of transport system to funnel ethane to the facility. The level of capital flowing into these areas is spurring demand for specialized industrial projects and thereby increasing the need for neighboring manufacturing and warehouse space. This is resulting in extremely tight vacancy and upward pressure on rents. Retail and multifamily projects are also thriving in downstream growth markets, as temporary construction jobs then permanent operations staff move into these regions, creating new demand centers.

OUTLOOK

As $100-per-barrel oil moves further towards a fond memory, upstream-related companies will seek to redefine their real estate needs in a lower-priced environment. It is critical that they exit the downturn with enough infrastructure in place to capitalize on the recovery and grow long term. Midstream companies will continue to expand their networks through either purchase or M&A. In markets where natural gas and LNG activity is growing, becoming further diversified outside of the crude oil industry will ensure less volatility in the future. In the downstream sector, real estate markets along the Gulf Coast and in western Pennsylvania will continue to receive the most benefit from the upswing in petrochemical investment. Furthermore, burgeoning opportunities in the ethane and LNG export industries will help position these areas for the future.

THE PRODUCTION CYCLE



MAJOR PLAYERS – SLICES OF THE PIE

Company	Value (billions)	Location	Project
Cheniere Energy	$9.5	Texas	LNG Terminal
Sasol	$8.9	Louisiana	Ethane Cracker
Shell Chemical	$6.0	Pennsylvania	Ethane Cracker
Chevron Phillips Chemical	$6.0	Texas	Low Viscosity Polyalphaolefins (PAO)
PTT Global	$5.0	Ohio	Ethane Cracker
LyondellBasell	$4.0	Texas	Polyethylene

Source: JLL Research

THEME 4

REGULATIONS AND LEGISLATION

?

What is the current regulatory and legislative landscape, and how will passage or rejection of new rules impact the industry and CRE in energy markets?

!

Outside energy-centric markets, sentiment surrounding resource extraction and pipeline development is unfavorable and gaining momentum. Impact to commercial markets in the immediate term due to regulatory changes is minimal. The long-term impact is unclear.

THE FRACKING REVOLUTION

Hydraulic fracturing, or fracking, is arguably the most impactful development in the American oil and gas industry. Since the fracking boom began in earnest in the early 2000s when advancements in technology enabled drillers to maneuver drill bit horizontally, the effect on commercial real estate has been just as substantial, driving frenetic growth in energy-linked office markets across the country.

From a broader perspective, however, this controversial extraction technique has opened the door for increased regulations and legislation as questions about its environmental impact arise. Dozens upon dozens of bills limiting fracking or blocking it completely have recently run through local and state legislatures, with outright or temporary bans signed in New York, Maryland and Vermont.

STATES WITH FRACKING BANS IN PLACE

Source: JLL Research

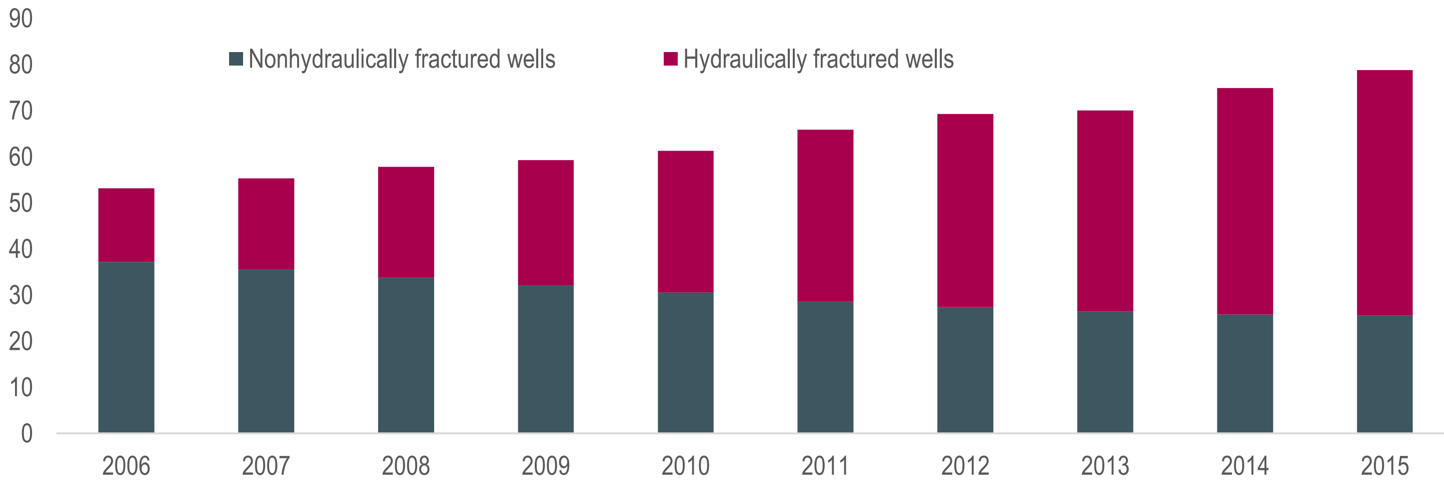
In contrast to statewide bans put in place recently, Colorado has seen some recent victories for the industry. In May, the Supreme Court there ruled against a local government's ability to impede fracking, preserving the state's power to regulate the industry. Additionally, activists and environmentalists narrowly missed acquiring the necessary signatures to get two highly restrictive anti-fracking measures on the state's November ballot. As prohibitive measures such as these gain further momentum, major property markets may see decreased levels of investment and hesitancy from energy companies in growing their real estate footprints.

In a similar vein, earthquakes in Texas, Oklahoma, California and Ohio have further driven a wedge between energy producers and the general public. While the fracturing process itself typically only lasts a few days, wastewater produced from the well can be pumped out of the ground with the oil or gas for years, and it is the disposal of this water into underground injection sites that has been linked to increases in seismic activity. This has resulted in even further scrutiny of the fracking process, and while no legislation is currently under way, it would not be surprising to see it surface down the road.

The EIA estimates approximately two-thirds of natural gas production in the U.S. was sourced from fractured wells in 2015. If natural gas is expected to be a "bridge fuel" for electricity generation to the renewable age, major energy companies will have to address implications for their exploration and production operations.

THEME 4 REGULATIONS AND LEGISLATION

MARKETED NATURAL GAS PRODUCTION (IN U.S.)



Source: EIA, IHS Global Insight

OTHER REGULATORY CONCERNS

The highly publicized rejection of the Keystone XL pipeline in late 2015 had massive implications for Canadian oil and gas companies. Margins in Canada have become extremely tight with the low price of oil, and shipping by rail or truck is not especially cost-efficient given the distance to refineries. In addition, Western Canada Select (WCS) oil is generally heavily discounted to West Texas Intermediate (WTI), though less so at current price levels. This is why it is critical for Canadian producers to get their oil to U.S. ports and into the global marketplace.

The Keystone XL successor, the Dakota Access oil pipeline, began encountering roadblocks in early September when the administration halted work on the project after environmental concerns arose and a Native American tribe expressed opposition. The 1,172-mile, $3.8 billion proposed pipeline would stretch from North Dakota to southern Illinois, with the barrels eventually making their way to multiple markets including the Gulf Coast, East Coast and Midwest.

Though output has been trending downward in the short term, the lack of new pipeline construction may put a damper on future market recovery as infrastructure development is not keeping pace with demand.

OUTLOOK

From a broad scope, traditional energy in North America is feeling the pressure from a multitude of sources, including the Paris Agreement and Clean Power Plan, two examples of large-scale efforts to move away from fossil fuels, reduce harmful emissions and further grow investment in renewable energy. At the state, provincial and local levels, proposed regulations have focused recently on prohibitive measures surrounding fracking and new pipeline development. In much the way the energy markets have painfully decelerated in the face of volatile pricing and abundance of supply, stringent legislative efforts have similar implications for future real estate needs in the upstream, midstream and downstream sectors.

New investment and expansion for non-renewable energy is likely to be hindered when the industry emerges from the downturn, as companies face an increasingly regulated environment. Headwinds seen today will not have an immediate effect on property markets more than they already have, but until many of the uncertainties being faced today are resolved, a long-term forecast is difficult.

THEME 5

TRENDS IN RENEWABLE ENERGY

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Where are the hotspots for renewable energy? Are any renewable-specific clusters developing which will have a significant impact on commercial real estate markets?

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Growth is occurring but not in a centralized manner. Though there is some alignment with existing energy-centric cities and tech markets, a diverse array of commercial real estate markets across North America are reaping the benefits. The Denver metro is a standout.

A RENEWABLE REVOLUTION

Roughly 80.0 percent of energy needs are met in North America by fossil fuels, but the industry is rapidly changing. As natural gas moves to supplant fossil fuels in the majority of power generation, renewable energy has continued to grow in investment and output thanks to heavy government subsidies, advances in capture and storage technologies, and consumer demand. Cost parity with non-renewable power sources and corporate mandates—currently 60.0 percent of Fortune 100 companies have renewable energy commitments and/or greenhouse gas reduction commitments—have worked to exponentially expand renewables in North America.

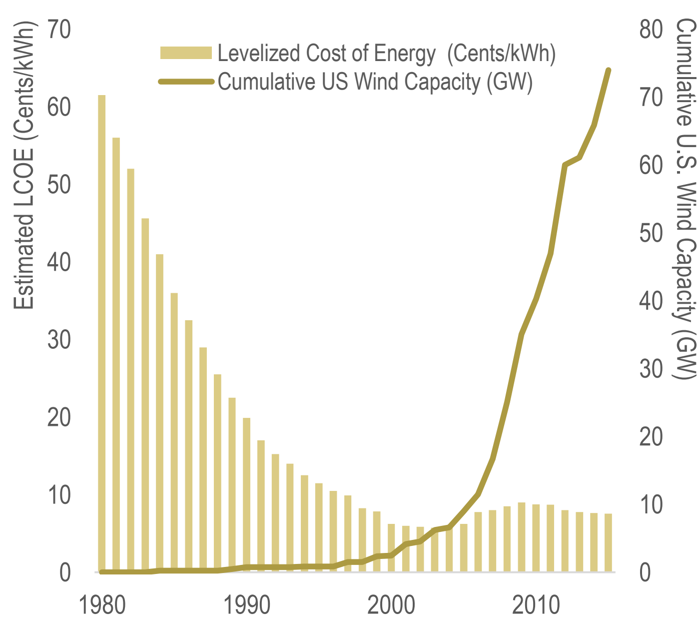
According to the EIA, since 2006 alone, the supply of renewable energy in the U.S. has spiked by 51.4 percent, with the most significant growth seen in the wind and solar sectors. The infrastructure needed to accommodate the jump in demand for these energy sources—from both a technical and human capital perspective—has the potential to positively impact commercial property markets, perhaps even creating industry clusters much like Houston and Calgary have with fossil fuels.

In the last decade, solar power and wind energy have expanded in total U.S. output by a staggering 780.0 percent and 680.0 percent, respectively. Coincidentally, these are the most likely renewables to have greater impact on commercial property markets due to the manufacturing, design, deployment and servicing needed to support the industries. Not surprisingly, the continued expansion of solar and wind energy power has implications for both office and industrial demand. This begs the question, however: which property markets, if any, are poised to benefit from this energy revolution?

WIND ENERGY

The top three wind turbine manufacturers in North America, which make up 77.3 percent of existing capacity, are Siemens, GE Renewable Energy and Vestas. All three companies are widely dispersed throughout the continent. Siemens, an enormous and diverse manufacturer with locations throughout North America, is headquartered in Orlando, Florida. GE is similar to Siemens in size and scope and maintains its onshore wind operation in Schenectady, New York under the GE Power moniker. This comes after it moved its global renewable operation to Paris in 2015, after a $10 billion acquisition of French firm Alstrom. Dutch firm Vestas deals solely in wind turbines. It is headquartered in Portland, Oregon, though it is contemplating a move to Colorado to be nearer to its primary manufacturing facilities. In conclusion, the corporate office footprint of the market share leaders in domestic wind energy production is minimal and not a needle-mover in any North American market.

DEPLOYMENT & COST FOR LAND-BASED WIND



Source: U.S. Department of Energy

THEME 5

TRENDS IN RENEWABLE ENERGY

In juxtaposition to the simplicity of solar panels, wind energy turbines are extremely complicated and rely on 8,000 bespoke parts built by a number of manufacturers across the continent and abroad. They also require a fair bit of service and access to spare or upgrade parts inventories. Because of this, and the fact that there are more than 500 facilities in 43 states building or assembling these parts, wind turbine manufacturing is highly decentralized and does not make up a significant portion of any single industrial market in North America. There is alignment with states that have heavy concentrations of wind farms like Texas, California and Iowa, but for the most part component production is widespread and located in Midwestern and Southern cities in the United States.

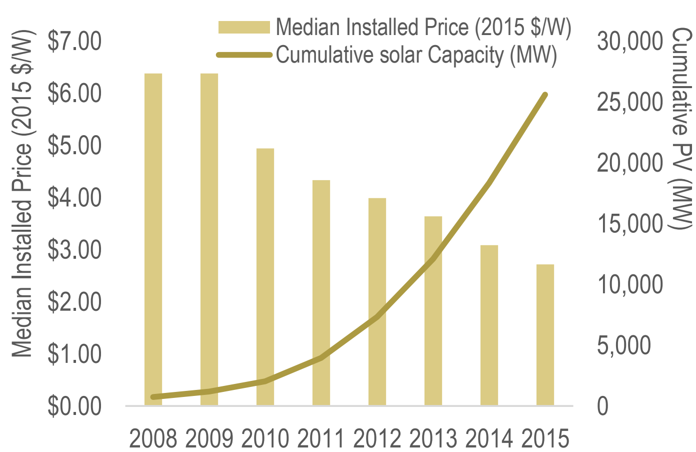
One notable operation, that of Vestas, is located in the Denver metro and is helping the region grow into a nascent renewable cluster. Thanks to Vestas and other manufacturers, the Rocky Mountain State—and Denver/Fort Collins metro specifically—enjoys the highest concentration of wind manufacturing jobs in North America. An emerging clean-tech community outside wind and solar is also contributing to this growth.

SOLAR ENERGY

The office headquarters of North America's top solar firms, as graded by total installed megawatts, are centered primarily in markets in California and Arizona. There are a number of firms peppered throughout North America in states like North Carolina, Minnesota and New Jersey, but a full 70.0 percent of the top 10 residential, commercial and utility-grade solar companies have North American headquarters in these western states. Concentration in these cities is due to a number of reasons. First, the proximity to intense sunlight and consumer markets: three of the top five cities for installed home solar panels are in California. Second, most of these firms are relatively new and rely on the tech-oriented talent and access to venture capital characteristic of these markets. Third, easy access to the manufacturing facilities in Asia make it a foregone conclusion these firms would locate out west. All told, however, there is no single office market which could be considered a "hub" for solar companies, though in coming years one may emerge in Southern or Central California based on the direction the industry is heading.

Solar panels are constructed almost exclusively in Asia due to the pricing advantage derived from a fully developed ecosystem of panel manufacturers and cheaper labor. However, some solar panel manufacturing is taking place domestically, spurred in part by subsidies, the declining costs to build, and the fact that the key component—polysilicon—is made in the U.S. This trend is forecasted to increase significantly in years to come thanks to wage increases in China (which is reducing overseas competitiveness) and the sheer demand for the product. Public enthusiasm for residential installations on a small scale and renewable energy mandates on a utility scale will continue to swell. As of today, and in alignment with the wind turbine manufacturing footprint, there is no single epicenter where panels are being built.

DEPLOYMENT AND COST FOR SOLAR PANELS

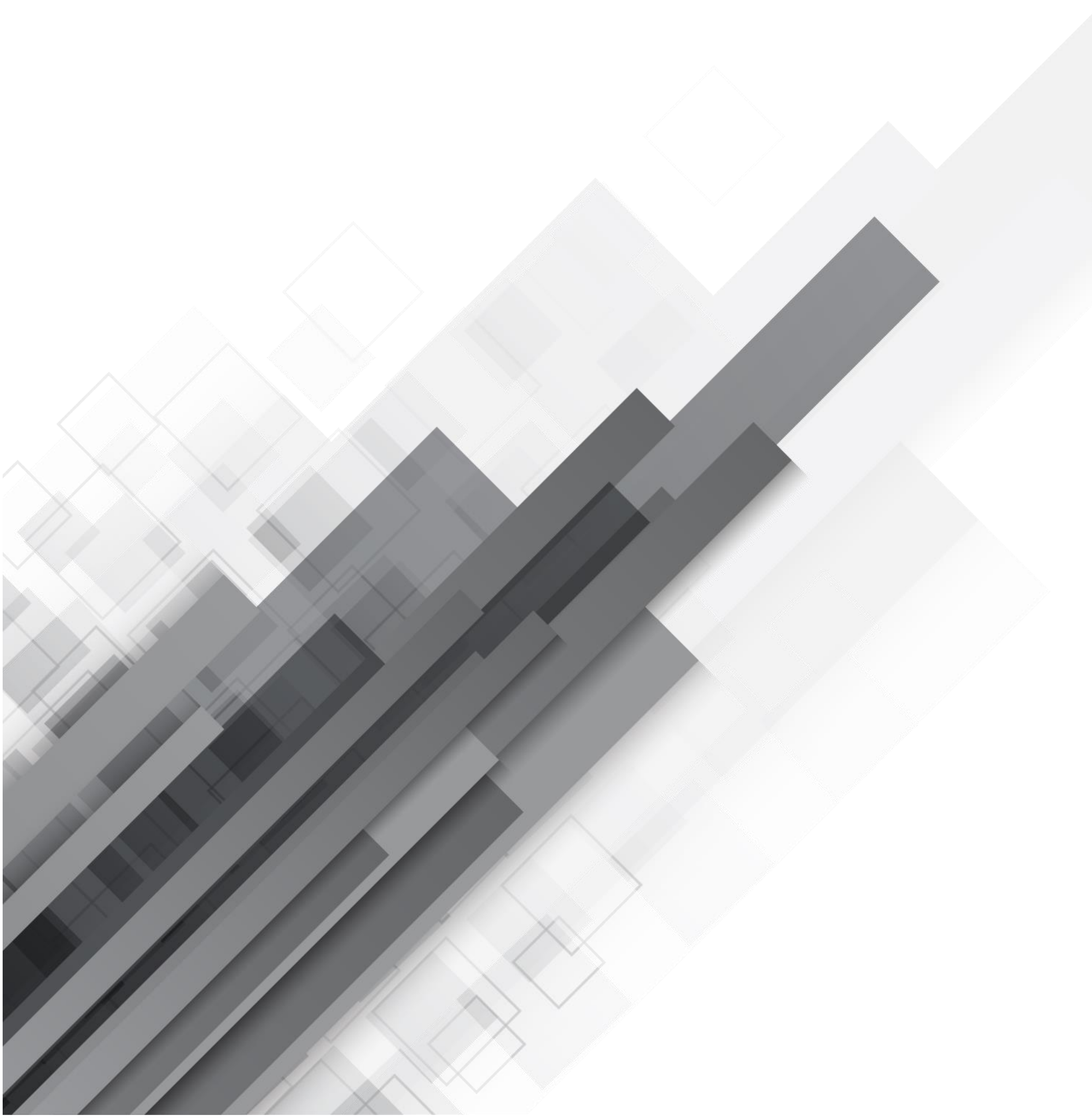


Source: U.S. Department of Energy

OUTLOOK

Recent and ongoing advances in renewable tech are making it cheaper to manufacture, sell and deploy renewables while legislative policy is also impacting renewables in a positive way: the Clean Power Plan, should the courts resolve a recent Supreme Court judgment to stay, may spur the sun-setting of coal-fired or other non-renewable power plants in favor of cleaner generation methods. Additionally, the Production Tax Credit has also been renewed to 2020, ensuring long-term investments in the burgeoning industry for years to come. As the Levelized Cost of Electricity (LCOE) gap between renewables and fossil fuels continue to narrow—even after government subsidies eventually expire—expect a further expansion of the renewables and clean tech industry. The impact to property markets in the near future should increase in lockstep, though it will likely follow the trends seen today and grow in a decentralized manner outside the current hotspot in Colorado.

LOCAL ENERGY MARKETS



DENVER | *Office*

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Senior Research Manager

Mandy Seyfried
Senior Research Analyst

TRENDING TOPICS

Arrows indicate 12-month change for metro area
Report and statistics are based on Denver's CBD submarket

SUPPLY

- ▼ **7.9 m.s.f.** *Total energy occupancy*
- ▲ **28.1 m.s.f.** *Total market inventory*
- ▲ **12.3%** *Q2 Direct vacancy marketwide*
- ▼ **1.4 m.s.f.** *Under construction marketwide*

DEMAND

- ▼ **3.3%** *Energy-related tenants in the market*
- ▼ **7,300 s.f.** *Average energy tenant lease size YTD*
- ▼ **95,100 s.f.** *Energy tenant leasing activity YTD*
- ▼ **-178,645 s.f.** *Total net absorption YTD*

SUBLEASE

- ▲ **1.2 m.s.f.** *Sublease space available Q2*
- ▲ **821,000 s.f.** *10-year sublease space average*
- ▲ **4.1 years** *Average sublease remaining term*
- ▲ **70.0%** *Sublease from energy companies*

MARKET THEMES

#1 Rising available sublease space reflects energy job cuts
Contracting energy companies and energy-related service providers continue to bring sublease space to market. Total available sublease space at midyear 2016 measured 4.4 percent, the highest level in at least a decade. Oil and gas firms are attempting to shed at least 70.0 percent of the 1.2 m.s.f. of sublease space available, and reabsorption remains slow.

#2 Mergers and acquisitions: alive and well
Whether looking to streamline operations and reduce costs for future growth or stocked with liquidity and aiming to grow, notable Denver energy firms have recently sought opportunities to capitalize on what remains of this latest oil and gas downturn.

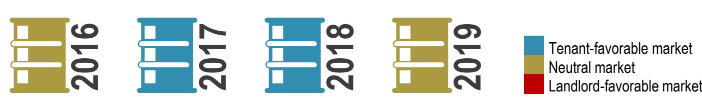
#3 Ballot initiatives fail—what next?
August saw the latest two legislative initiatives to limit hydraulic fracturing fail to make the voter ballot. However, significant risk and uncertainty for the sector's future in Colorado will persist if activist-versus-industry battles continue to recur.

OUTLOOK

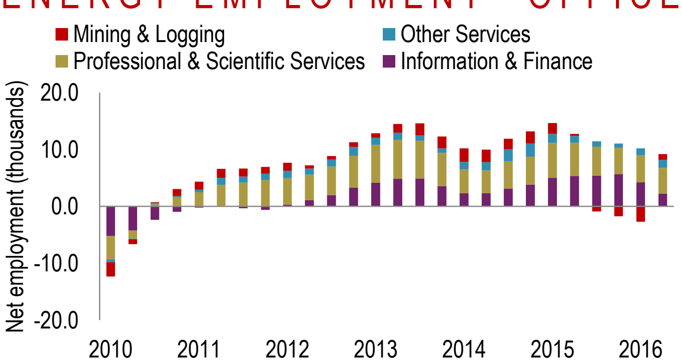
Challenges
Given that extraction is measurably more affordable in the Permian Basin, Colorado oil producers may increasingly look outside our own Niobrara/Denver-Julesburg Basin for production and fulfillment. If major industry activity vacates for more competitively priced plays, energy-sector jobs losses could continue to mount for the Denver metro.

Opportunities
The brunt of energy-related job losses has largely passed, and there now exists simultaneous price compression of real estate costs and downward pressure on oilfield costs. This bodes well for businesses that have withstood depressed oil prices; those with naturally expiring leases will have the "pick of the litter" for more affordably priced sublease options.

TENANT LEVERAGE

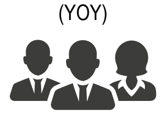


ENERGY EMPLOYMENT—OFFICE



Energy employment growth

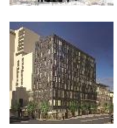
+2.6%
(YOY)



+21.0%
change since 2010

ENERGY TRANSACTIONS

Anadarko Petroleum
Granite Tower | West CBD
343,080 s.f.
Renewal



Antero Resources
A Block | LoDo
37,000 s.f.
Expansion

Caerus Oil & Gas
1001 17th St. | West CBD
32,937 s.f.
Sublease

DALLAS | *Office*

Walter Bialas
Director of Research

Steve Triolet
Research Analyst

TRENDING TOPICS

Arrows indicate 12-month change for metro area

SUPPLY	DEMAND	SUBLEASE
▼ **6.4 m.s.f.** *Total energy occupancy*	▼ **8.0%** *Energy-related tenants in the market*	▼ **1.4 m.s.f.** *Sublease space available Q2*
▲ **163.7 m.s.f.** *Total market inventory*	▲ **40,000 s.f.** *Average energy tenant lease size YTD*	▲ **1.5 m.s.f.** *10-year sublease space average*
▲ **19.2%** *Q2 Direct vacancy marketwide*	▼ **273,000 s.f.** *Energy tenant leasing activity YTD*	▼ **3.0 years** *Average sublease remaining term*
▲ **11.1 m.s.f.** *Under construction marketwide*	▼ **1.0 m.s.f.** *Total net absorption YTD*	▲ **3.7%** *Sublease from energy companies*

MARKET THEMES

#1 Dallas remains diverse

The Dallas economy has distanced itself from its energy past—a healthy mix of industries continues to flourish in the Dallas economy. Growth has continued unimpeded by the sluggish oil economy, and that growth is expected to continue into 2018.

#2 A new normal

The question top of mind is: is this the new normal? Oil prices have been low and oil pricing volatility will remain the norm for the foreseeable future, causing Dallas energy leasing to remain limited to contracting.

#3 Winds of change

As the oil and gas industry adapts, Dallas should remain vigilant in its diversified growth efforts. In the energy sector, look to renewable technologies (wind and solar) as bigger drivers, as established Dallas companies use this volatile period as a reason to expand and reposition.

OUTLOOK

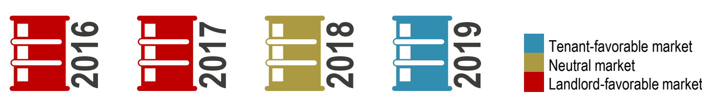
Challenges

The biggest challenge facing oil and gas tenants is their ability to make long-term real estate decisions. Due to market uncertainty, oil and gas companies may need to sublease space or look for shorter lease terms to tighten balance sheets. For owners, underwriting even stable energy tenants carries a risk premium due to perceived market volatility.

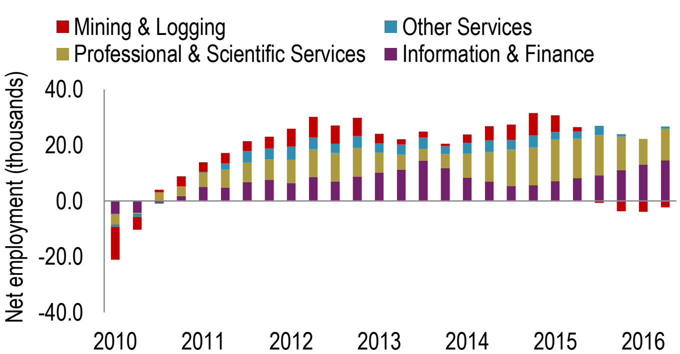
Opportunities

The Dallas office market is expanding and average rents are pushing 7.6 percent annual growth. Because landlords will have leverage into 2017, many will seek to minimize energy exposure, giving them new leasing opportunities with more stable tenants at higher rents. Stronger energy companies, however, are expanding by acquiring mid- and upstream businesses and exploration rights in preparation for a pricing turnaround.

TENANT LEVERAGE

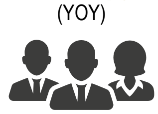


ENERGY EMPLOYMENT—OFFICE



Energy employment growth

+3.1%
(YOY)

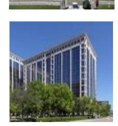


+22.4%
change since 2010

ENERGY TRANSACTIONS

Sunoco LP
The Offices at Park Lane | NCX
120,000 s.f.
New

Pioneer Resources
Hidden Ridge | Las Colinas
600,000 s.f.
New



Wynn-Crosby Energy, Inc.
International Plaza | Far North Dallas
29,000 s.f.
Renewal

FORT WORTH | *Office*

Walter Bialas
Director of Research

Steve Triolet
Research Analyst

TRENDING TOPICS

Arrows indicate 12-month change for metro area

SUPPLY

- ▼ **1.9 m.s.f.** *Total energy occupancy*
- ▲ **40.2 m.s.f.** *Total market inventory*
- ▼ **14.1%** *Q2 Direct vacancy marketwide*
- ▲ **857,213 s.f.** *Under construction marketwide*

DEMAND

- ▼ **8.0%** *Energy-related tenants in the market*
- ▲ **16,000 s.f.** *Average energy tenant lease size YTD*
- ▼ **32,000 s.f.** *Energy tenant leasing activity YTD*
- ▼ **112,300 s.f.** *Total net absorption YTD*

SUBLEASE

- ▼ **921,400 s.f.** *Sublease space available Q2*
- ▲ **1.1 m.s.f.** *10-year sublease space average*
- ▼ **3.0 years** *Average sublease remaining term*
- ▲ **24.0%** *Sublease from energy companies*

MARKET THEMES

#1 Market staying tight
Despite a number of energy tenants vacating space in downtown Fort Worth, occupancy levels have remained resilient. Suburban landlords have leverage, while leverage in the CBD belongs to tenants; expect a shift favoring landlords in the next 12 months.

#2 Diversity helps
While certainly not as energy-agnostic as their Dallas counterparts, Fort Worth businesses have weathered the ongoing oil slump well, with limited discernable impact on support industries, like accounting, law, etc. Energy-related leasing will remain dormant for the next few quarters.

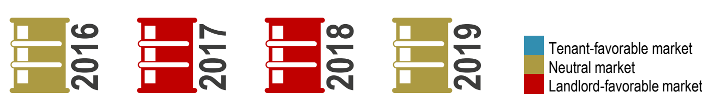
#3 Absorption is key
As the amount of space given up by energy tenants in Fort Worth grows, absorption of that vacated space will be the metric to watch. Bright spots include GM Financial's absorption of the recently vacated Quicksilver Resources space and Chisholm Energy's 22,000-square-foot lease at Burnett Plaza.

OUTLOOK

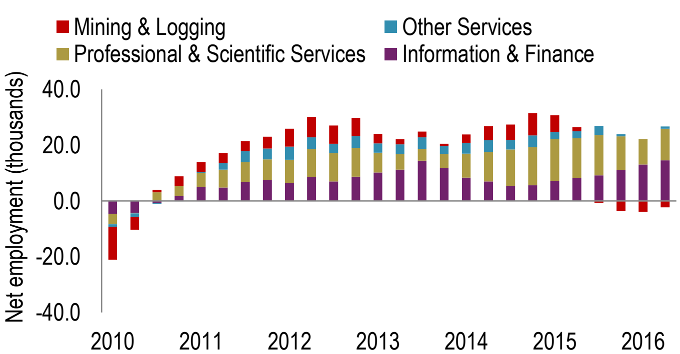
Challenges
Fort Worth will face a few challenges ahead, primary of which is waiting out the oil and gas price slump. Although not on par with other energy-dependent areas in the U.S., energy is an important driver in Fort Worth's economy. As energy companies continue to give back surplus space, absorption of that space will impact office leasing fundamentals and rental rate growth.

Opportunities
While more energy-dependent than Dallas, Fort Worth is well-positioned to survive the slowdown. So far, leasing to other business service sectors remains sufficient to take down space that has come to market by energy firm downsizing. This especially holds true for firms seeing an opportunity to move into the CBD from the suburbs.

TENANT LEVERAGE



ENERGY EMPLOYMENT—OFFICE



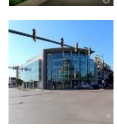
Energy employment growth

+3.1% (YOY)

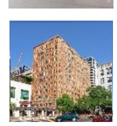
+22.4% change since 2010

ENERGY TRANSACTIONS

Chisholm Energy
Burnett Plaza | CBD
25,000 s.f.
New



Brazos Midstream
7th & University | CBD
7,000 s.f.
New



Energy & Exploration Partners
Chase Bank Building | CBD
34,047 s.f.
Sublease

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HOUSTON | *Office*

Rachel Alexander
Research Manager

Reid Watler
Research Analyst

TRENDING TOPICS

Arrows indicate 12-month change for metro area

SUPPLY	DEMAND	SUBLEASE
▼ **61.5 m.s.f.** *Total energy occupancy*	▲ **41.2%** *Energy-related tenants in the market*	▲ **11.7 m.s.f.** *Sublease space available Q2*
▲ **205.0 m.s.f.** *Total market inventory*	▼ **34,291 s.f.** *Average energy tenant lease size YTD*	▲ **4.9 m.s.f.** *10-year sublease space average*
▲ **16.5%** *Q2 Direct vacancy marketwide*	▼ **411,493 s.f.** *Energy tenant leasing activity YTD*	▲ **5.3 years** *Average sublease remaining term*
▼ **3.8 m.s.f.** *Under construction marketwide*	▲ **223,185 s.f.** *Total net absorption YTD*	▲ **77.8%** *Sublease from energy companies*

MARKET THEMES

#1 Energy tenant footprint wanes
Growth plans during the shale boom, coupled with multiple rounds of layoffs, have left most energy tenants with excess space. In an effort to curtail costs, these users have opted to sublease their space, with minimal success. Houston now holds the largest concentration of sublease space in North America.

#2 Leasing demand in short supply
Though much of the slowdown in leasing stems from the energy sector, weak demand is widespread across other industries as well. As a result, the ability for energy tenants to sublease their space is hampered by the lack of demand in the market.

#3 Landlords hedge against energy exposure
As energy tenants reduce their footprint, landlords are looking to diversify their tenant mix to safeguard against future downturns. Though overall activity has been anemic, non-energy users are beginning to assess options and backfill space formerly occupied by energy tenants, usually at a substantial discount.

OUTLOOK

Challenges
Dozens of energy companies are attempting to sublease excess space in Houston today. The biggest challenge for these firms will be securing a subtenant in this ultra-competitive environment. After a recovery in oil prices, energy tenants with shaky balance sheets looking for space will find the strongest landlords less willing to entertain their tenancy, yet owners struggling with occupancy or NOI may be more tolerant.

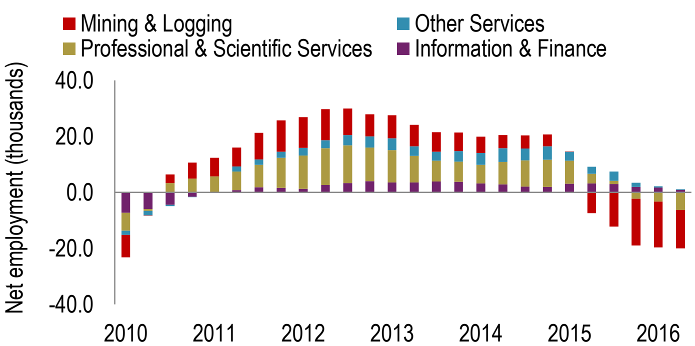
Opportunities
With over 9.2 million square feet of Class A sublease space available, and possibly more on the way, well-capitalized energy tenants entering the market will enjoy an avalanche of options when it comes to premium office space alternatives.

TENANT LEVERAGE

2016 2017 2018 2019

Tenant-favorable market
Neutral market
Landlord-favorable market

ENERGY EMPLOYMENT—OFFICE

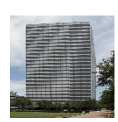


Energy employment growth

-3.1%
(YOY)

+14.9%
change since 2010

ENERGY TRANSACTIONS



Saudi Basic Industries Corp.
2500 CityWest Blvd | Westchase
78,840 s.f.
New

Pattern Energy
Total Plaza | CBD
34,901 s.f.
New

Patterson-UTI Drilling
Remington Square III | Northwest
34,748 s.f.
New

HOUSTON | *Industrial*


Rachel Alexander
Research Manager


Roman Rodriguez
Research Analyst

TRENDING TOPICS

Arrows indicate 12-month change for metro area

SUPPLY

▲ **78.6 m.s.f.**
Total manufacturing inventory

▲ **410.2 m.s.f.**
Total market inventory

▲ **5.3%**
Q2 Direct vacancy marketwide

▼ **11.3 m.s.f.**
Under construction marketwide

DEMAND

▲ **7.1%**
Energy-related tenants in the market

▼ **57,746 s.f.**
Average energy tenant lease size YTD

▲ **1.2 m.s.f.**
Energy tenant leasing activity YTD

▼ **631,834 s.f.**
Total net absorption YTD

ECONOMY

▼ **43.8**
Purchasing Managers Index

▼ **19 months**
PMI indicating contraction in supply

▲ **$6.02 p.s.f. NNN**
Q2 overall market asking rent

▲ **3.1 m.s.f.**
Sublease space available Q2

MARKET THEMES

#1 Softening demand for industrial space
Leasing activity remains robust across Houston, but uncertainty surrounding the energy industry is creating points of weakness. To this end, some companies are postponing expansion plans and seeking shorter-term options to weather the downturn.

#2 Midstream and downstream users growing
Low feedstock pricing is driving construction activity along the Houston Ship Channel as production plants expand to capitalize on the petrochemical boom. The significant pipeline is driven by users like Katoen Natie currently completing construction of a 1.4 million-square-foot plastics packaging and distribution facility.

#3 Traditionally dominant submarkets taking a hit
The North and Northwest submarkets, as the logistics hubs for the metro, have a high concentration of tenants supporting the upstream sector. The North market in particular has begun to shift to tenant favorable as both submarkets experience rising vacancy and availability.

OUTLOOK

Challenges
A shortage of developable industrial land is pushing new plants and distribution facilities farther into outlying counties and creating challenges due to lack of access and utilities. Additionally, crane-served projects will continue to see weakness as durable goods manufacturing has largely come to a standstill.

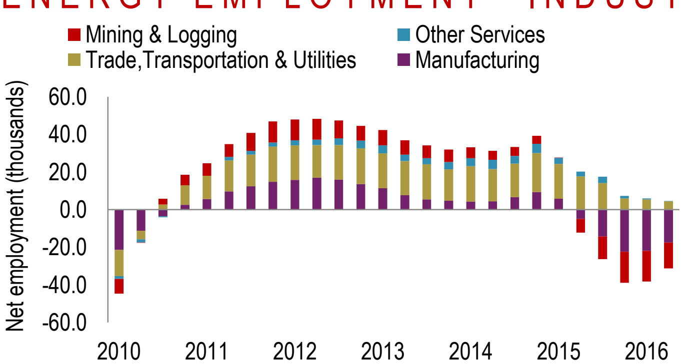
Opportunities
Rising vacancy across the metro, coupled with a strong construction pipeline, is creating opportunities in both new and second-generation space. Midstream and downstream tenants in the market should see increased options for space and work to leverage existing conditions for more favorable lease terms.

TENANT LEVERAGE

2016 2017 2018 2019

Tenant-favorable market
Neutral market
Landlord-favorable market

ENERGY EMPLOYMENT—INDUSTRIAL



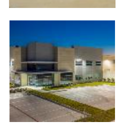
Energy employment growth

-2.5%
(YOY)

+15.6%
change since 2010

ENERGY TRANSACTIONS

Petroleum Geo-Services
Underwood 2 | Southeast
162,790 s.f.
New



XPO Logistics
Bayport North Industrial Park | Southeast
115,284 s.f.
New

Flowserve
Park 225 | Southeast
110,102 s.f.
New

PITTSBURGH | *Office*

Andrew Batson
Director of Research

Tobiah Bilski
Research Analyst

TRENDING TOPICS

Arrows indicate 12-month change for metro area

SUPPLY

2.1 m.s.f.
Total energy occupancy

50.4 m.s.f.
Total market inventory

13.7%
Q2 Direct vacancy marketwide

492,000 s.f.
Under construction marketwide

DEMAND

2.5%
Energy-related tenants in the market

75,000 s.f.
Average energy tenant lease size YTD

220,000 s.f.
Energy tenant leasing activity YTD

345,000 s.f.
Total net absorption YTD

SUBLEASE

1.1 m.s.f.
Sublease space available Q2

30,000 s.f.
10-year sublease space average

2.5 years
Average sublease remaining term

10.6%
Sublease from energy companies

MARKET THEMES

#1 Energy company subleasing
With natural gas production down, energy companies are looking to sublease space. At the start of 2016, Southpointe, primarily made up of energy office users, had 137,000 square feet of sublease space available, up from 32,000 square feet in 2015.

#2 Leasing activity of energy companies
Relocations within the market made up the majority of recent office leasing activity of energy companies. Most notably, in the third quarter of 2016, Peoples Natural Gas relocated to 135,000 square feet of space at 375 North Shore Drive.

#3 Southpointe submarket experiences a change in leverage
Most energy companies in the region have offices located in Southpointe. While Class A vacancy in this submarket was below 5.0 percent two years ago, market conditions have softened in recent quarters due to falling commodity prices. Class A direct vacancy increased to 21.1 percent in the second quarter of 2016.

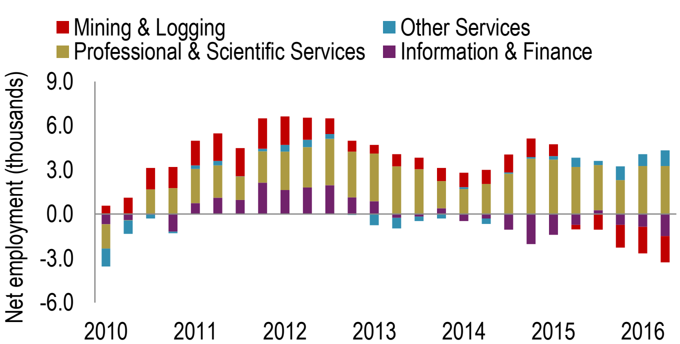
OUTLOOK

Challenges
Conditions in the energy markets continue to bump along the bottom, causing office demand to diminish. However, as energy office demand decreases, the office market is experiencing high demand from other industries in the urban submarkets. Availability is declining and rents are increasing as a result, making re-entry more challenging than before.

Opportunities
There is direct and sublease space available in Southpoint, a submarket that is primarily centered in the energy industry, because of its close proximity to major arteries that connect Ohio, West Virginia and Pennsylvania. At the end of the second quarter of 2016, total vacancy in the submarket equaled 24.7 percent, providing plenty of options.

TENANT LEVERAGE

ENERGY EMPLOYMENT—OFFICE



Energy employment growth

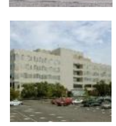
+0.5%
(YOY)

+11.6%
change since 2010

ENERGY TRANSACTIONS

Peoples Natural Gas
375 North Shore Drive | Fringe
135,000 s.f.
Relocation

Shell
4301 Dutch Ridge Road | North
75,000 s.f.
New



TMS
5700 Corporate Drive | North
10,000 s.f.
Relocation

PITTSBURGH | *Industrial*

Andrew Batson
Director of Research

Tobiah Bilski
Research Analyst

TRENDING TOPICS

Arrows indicate 12-month change for metro area
Local PMI info not available; National PMI is indicated

SUPPLY

- ▲ **54.7 m.s.f.** — *Total manufacturing inventory*
- ▲ **136.8 m.s.f.** — *Total market inventory*
- ▼ **9.8%** — *Q2 Direct vacancy marketwide*
- ▼ **1.1 m.s.f.** — *Under construction marketwide*

DEMAND

- ▼ **1.3%** — *Energy-related tenants in the market*
- ▲ **68,000 s.f.** — *Average energy tenant lease size YTD*
- ▼ **272,000 s.f.** — *Energy tenant leasing activity YTD*
- ▲ **2,940,000 s.f.** — *Total net absorption YTD*

ECONOMY

- ▼ **49.4** — *Purchasing Managers Index*
- ▼ **1 month** — *PMI indication contraction in supply*
- ▼ **$4.84 p.s.f. NNN** — *Q2 overall market asking rent*
- ▼ **142,000 s.f.** — *Sublease space available Q2*

MARKET THEMES

#1 Shell announces construction of $4.0B cracker plant in Beaver
Once completed, the plant will position southwest Pennsylvania as a dominant domestic energy center by producing 1.5 million metric tons of plastics feedstock per year, in a region that is home to more than 100 plastic-related companies.

#2 Pennsylvania rig count
In January 2016, Pennsylvania had an average of 25 rigs in operation, but only 14 in June. Although production has slowed, the focus is now on completing the necessary pipeline infrastructure to transport the natural gas.

#3 Industrial construction swelling
770,000 of the 1.1 million square feet of industrial projects currently under construction is located in the West submarket, due to the close proximity to the anticipated Shell cracker plant and the necessary rail system to transport product. Total construction has not yet reached the current potential given demand for new product.

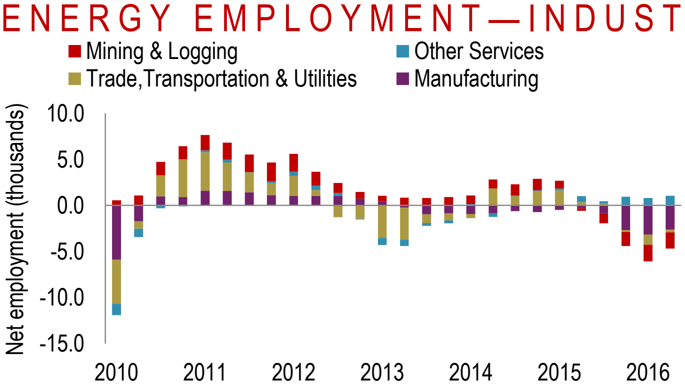
OUTLOOK

Challenges
Construction of the Shell cracker plant will create more demand for industrial space, making conditions tighter and entry into the market more difficult. Adding to this demand, PTT Global Chemical is considering plans to develop a $5.8 billion ethane cracker facility in Belmont County, Ohio, about 50 miles southwest of the West submarket.

Opportunities
Demand is increasing in Pittsburgh for new industrial space. A majority of the new construction is taking place in the West submarket, which neighbors the new Shell plant. Alternatively, 21.2 percent of existing space in Washington County is available, where 1,146 active natural gas wells are located, providing tenants some options.

TENANT LEVERAGE

ENERGY EMPLOYMENT—INDUSTRIAL

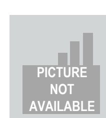


Energy employment growth

-1.0%
(YOY)

+3.3%
change since 2010

ENERGY TRANSACTIONS



Undisclosed Energy Company
Aliquippa Industrial Park | Northwest
200,000 s.f.
New

Westinghouse
Youngwood Commerce Park | Westmoreland County
30,000 s.f. | New

Shell
Horsehead site | Northwest
300 acres
Purchase

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CALGARY | *Office*

Thomas Forr
Research Manager

Trent Peterson
Research Associate

TRENDING TOPICS

Arrows indicate 12-month change for metro area

SUPPLY

31.7 m.s.f. (▲)
Total energy occupancy

67.8 m.s.f. (▼)
Total market inventory

17.1% (▲)
Q2 vacancy marketwide

3.2 m.s.f. (▼)
Under construction marketwide

DEMAND

51.7% (▼)
Energy-related tenants in the market

24,500 s.f. (▼)
Average energy tenant lease size YTD

376,407 s.f. (▼)
Energy tenant leasing activity YTD

-2.2 m.s.f. (▼)
Total net absorption YTD

SUBLEASE

5.6 m.s.f. (▲)
Sublease space available Q2

1.6 m.s.f. (▲)
10-year sublease space average

3.7 years (▲)
Average sublease remaining term

82.7% (▲)
Sublease from energy companies

MARKET THEMES

#1 Reconciliation

The mood in Calgary has changed from the negativity of 2015 to one of acceptance as oil and gas companies reconcile themselves with the reality of lower oil prices. Currently, tenants seeking space are more comfortable in assessing economic implications of their real estate decisions. As a result, an uptick in market activity has occurred; however, the negative net absorption that Calgary continues to see overshadows any boost in office space demand.

#2 Acquisitions

In any bear market there are opportunities that present themselves. Calgary is familiar with the theme of acquisitions as well-positioned cash-rich companies buy out, take over or acquire assets from smaller or distressed companies. Examples of this are Suncor's $6.6 billion takeover of Canadian Oil Sands and the Enbridge Inc. acquisition of Spectra Energy Corp. Acquisitions typically translate to dealing with office space consolidation, maintaining workplace culture and managing space allocation.

OUTLOOK

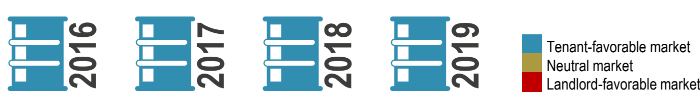
Challenges

Calgary faces the continued challenge of a low oil price. Based upon projected Q4 numbers, the Canadian Association of Oilwell Drilling Contractors reported a 68 percent decrease in wells drilled since 2014. The decrease in production is also linked to decreased downstream demand and the inability to expand beyond the U.S. market as obstacles continue to stand in the way of proposed tidewater pipeline projects.

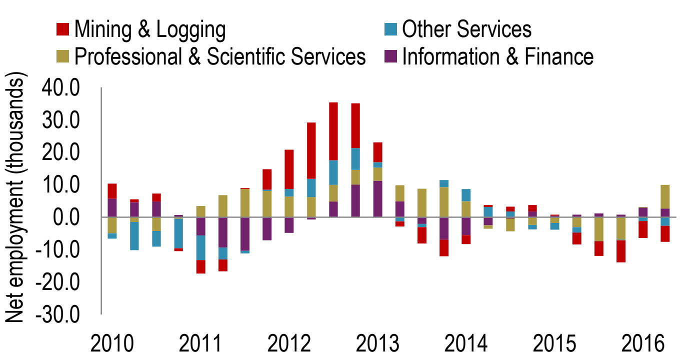
Opportunities

A significant opportunity for Calgary tenants, particularly downtown, is their ability to manage current lease expenses with willing landlords. For example, negotiating current rent reduction in exchange for extending lease term lengths can help free up capital to be allocated elsewhere.

TENANT LEVERAGE

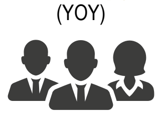


ENERGY EMPLOYMENT—OFFICE



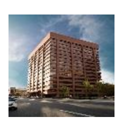
Energy employment growth

+0.9%
(YOY)

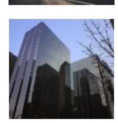


+11.7%
change since 2010

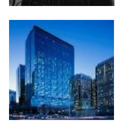
ENERGY TRANSACTIONS



Dynamic Risk
333 11th Avenue SW | Beltline
23,000 s.f.
New



Centrica Energy
Fifth Avenue Place | Downtown
58,706 s.f.
Sublease



TransCanada Pipelines
TransCanada Tower | Downtown
931,000 s.f.
Renewal

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CALGARY | *Industrial*

Thomas Forr
Research Manager

Carey Koroluk
Associate

TRENDING TOPICS

Arrows indicate 12-month change for metro area

SUPPLY

▼ **21.3 m.s.f.**
Total manufacturing inventory

▲ **151.2 m.s.f.**
Total market inventory

▲ **7.4%**
Q2 Direct vacancy marketwide

▼ **647,000 s.f.**
Under construction marketwide

DEMAND

▼ **25.1%**
Energy-related tenants in the market

▼ **19,775 s.f.**
Average energy tenant lease size YTD

▲ **50,737 s.f.**
Energy tenant leasing activity YTD

▼ **671,590 s.f.**
Total net absorption YTD

ECONOMY

▲ **46.2**
Purchasing Managers Index

▼ **17 months**
PMI indication contraction in supply

▼ **$9.70 p.s.f. NNN**
Q2 overall market asking rent

▲ **1.8 m.s.f.**
Sublease space available Q2

MARKET THEMES

#1 Sublease space on the rise
The amount of sublease space coming to the market continues to increase as cash-strapped companies affected by the energy sector look for ways to recover capital. There is almost 500,000 square feet of solely manufacturing space available for sublease right now.

#2 Large tenants consolidating
Large tenants in the oil and gas industry seem to be less interested in occupying multiple locations. There are currently several notable companies looking to consolidate down to one location.

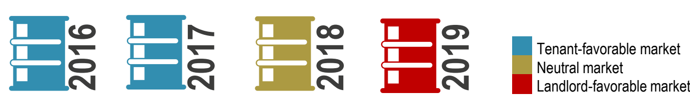
#3 Energy industry has been plagued by massive layoffs
Calgary continues to be plagued by massive layoffs, and the industrial real estate market has been particularly impacted by layoffs in the machinery and metal manufacturing sectors. These layoffs have resulted in an unusually high number of Class A and B manufacturing facilities currently sitting vacant.

OUTLOOK

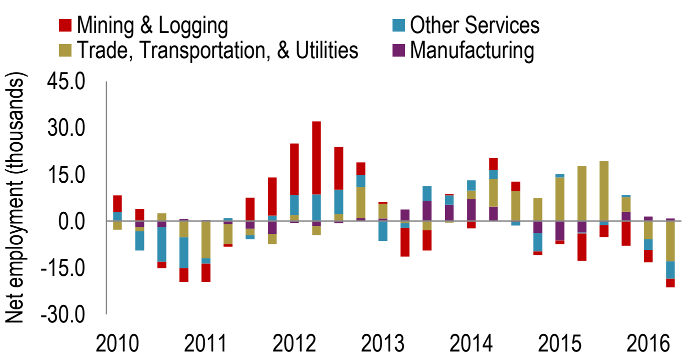
Challenges
The challenge with manufacturing space in the Calgary market will be finding the delta in perceived value among landlords and tenants. Product that was extremely leasable at above-market rates a few years ago will now be very difficult to lease and will likely be at discounted rates.

Opportunities
With challenge comes opportunity, and for tenants looking to lease manufacturing space, now is the time, as it is a very opportunistic market for tenants. We expect it to remain this way for the near future.

TENANT LEVERAGE



ENERGY EMPLOYMENT—INDUSTRIAL



Energy employment growth

-9.2%
(YOY)

+6.1%
change since 2010

ENERGY TRANSACTIONS

Entity of Sanjel
7100 – 112 Avenue SE | Shepard
35,000 s.f.
New

Blue Spark Energy
7928 – 11 Street NE | Airport
8,037 s.f.
Renewal

Flotek
2638 Country Hills Blvd NE | Freeport
7,700 s.f.
New

EDMONTON | *Office*

Thomas Forr
Research Manager

Danny Budman
Research Associate

TRENDING TOPICS

Arrows indicate 12-month change for metro area

SUPPLY

- ▼ **1.9 m.s.f.** *Total energy occupancy*
- ▲ **24.2 m.s.f.** *Total market inventory*
- ▲ **10.7%** *Q2 Direct vacancy marketwide*
- ▲ **1.7 m.s.f.** *Under construction marketwide*

DEMAND

- ▼ **6.5%** *Energy-related tenants in the market*
- ▼ **18,816 s.f.** *Average energy tenant lease size YTD*
- ▼ **37,361 s.f.** *Energy tenant leasing activity YTD*
- ▲ **-262,906 s.f.** *Total net absorption YTD*

SUBLEASE

- ▲ **631,213 s.f.** *Sublease space available Q2*
- ▲ **18,461 s.f.** *10-year sublease space average*
- ▼ **3.6 years** *Average sublease remaining term*
- ▲ **2.7%** *Sublease from energy companies*

MARKET THEMES

#1 Edmonton's economic position
Edmonton's unemployment rate jumped to 8.0 percent in August, up from 5.6 percent a year earlier. Even with Edmonton's diverse labour market, these employment numbers show that Edmonton is not resistant to the effects of low oil prices. If oil prices continue to fall there is a risk that Edmonton's unemployment rate could increase.

#2 Continued decline in office demand
Q2 saw negative net absorption citywide for the second consecutive quarter, which subsequently pushed the vacancy rate up by 50 basis points to 10.7 percent. The average net rent has decreased by 12.5 percent in the past 12 months to reach $19.35 per square foot as supply continues to outpace demand.

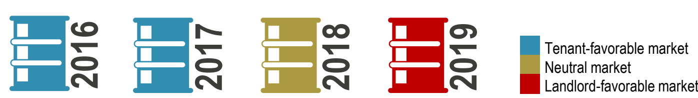
#3 The effects of the Fort McMurray wildfires
It is unclear what impact the devastating Fort McMurray fires will have on Edmonton's office tenants. It is expected that many residents and businesses will not want to return to Fort McMurray and may choose to settle in Edmonton. The fires caused an estimated $3.5 billion in damages and an estimated $1.4 billion in damages to the energy sector.

OUTLOOK

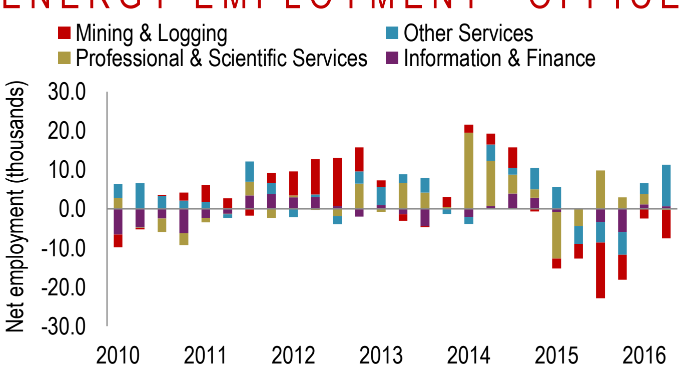
Challenges
Landlords are facing many challenges to leasing their space. With the weakened economy there seems to be little to no demand for office space. Businesses have become cautious when making any decisions and most are looking for shorter-term leases due to the uncertainty of where the economy is going.

Opportunities
With anticipated quarterly vacancy increases, it is likely there will be downward pressure on rates and a significant increase in inducements to retain and attract tenants. This may help motivate tenants to take advantage of the oversupply and low demand presently in the market. With no signs of conditions drastically changing, we should continue to see a tenant-favourable market for the foreseeable future.

TENANT LEVERAGE



ENERGY EMPLOYMENT—OFFICE



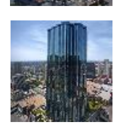
Energy employment growth

+2.5%
(YOY)

+23.8%
change since 2010

ENERGY TRANSACTIONS

Enbridge
Enbridge Centre | Financial District
309,000 s.f.
New



Enbridge
Manulife Place | Financial District
187,000 s.f.
New

ATCO
Prospect Place | Eastgate
24,240 s.f.
New

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EDMONTON | *Industrial*


Thomas Forr
Research Manager


Jonathan Wang
Associate

TRENDING TOPICS

Arrows indicate 12-month change for metro area

SUPPLY

- ▲ **4.9 m.s.f.** *Total manufacturing inventory*
- ▲ **137.4 m.s.f.** *Total market inventory*
- ▲ **4.9%** *Q2 Direct vacancy marketwide*
- ▲ **500,000 s.f.** *Under construction marketwide*

DEMAND

- ▼ **10.0%** *Energy-related tenants in the market*
- ▼ **20,000 s.f.** *Average energy tenant lease size YTD*
- ▼ **100,000 s.f.** *Energy tenant leasing activity YTD*
- ▼ **-418,437 s.f.** *Total net absorption YTD*

ECONOMY

- ▲ **46.2** *Purchasing Managers Index*
- ▼ **17 months** *PMI indication contraction in supply*
- ▼ **$9.97 p.s.f. NNN** *Q2 overall market asking rent*
- ▲ **925,365 s.f.** *Sublease space available Q2*

MARKET THEMES

#1 Nisku/Leduc continues to be worst hit

The Nisku / Leduc submarket continues to be most impacted by the stagnating energy sector. Prices have softened across the board in land sales, building sales and especially lease rates. What was a very active submarket has become considerably quieter as vacancy rates sit at 18.06 percent in Q2.

#2 Landlord/Tenant perspectives

As vacancy grows, landlords are negotiating lower rates with additional incentives. Sub-landlords have been especially aggressive. Tenants remain hesitant to make any real estate decisions unless the property fits their exact requirement.

#3 Mergers and Acquisitions continue

The economic situation has led to the opportunity for mergers and acquisitions within the energy sector. Schlumberger acquired Cameron, while more recently, Enbridge Inc. purchased Spectra Energy Corp. in a $37 billion deal. We have yet to see any real estate moves resulting from these transactions, however.

OUTLOOK

Challenges

The combined effects of increased supply and decreased demand will continue to put pressure on industrial leasing and sales. Unless the oil slump ends, Edmonton's economy will continue to stagnate due to its strong presence of energy-related businesses.

Opportunities

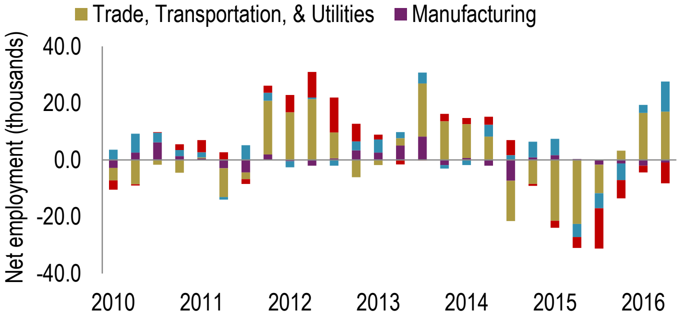
The sublease market has arguably been hit the hardest in the current economic slump. We continue to see more new sublease product come available on a weekly basis. As a result sublease rates are starting to fall well below market lease rates, and many groups will seek to capitalize on these opportunities.

TENANT LEVERAGE

2016 2017 2018 2019

Tenant-favorable market
Neutral market
Landlord-favorable market

ENERGY EMPLOYMENT—INDUSTRIAL



Energy employment growth

+12.2%
(YOY)

+28.5%
change since 2010

ENERGY TRANSACTIONS

Halliburton
8009 – 39 Street, Leduc | Nisku/Leduc
24,600 s.f.
New

Badger Daylighting
South Central Building B | Southeast
26,087 s.f.
New

MA Stewart & Sons
Cornerstone Building C | Southeast
45,000 s.f.
New

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