



Industry Focus. Powerful Results.™

.....

Optimism is Justified  
Short and Long Range



# About FMI

**For over 65 years**, FMI has been the leading **management consulting and investment banking** firm dedicated exclusively to **engineering and construction, infrastructure and the built environment**.

FMI serves all sectors of the industry as a trusted advisor. More than six decades of context, connections and insights lead to transformational outcomes for clients and the industry.

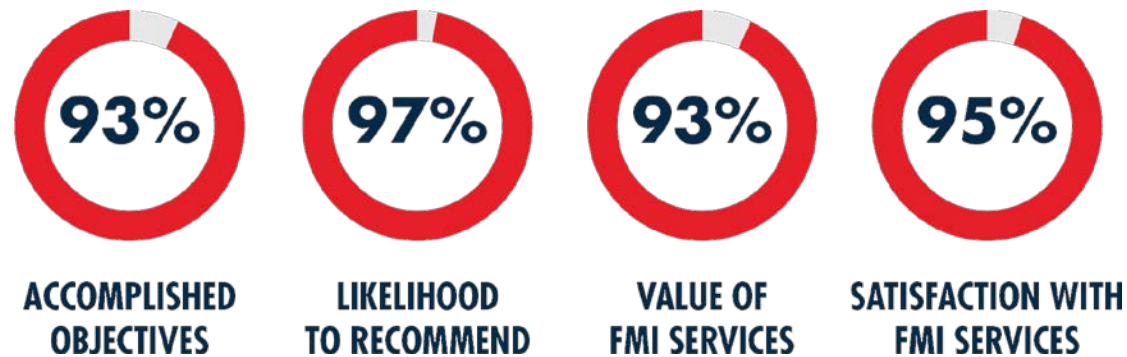
## Sector Expertise

- A/E and Environmental
- Building Products
- Construction Materials
- General Contractors/CM
- Energy Service & Equipment
- Energy Solutions & Cleantech
- Heavy Civil
- Industrial
- Owners
- Private Equity
- Specialty Trades
- Utility T&D

# QUALITY ASSURANCE

For over 65 years, FMI has been the leading management consulting and investment banking firm dedicated exclusively to engineering and construction, infrastructure and the built environment. It is the goal of everyone at FMI to improve the quality and depth of our client relationships and to create loyal, enduring relationships. We are committed to the success of our clients. We stake our reputation on it every day. That is why we constantly monitor what our clients think of our services and the professionals delivering our services. For over two decades, FMI has conducted client evaluations to assure that our services meet the needs of our clients, achieve the results proposed and deliver high value in a professional and effective manner. Upon completion of this engagement, we will ask you to provide us with a written evaluation of our work.

## Summary of our client feedback:



# Geography Is Destiny

## Texas-The Secret is in the Dirt

- Cattle
- Cotton
- Crude

## Greater Houston Area

- 9 Counties
- 10,000 square miles
- 6.8 million people
- 4 Economic Pillars
  - Oil & Gas
  - Texas Medical Center
  - Port of Houston
  - NASA
- International Capital of the Energy Business
  - A true cluster

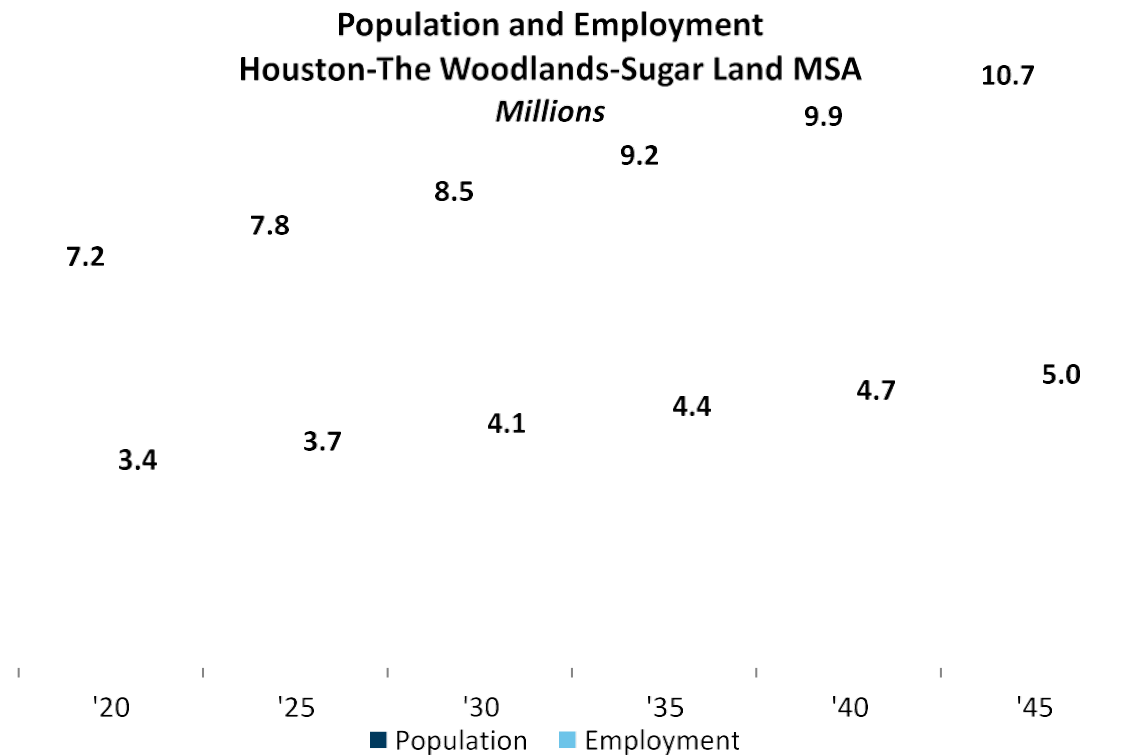


**Construction Spend and Yearly % Change Summary by MSA (2017-2022)**  
**Houston, The Woodlands and Sugarland, Texas**

	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>Single Family</b>	\$6,945.9M	\$7,641.7M 10.02%	\$8,890.5M 16.34%	\$9,243.5M 3.97%	\$9,602.5M 3.88%	\$9,782.9M 1.88%
<b>Multi-Family</b>	\$1,704.9M	\$1,801.2M 5.65%	\$2,049.3M 13.77%	\$2,079.6M 1.47%	\$2,094.9M 0.74%	\$2,104.6M 0.46%
<b>Improvements</b>	\$5,009.3M	\$5,555.7M 10.91%	\$6,615.2M 19.07%	\$6,949.4M 5.05%	\$7,165.9M 3.12%	\$7,331.1M 2.30%
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## Population and Employment Forecast

The Perryman Group forecasts Houston's population to reach 10.7 million and employment to grow to 5.0 million by '45.

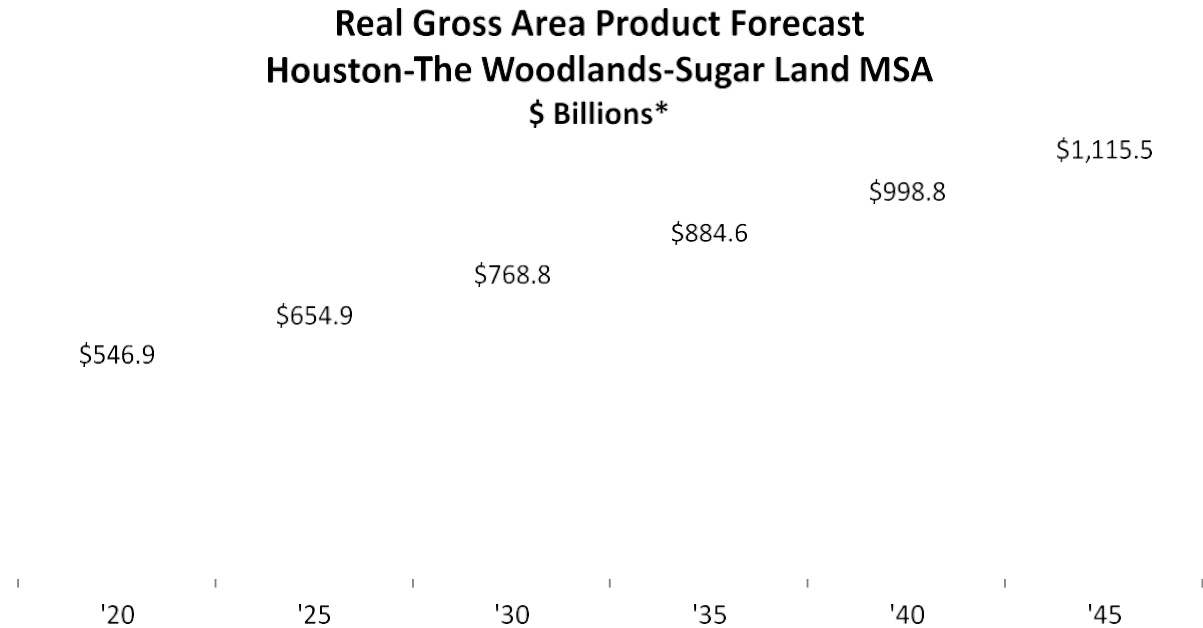


Source: The Perryman Group

- From '20 to '45, The Perryman Group sees population growth averaging 1.6 percent annually in the Houston region. Over the same period, the Texas-based economic forecasting firm expects wage and salary employment to rise at the same rate of 1.6 percent annually.
- The Houston–The Woodlands–Sugar Land Metro Area will add 3.4 million residents between '20 and '45. Perryman also forecasts that Houston will add an additional 1.6 million jobs and account for one-fourth of Texas job growth during that time frame.

## Gross Area Product Forecast

The Perryman Group forecasts sustained economic growth for the Houston metro over the next quarter century.



Source: The Perryman Group

\*'09 Constant Dollars

- Real (*i.e.*, net of inflation) Gross Area Product (GAP) in the Houston region is expected to grow at an average annual rate of 2.9 percent from '20 to '45 in The Perryman Group's forecast.
- The Houston MSA's real GAP is projected to more than double between '20 and '45.
- Compound annual growth rates of real gross area product from '20 to '45 are highest in manufacturing (3.8 percent), information (3.7 percent) and professional and business services (3.6 percent).

# Greater Houston Area Projections

**2017**

**GAP**                **\$490 B**

**CPIP**            **\$26.835 B**

**5.4%**

**2045**

**GAP**                **\$1,115.5 T**

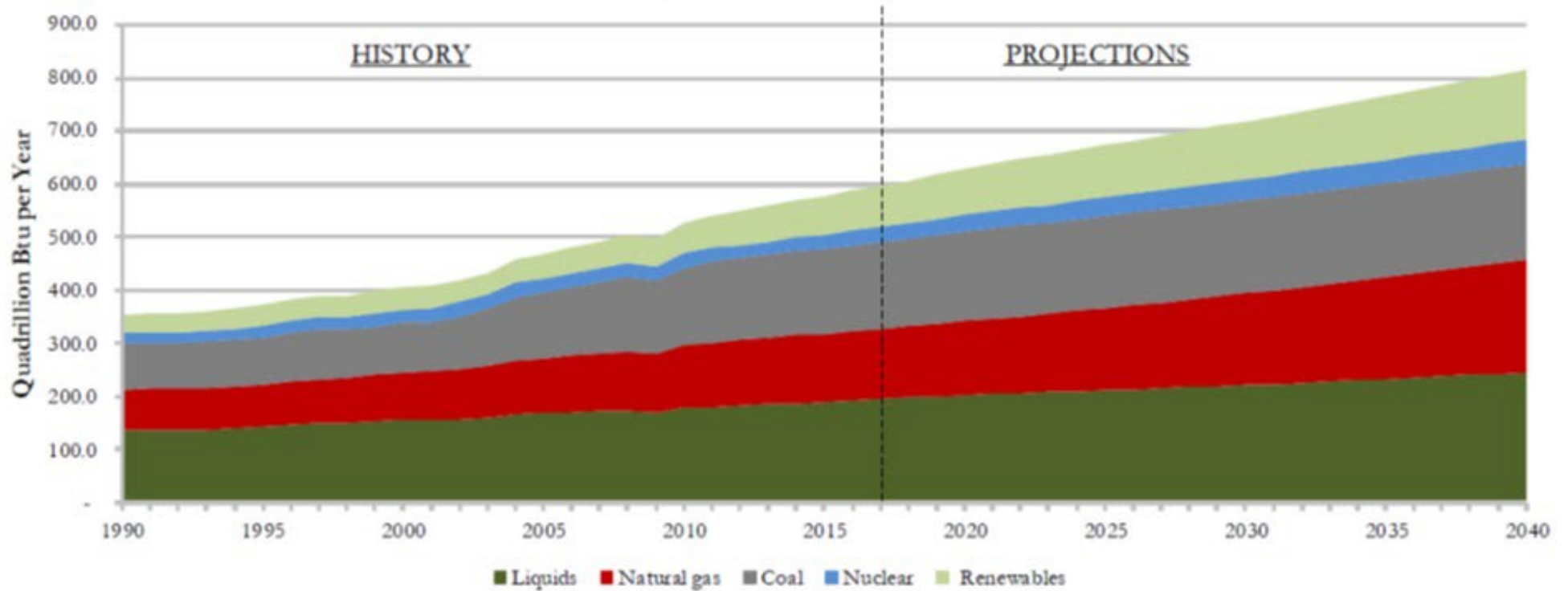
**CPIP**            **\$55,775 B**

**5%**



Source: EnCap Investments

### World Marketed Energy Use by Fuel Type<sup>(1)</sup>

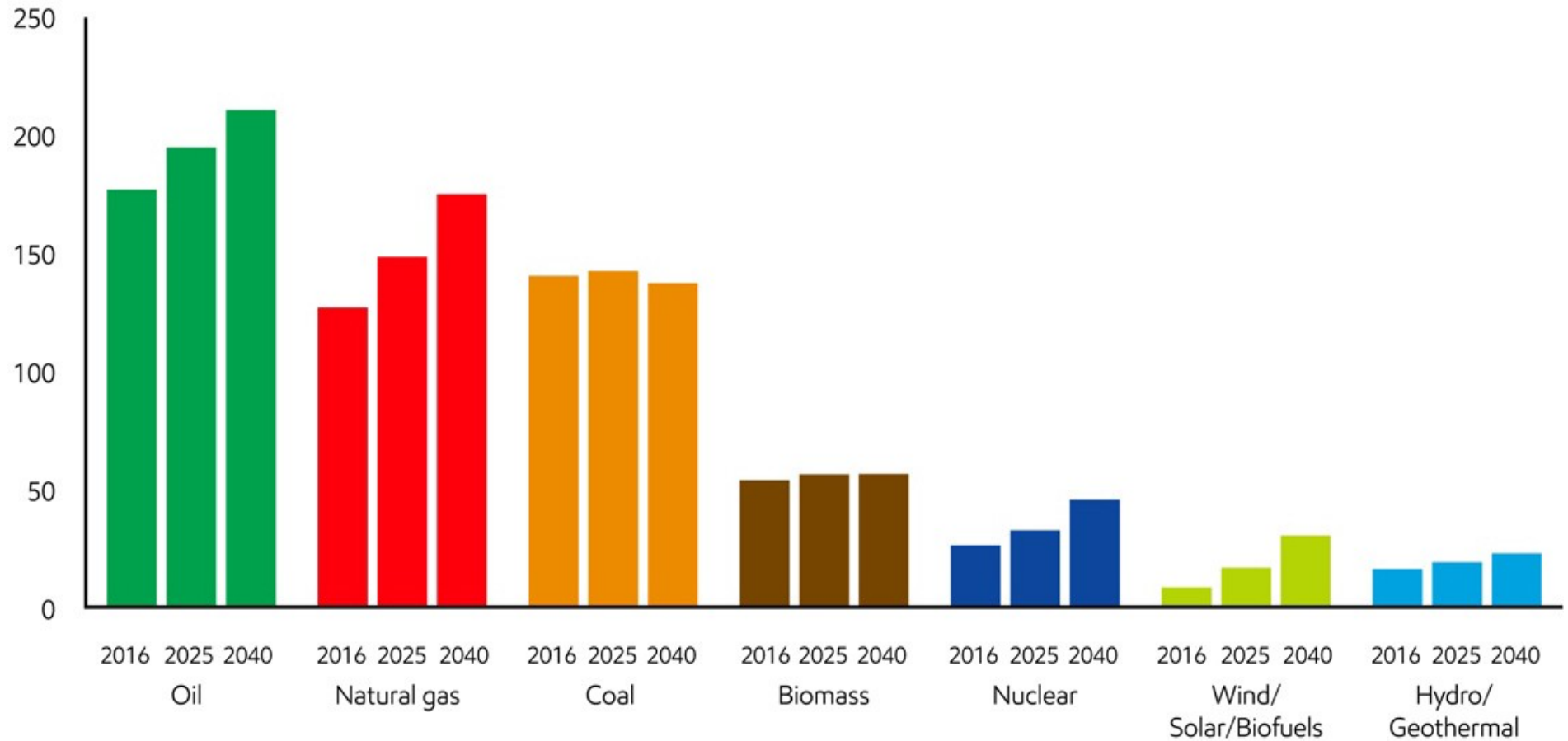


(1) The Energy Information Administration - International Energy Outlook 2016

(2) IEA

## Energy supply evolves to meet diverse demand

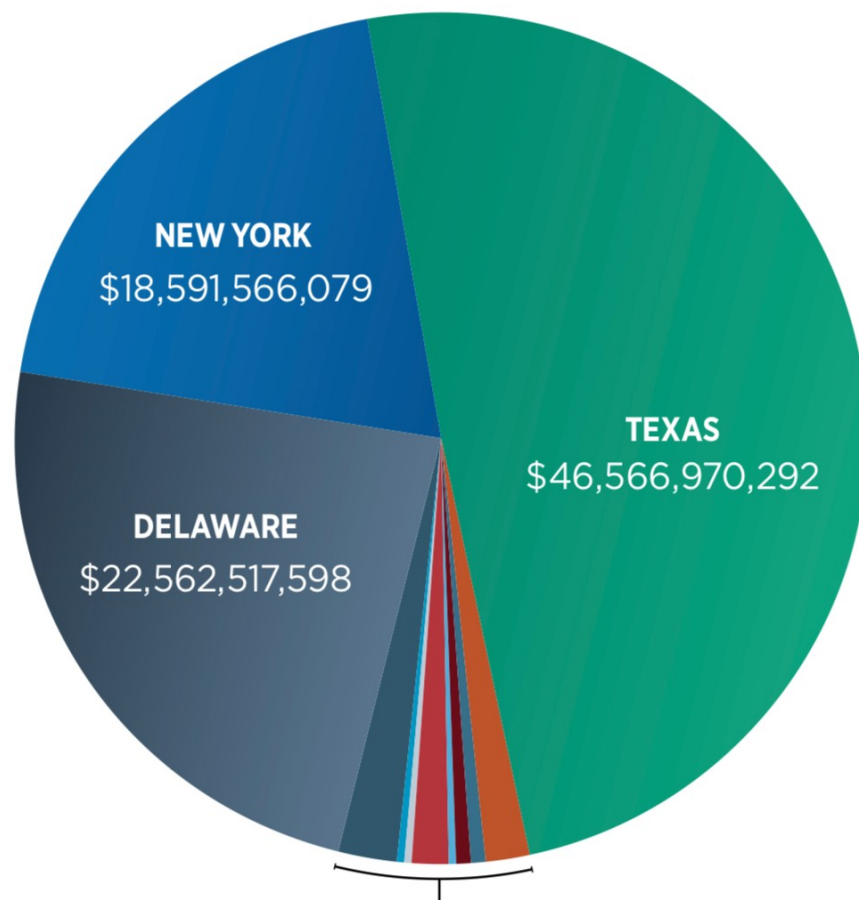
Global demand by fuel – quadrillion BTUs



# The Current Global Energy Picture



## 2015-2018 E&P SECURED AND UNSECURED DEBT BY FILING LOCATION

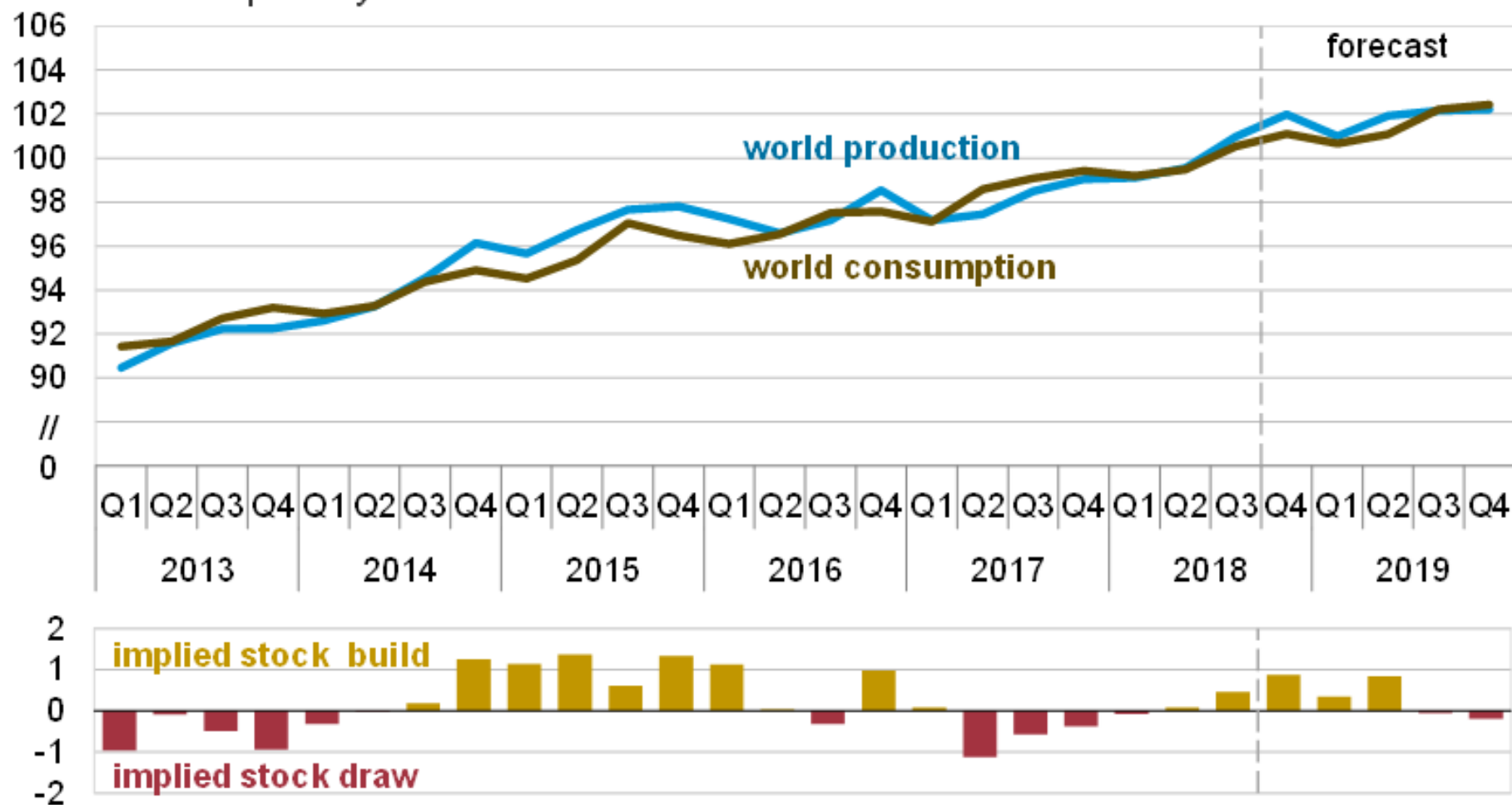


Alabama \$212,726	Kentucky \$14,881,247	Oklahoma \$169,158,462
Alaska \$217,158,133	Louisiana \$527,475,079	Pennsylvania \$1,999,391,276
Arizona \$3,699,213	Massachusetts \$3,578,276	Utah \$274,640,449
California \$71,772,722	Minnesota \$1,233,733	Virginia \$1,250,928,395
Canada \$1,710,380,228	Montana \$83,726,167	West Virginia \$40,865,611
Colorado \$433,336,133	New Mexico \$1,286,649	



## World liquid fuels production and consumption balance

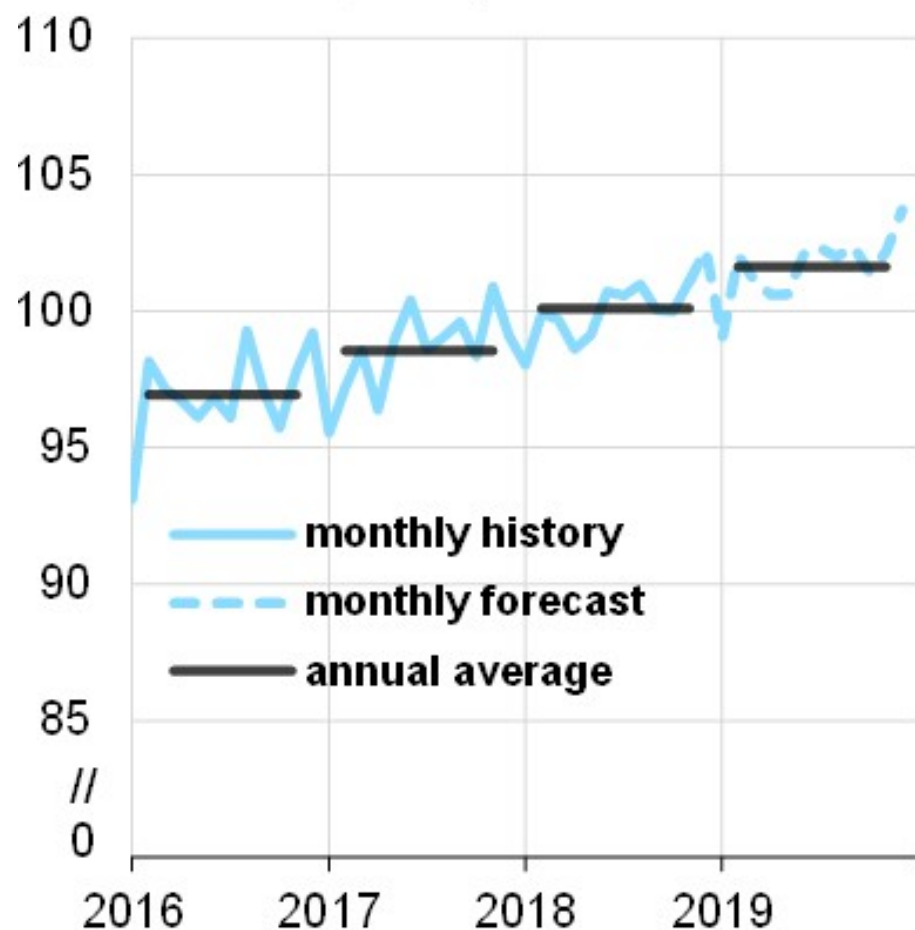
million barrels per day



Source: Short-Term Energy Outlook, December 2018

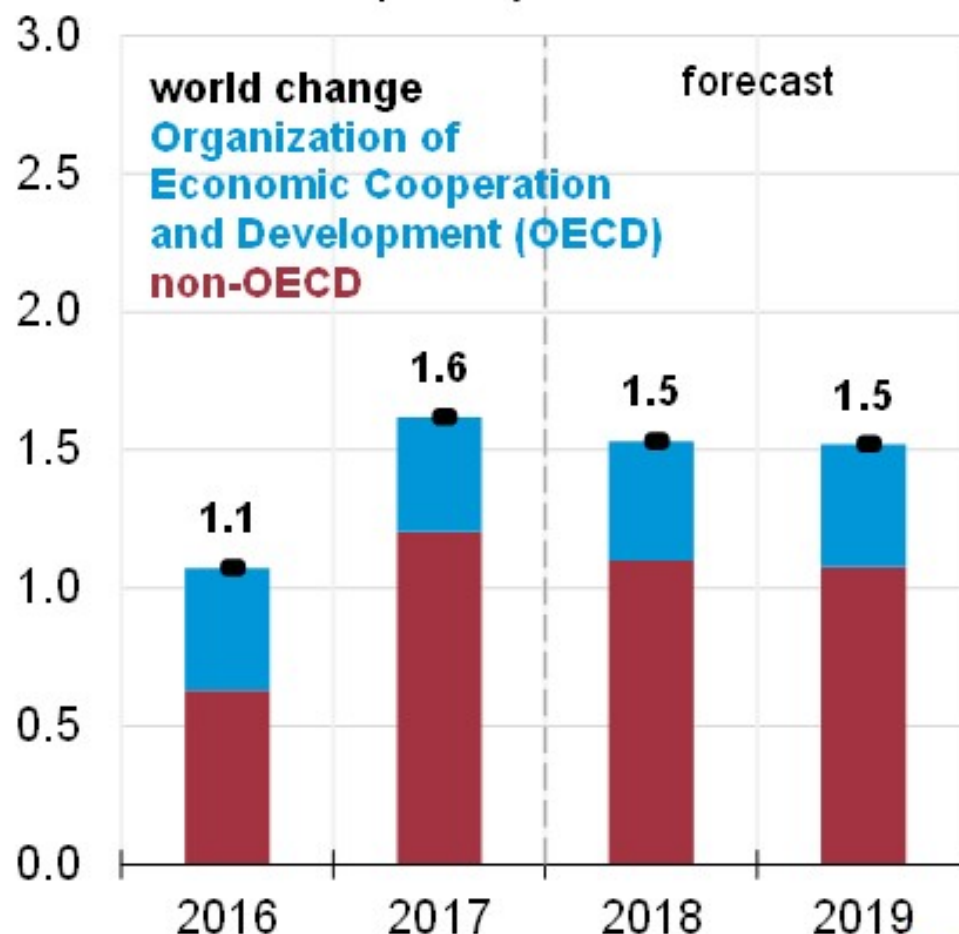


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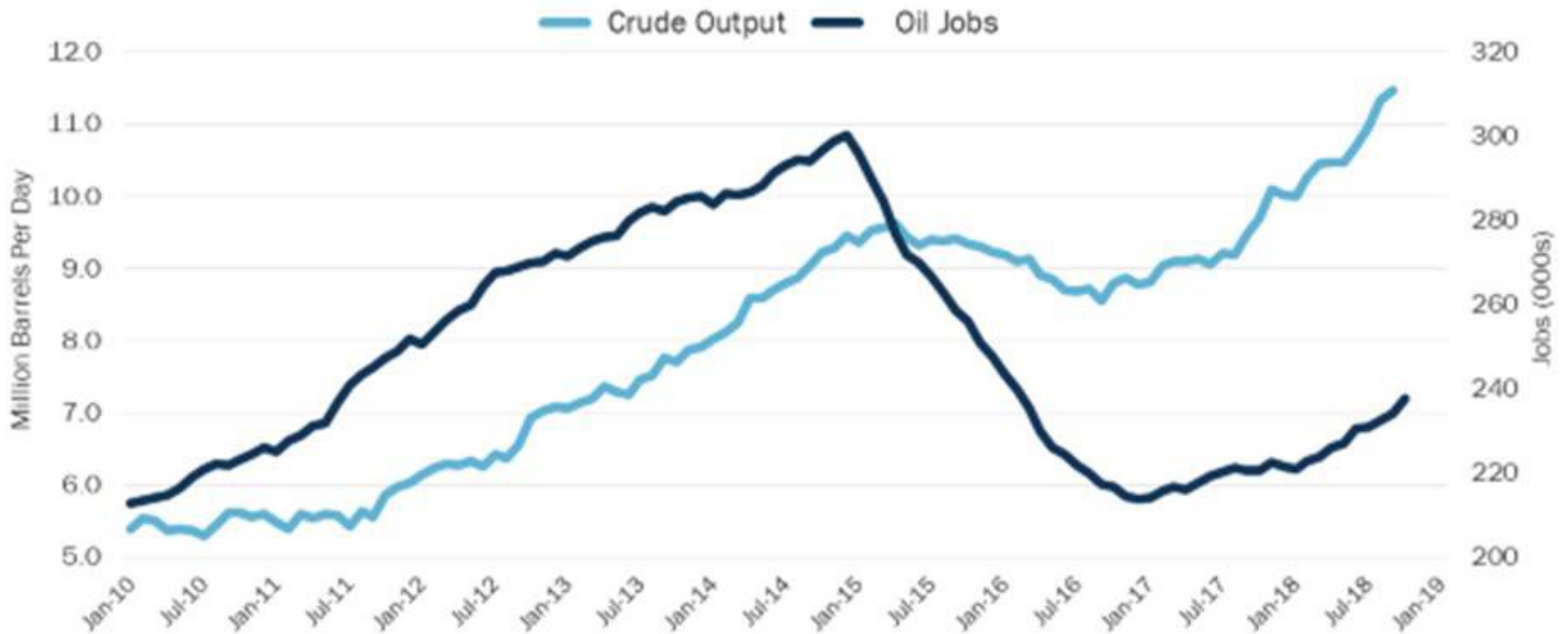


Source: Short-Term Energy Outlook, December 2019

## Components of annual change million barrels per day



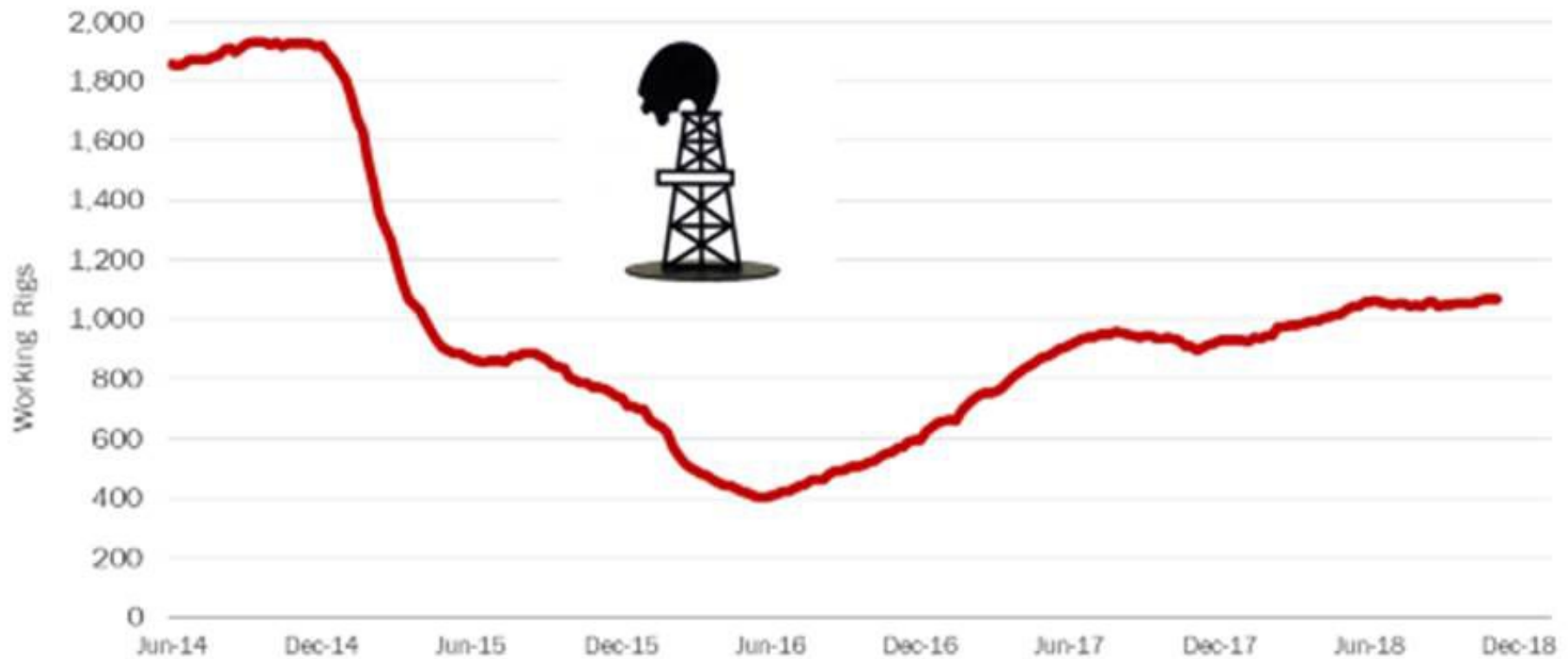
# U.S. Crude Output vs. Houston Oil Jobs\*



Source: U.S. EIA, Texas Workforce Commission

\* Exploration, oil field services, related manufacturing, engineering

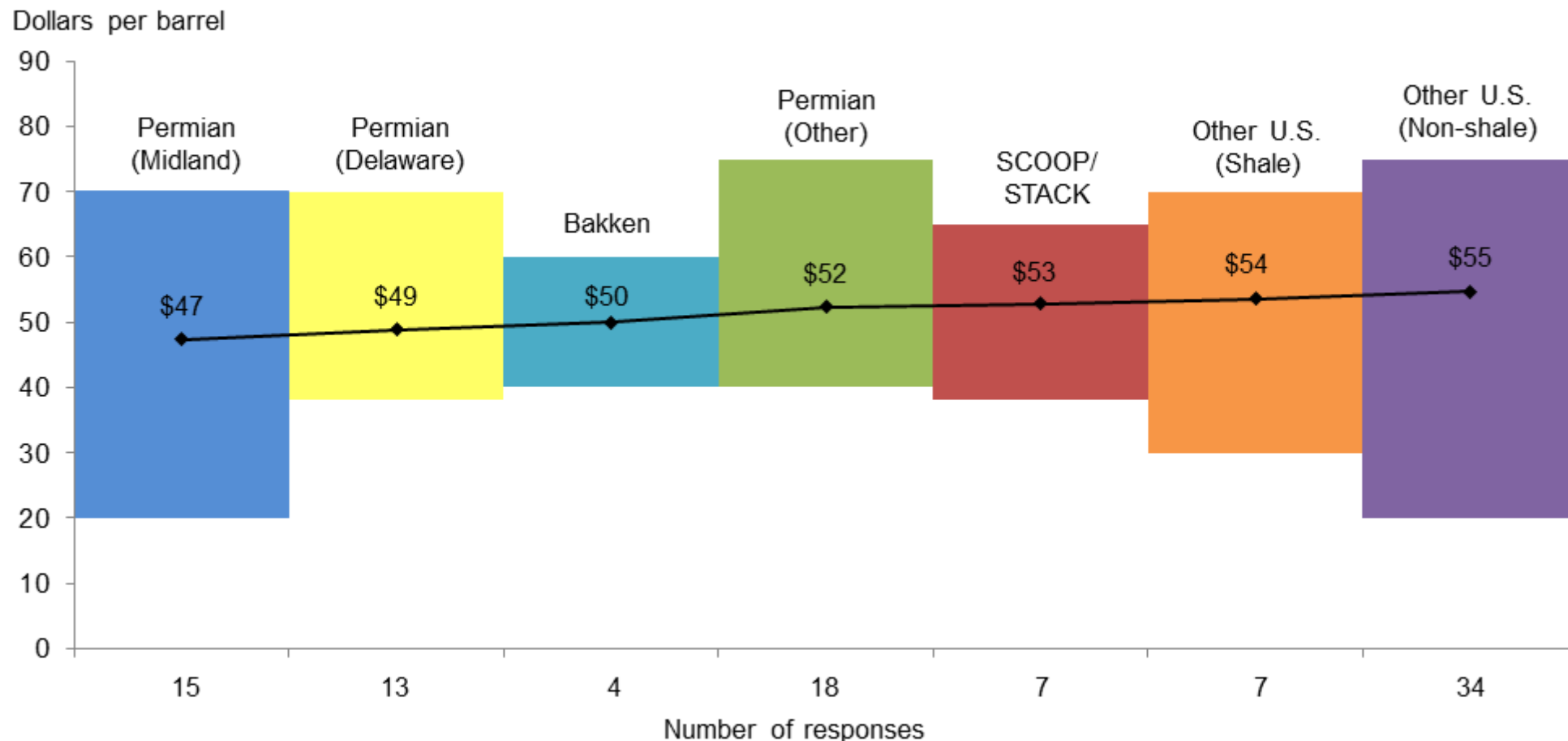
# U.S. Rig Count



Source: Baker Hughes



**In the top two areas in which your firm is active:  
What WTI oil price does your firm need to profitably drill a new well?**



NOTES: Lines show the mean, and bars show the range of responses. Executives from 65 exploration and production firms answered this question during the survey collection period, March 14–22, 2018.

SOURCE: Federal Reserve Bank of Dallas.

# Global Growth Slows

But Still At Decent Levels

**All major monitors project slow down**

- IMF & OECD
- Financial Industry Economists

**Major economies driving this**

- China 6-6.2
- India 7.5
- US 2-2.5

**Trade & Tariff uncertainties a factor**

**Brexit**







## U.S. Specifics

**The current economic recovery cycle is now the 2<sup>nd</sup> longest, by August will be the longest**

**Longest was from 1995 - 2001: 120 months**

**Past 12 months – tax cut stimulus – repatriation – significant cuts in regulation**

- Their use – primarily share buy backs
- Hopeful there will be more capital investment to boost productivity

**Unemployment rate is 3.9%**





## Other Trends

- Talent Wars & Labor Shortages
- Succession Challenges
- Integration of Millennials (Gen Y)
  - 50% by 2020
  - 75% by 2025
- Awaiting Gen Z - 1995



# Threats



## The Texas Picture

### Current Unemployment Rate (Nov 18)

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Austin	2.5%
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Dallas	3.3%
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Houston	3.8%
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San Antonio	3.0%
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Texas	3.7%
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# Perryman 2045

## Metropolitan Statistical Area

<b>MSA</b>	<b>Number of Jobs</b>	<b>Annual Growth Rate</b>
<b>Austin – Round Rock</b>	<b>665,100</b>	<b>1.78%</b>
<b>Dallas – Plano – Irving</b>	<b>1.67 Million</b>	<b>1.78%</b>
<b>Ft. Worth – Arlington</b>	<b>587,200</b>	<b>1.58%</b>
<b>Houston – Woodlands - Sugarland</b>	<b>1.8 Million</b>	<b>1.64%</b>
<b>San Antonio – New Braunfels</b>	<b>637,800</b>	<b>1.66%</b>

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## Other Positive Factors

### Job and population growth

- 71,000 jobs
- 100,000 people

### Availability of financing for projects

- Experienced, quality sponsors
- 35-40% equity
- Labor + 250-300 Basis Points  
5-6%

### Architecture backlogs/Inquiries

# Residential

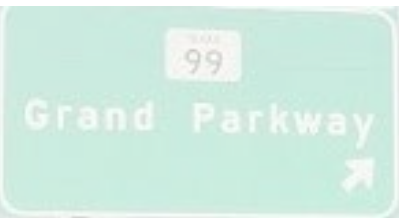
## (17.5 Billion Improvements – Big Jump)

### Single Family

- Fire 2018 – 29-30,000 homes
- Increase slightly in 2019
- 70% of homes 200-400,000 range
- “Build to rent” growing

### Multi-Family

- Class A occupancy 87.8% (moving back up)
- 8200 units under construction & many proposals being initiated
- Population & job growth will strengthen



## Highway and Civil (8.5 Billion)

- Always strong – All cities/Municipalities



- TXDOT – 1 Billion – 1.5 Billion
  - 290 Winding down
  - Grand Parkway slowing



Awaiting Renovation of 45/59 –  
downtown and North

- Flood Control work – 250,000



# Heavy Industrial Construction

## Two Large Projects:

- Lyondell Basel \$2.4 Billion Plant in Channelview
- Germany based Convestro will break ground this year on a \$1.7 Billion plant in Baytown
- Other projects in planning for 2021/2022 starts





Houston Office, Q4 2018

# Houston's absorption positive for the first time in 2018



Vacancy Rate  
18.7%



Avg. Asking Rate  
\$29.04 PSF



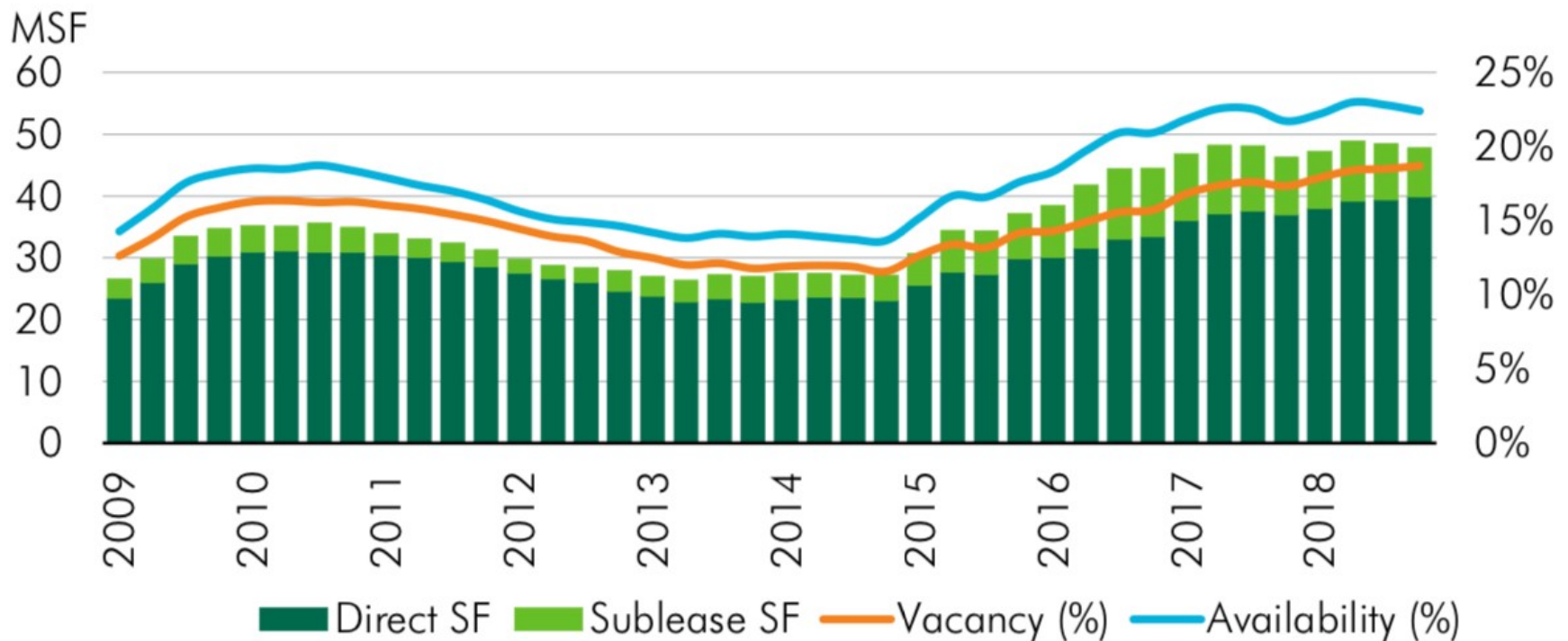
Net Absorption  
496,971 SF



Under Construction  
2.23 MSF

Figure 1: Houston Office Market Trends

\*Arrows indicate trend from previous quarter.



Source: CBRE Research, Q4 2018.

# Energy Employment in Houston

	Jobs Lost Peak to Trough*	Recouped To Date	% Recouped
Exploration & Production	-22,300	100	0.4
Oilfield Services	-20,800	9,200	41.3
Oilfield Equipment Mfg	18,000	5,100	22.9
Fab Metal Products	-20,800	8,700	39.0
Engineering	-11,200	5,200	23.3

\* Peaks and troughs vary by sector

Source: Greater Houston Partnership Calculations based on Texas Workforce Commission data

Houston Industrial, Q4 2018

# Developers bullish in red hot industrial market



Vacancy  
5.0%



Completions  
1,940,272 SF



Under Construction  
13,982,664 SF



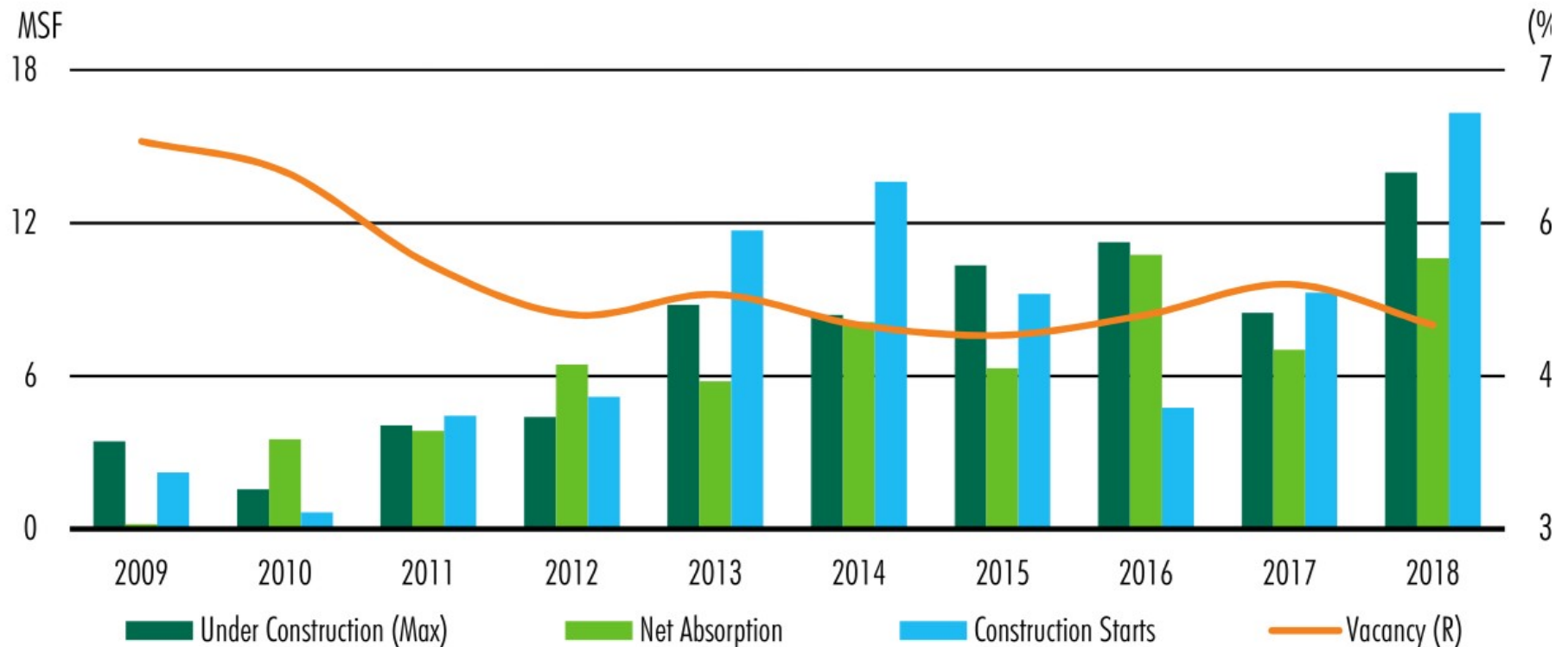
Ground Broken  
5,964,967 SF



Net Absorption  
3,405,073 SF

\*Arrows indicate trend from previous quarter

Figure 1: Historical Construction Activity, Net Absorption, & Vacancy Rate, Houston Industrial



Source: CBRE Research, Q4 2018.

Houston Retail, Q4 2018

# Occupancy rates reach market high



Occupancy  
94.9%



Under Construction  
3,720,349 SF



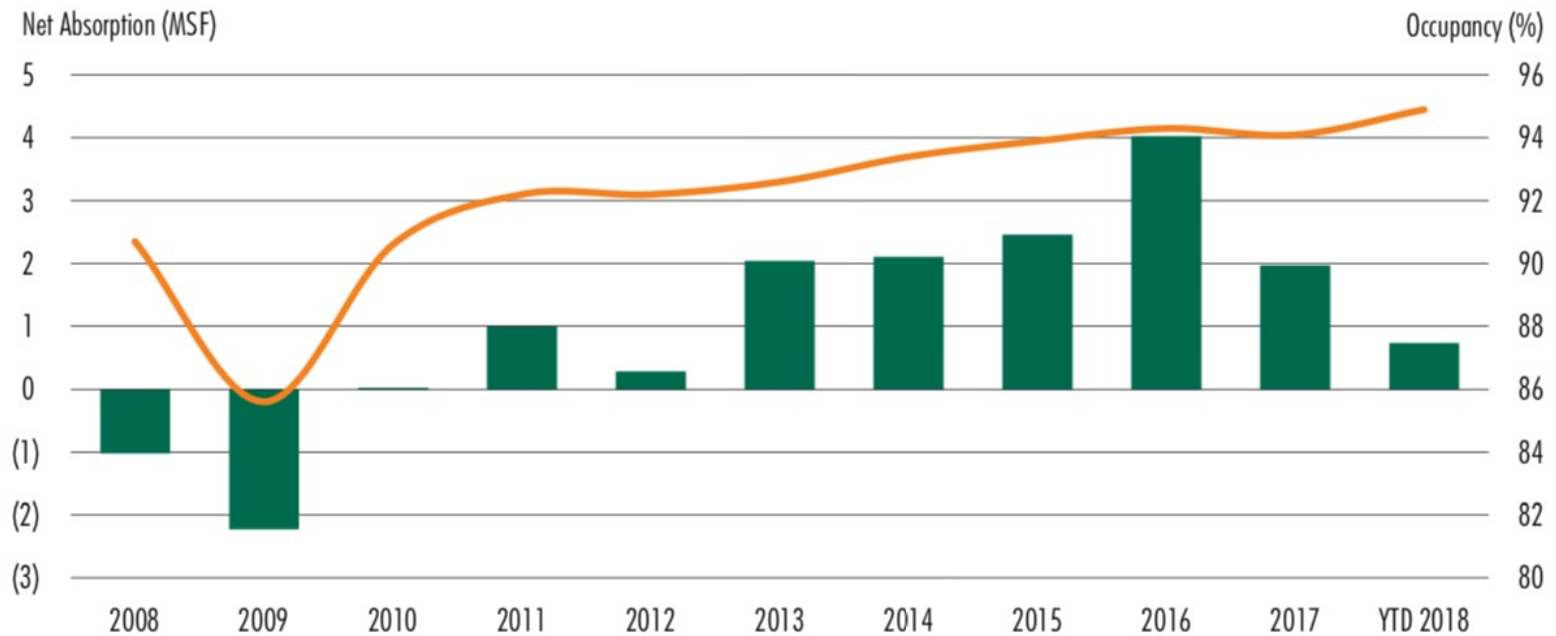
Completions  
647,004 SF



Net Absorption  
409,164 SF

Figure 1: Net Absorption and Market Occupancy

\*Arrows indicate trend from previous quarter.



Source: CBRE Research, Q4 2018.

Relatively low value does not show on chart

Annual Net Absorption

Occupancy



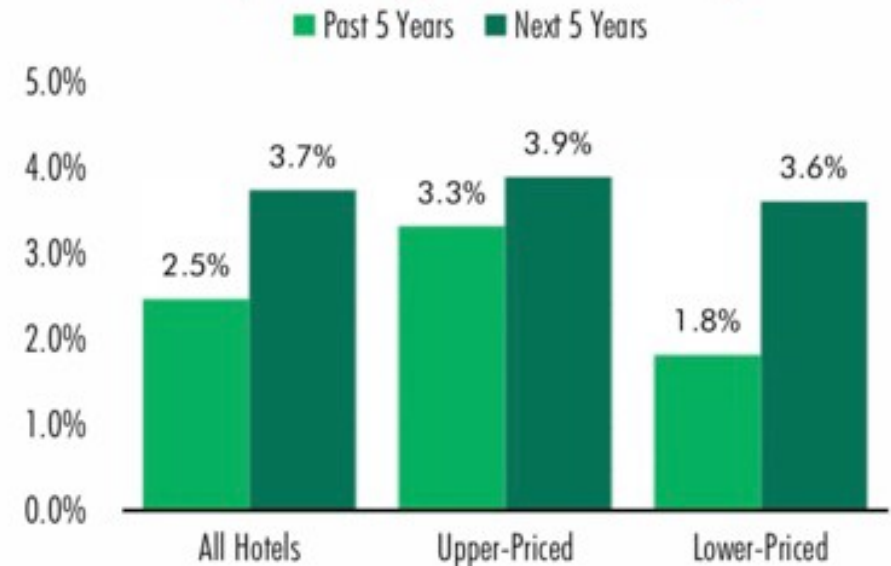
Exhibit 10\*: Compound Average Annual Supply Change



Source: CBRE Hotels, STR, Q3 2018



Exhibit 11\*: Compound Average Annual Demand Change



Source: CBRE Hotels, STR, Q3 2018



## Other Commercial Segments

### Steady and Decent

- K-12 – Billion Plus
- Higher ED – A Billion Plus
- Religious – Relatively flat year
- Public Entity Buildings
  - Port / Metro / Cities & Counties





# Medical Potentially Strong Cloudy

- TMC3 – Break Ground
- 5 Institutions 1.4 Million Sqft Research Space
- 450 Room Hotel Conference Center
- Uof H Medical School
- 150,000 Sqft Building
  - 43 Acre Tract
- Park on MLK at OST
- TMCx & TMCx+

# Major Strategic Trends & issues



Impacting All  
Construction  
Companies



# Industry Thought Leaders

“There will be more change in the construction process in the next 5 years than there has been in the past 50 years”





# Disruptive Innovation

Creativity employed for the purpose of disrupting existing value chain in the industry and rearranging it for the benefit of the disrupter.

# Workforce

Shortage of skilled workers continues / exacerbates

Efforts to make construction work an attractive career







# C-3

## The Construction Career Collaborative

Safety Training

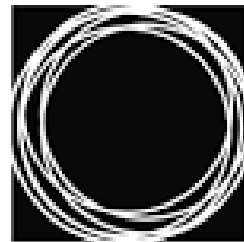
Pay Legally

Craft Training



# Immigration Reform

- National Effort
- Baker Institute
- The Rational Middle Video Series:
  - 10, 20 minute fact-filled videos to prompt discussion



**RATIONAL MIDDLE.**  
I M M I G R A T I O N



# Special Programs for Women

- A Very Attractive Career Option
- XOSuits Help/  
Eliminates all Barriers

# The March of the Millennials

50 %of work force by 2020

75% by 2025

Critical for Leadership  
Succession

Gen. Z ( The Generation  
Close Behind )

Digital Natives

Powerful Pairings







# Technology's March

- Paperless
- Mobile including full sets of plans
- Drones/Sensors/Cameras /GPS
- Everything gathers data
- 3D Printing
- Driverless Machinery
- Robotics/A.I. /A.R. / Machine Learning