



Industry Focus. Powerful Results.™

AN IMPROVED PICTURE



About FMI

For over 60 years, FMI has been the leading **management consulting and investment banking** firm dedicated exclusively to **engineering and construction, infrastructure and the built environment**.

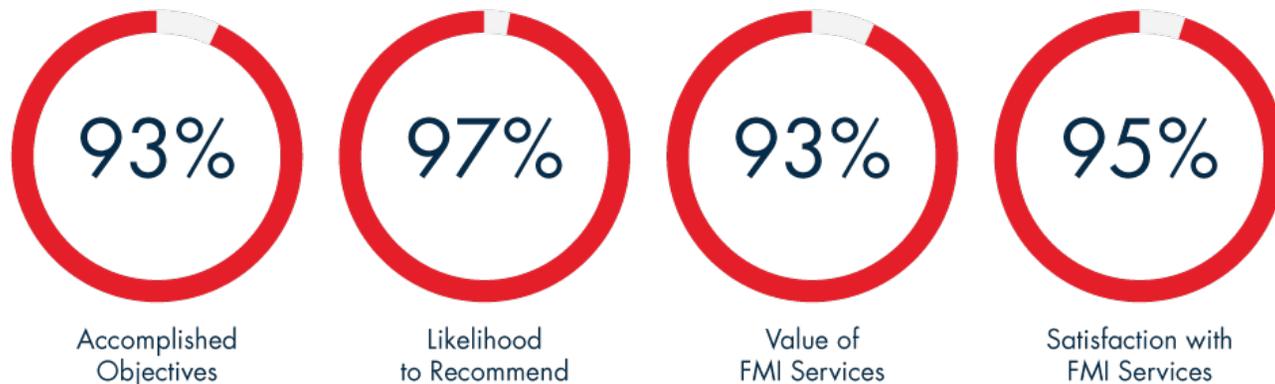
FMI serves all sectors of the industry as a trusted advisor. More than six decades of context, connections and insights lead to transformational outcomes for clients and the industry.

Sector Expertise

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

Client Evaluation Responses of FMI Services

For over 60 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 a decade**, 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.

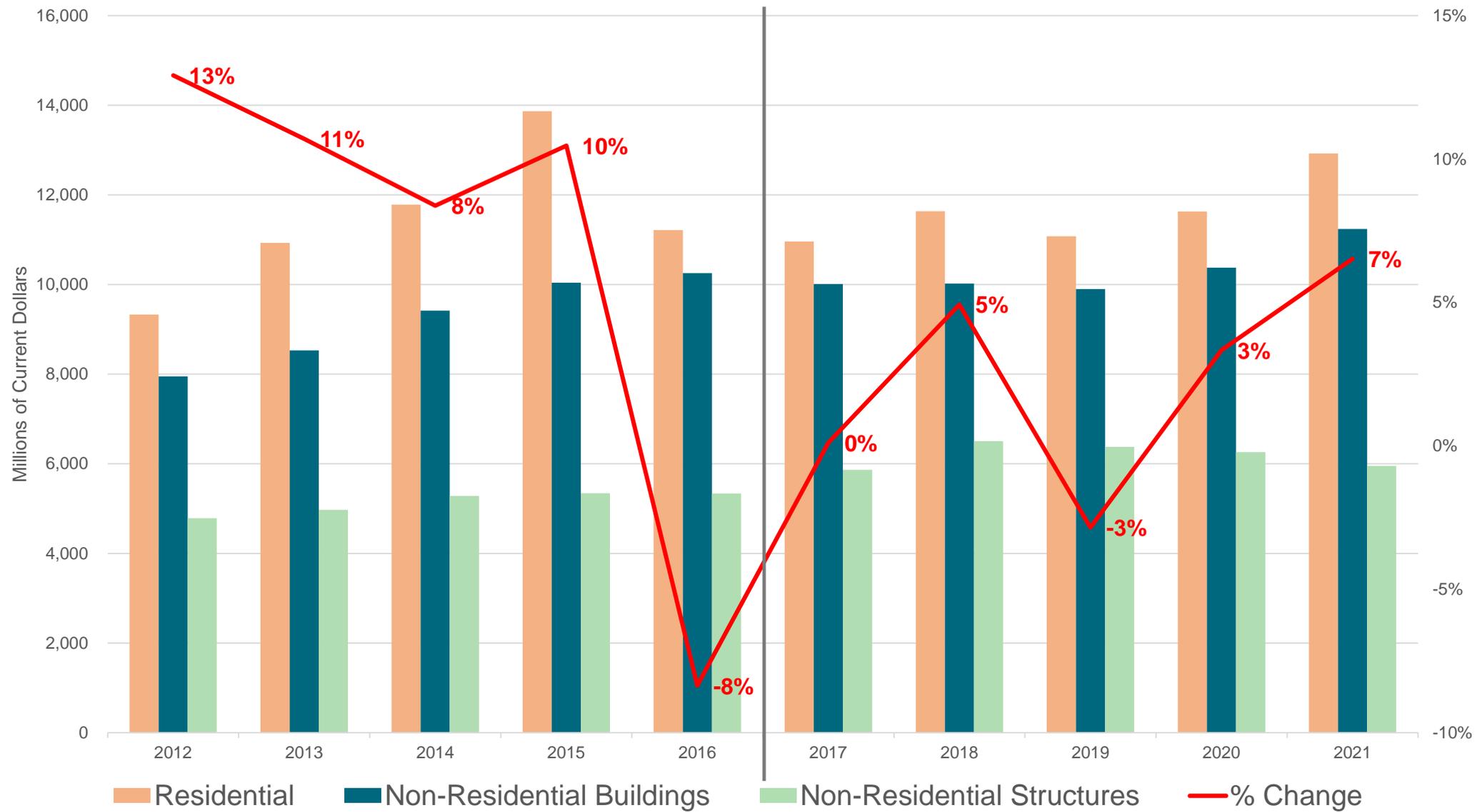


Geography Is Destiny

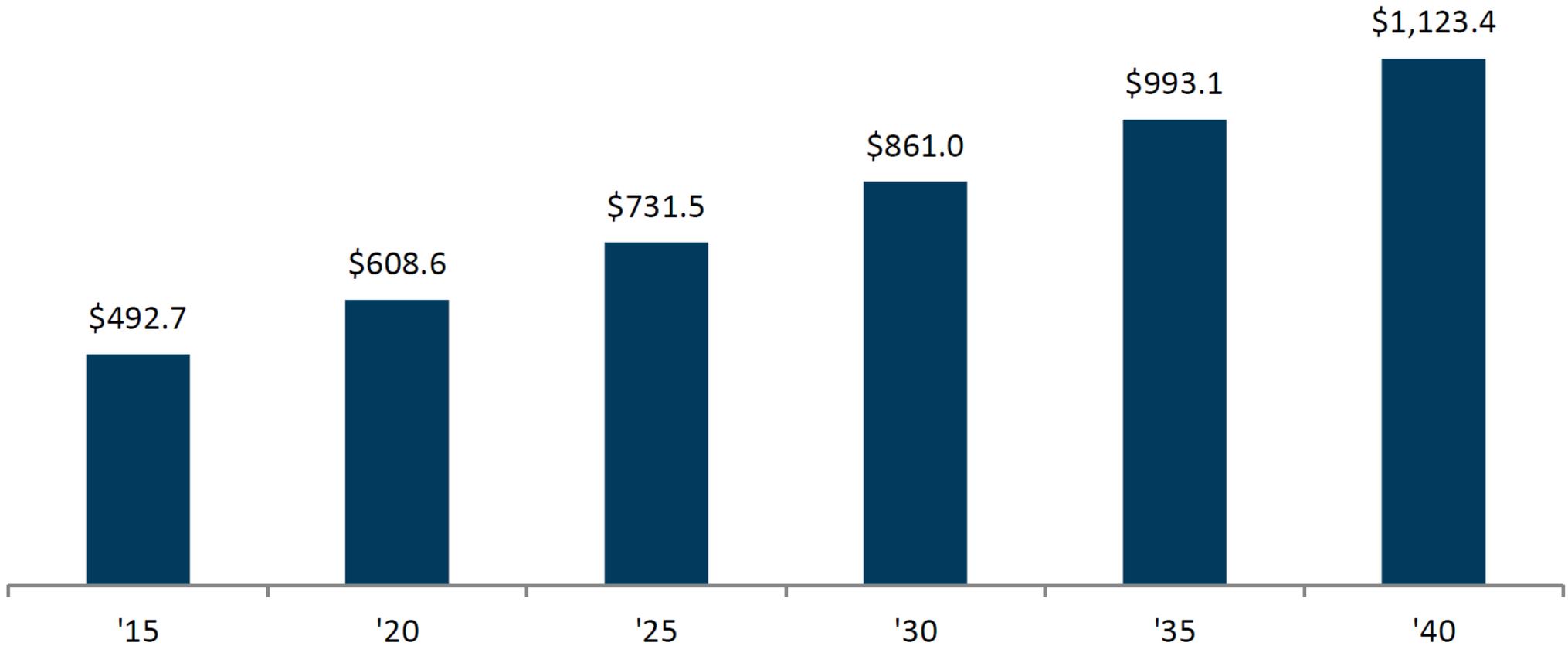
- **Texas – The Secret is in the Dirt**
 - Cattle
 - Cotton
 - Crude
- **Greater Houston Area**
 - 9 Counties
 - 10,000 square miles
 - 6.7 million people
 - 4 Economic Pillars
 - Oil & Gas
 - Texas Medical Center
 - Port of Houston
 - NASA
 - International Capital of the Energy Business
 - A true cluster



Houston, Texas Construction Put in Place, 2011 - 2021



Real Gross Area Product Forecast Houston-The Woodlands-Sugar Land MSA \$ Billions*



Source: The Perryman Group, Summer 2016

* '09 constant dollars

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Houston in 2040

\$500B GDP

\$25B Construction = 5%

1.123T * 5% = \$56B

STRATEGIC ISSUE #1

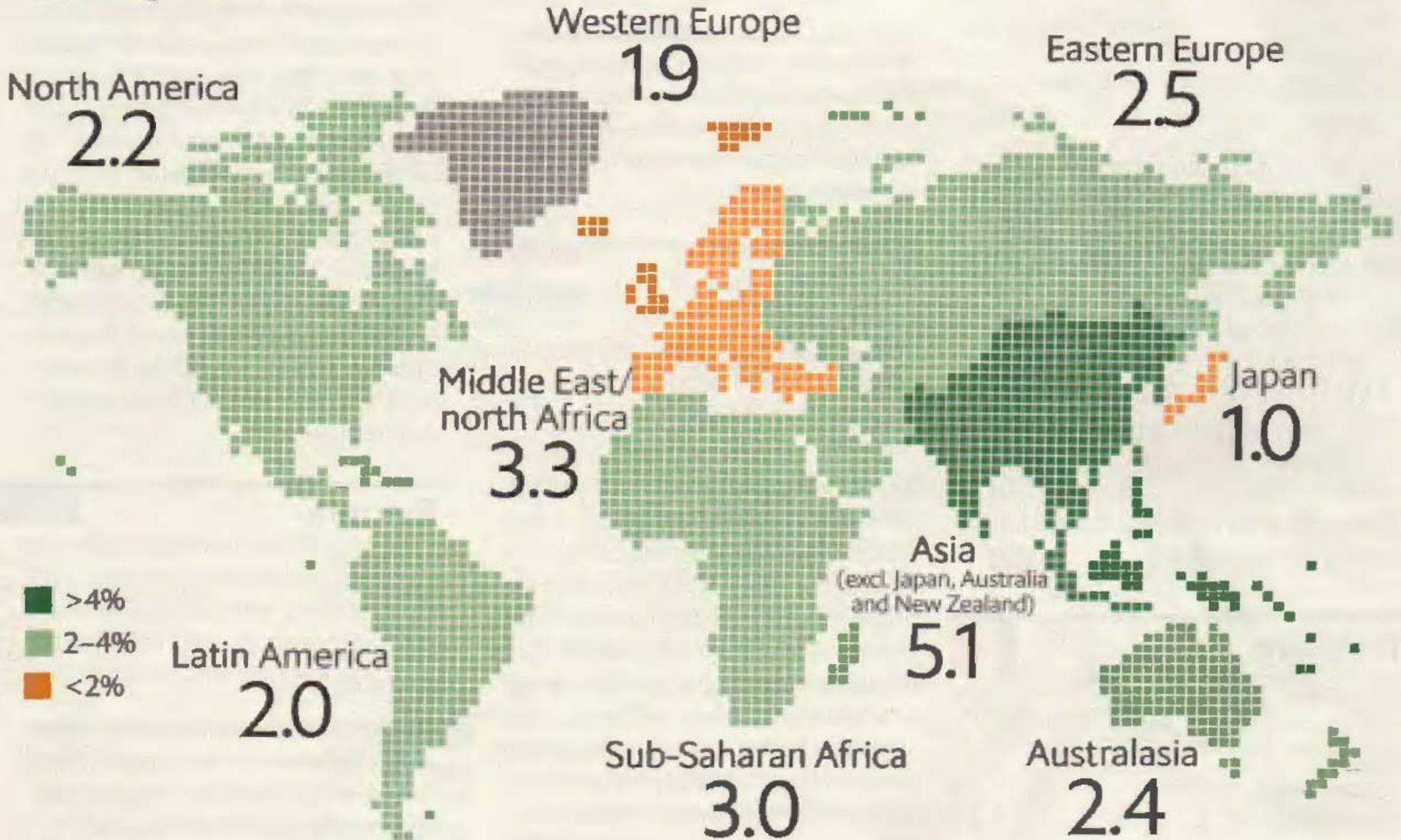


GLOBAL TRENDS

ECONOMY
TRENDS
RISK

Steady as she grows

World GDP* growth, 2018, %



* At market exchange rates



Global Growth Perspectives

Economist	3.3
OECD	3.7
International Monetary Fund (IMF)	3.9
Goldman Sachs	4.0
Barclays	4.0

Energy Fundamentals Improve

Source: Bloomberg News

- **OPEC Agreement Extended Through 2018 “Declaration of Cooperation”**
 - 1.8 Million/bpd off the market – voluntarily – decent compliance
 - Global demand increases by 500,000 - 600,000/bpd (1.7-1.8 BPD)
 - Saudi Arabia wants inventory levels to drop to their 5 year average
- **US Production Projected to Reach Record Levels in 2018 (9.9 Million/bpd)**
 - Already increased 600,000/bpd
 - Technology has improved output per well by 2-2.5x
 - Breakeven now mid \$40's
 - Price (WTI) projected range bound \$45-\$60
 - Hedges work again
 - No massive hiring though – Technology's Impact



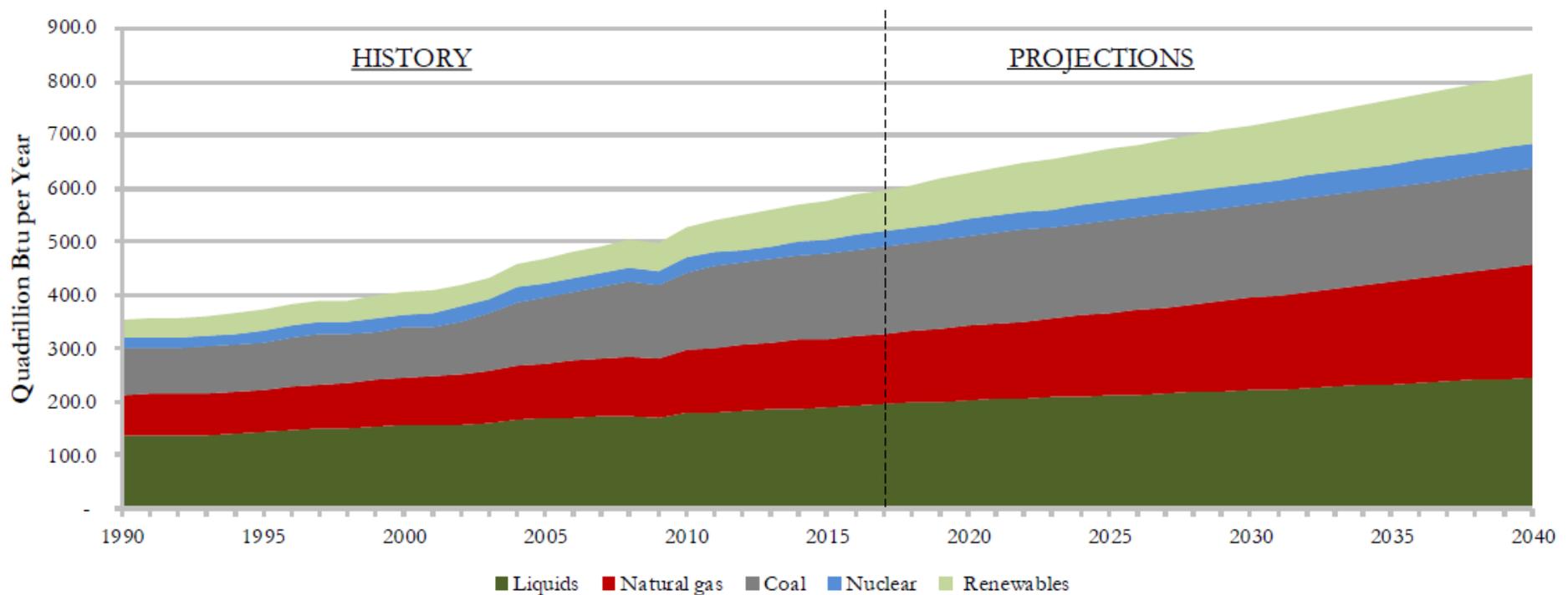
Saudi Arabia is the Unknown

Mohammed bin Salman Al Saud



- Projections for long-term energy consumption remain strong
- Oil and gas will remain critical element to meet demand with no viable alternative in sight
 - Currently provide 55% of the world’s daily energy requirements and are projected to provide 56% in 2040 (world energy demand will grow by 39% over the same time period, which equates to a 41% increase in actual oil and gas needs from 2016 levels)⁽¹⁾
 - IEA estimates ~\$22.5 trillion in new investments needed in global oil and gas 2014 – 2035 to offset existing production declines and generate new reserves to meet demand⁽²⁾

World Marketed Energy Use by Fuel Type⁽¹⁾



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

(2) IEA



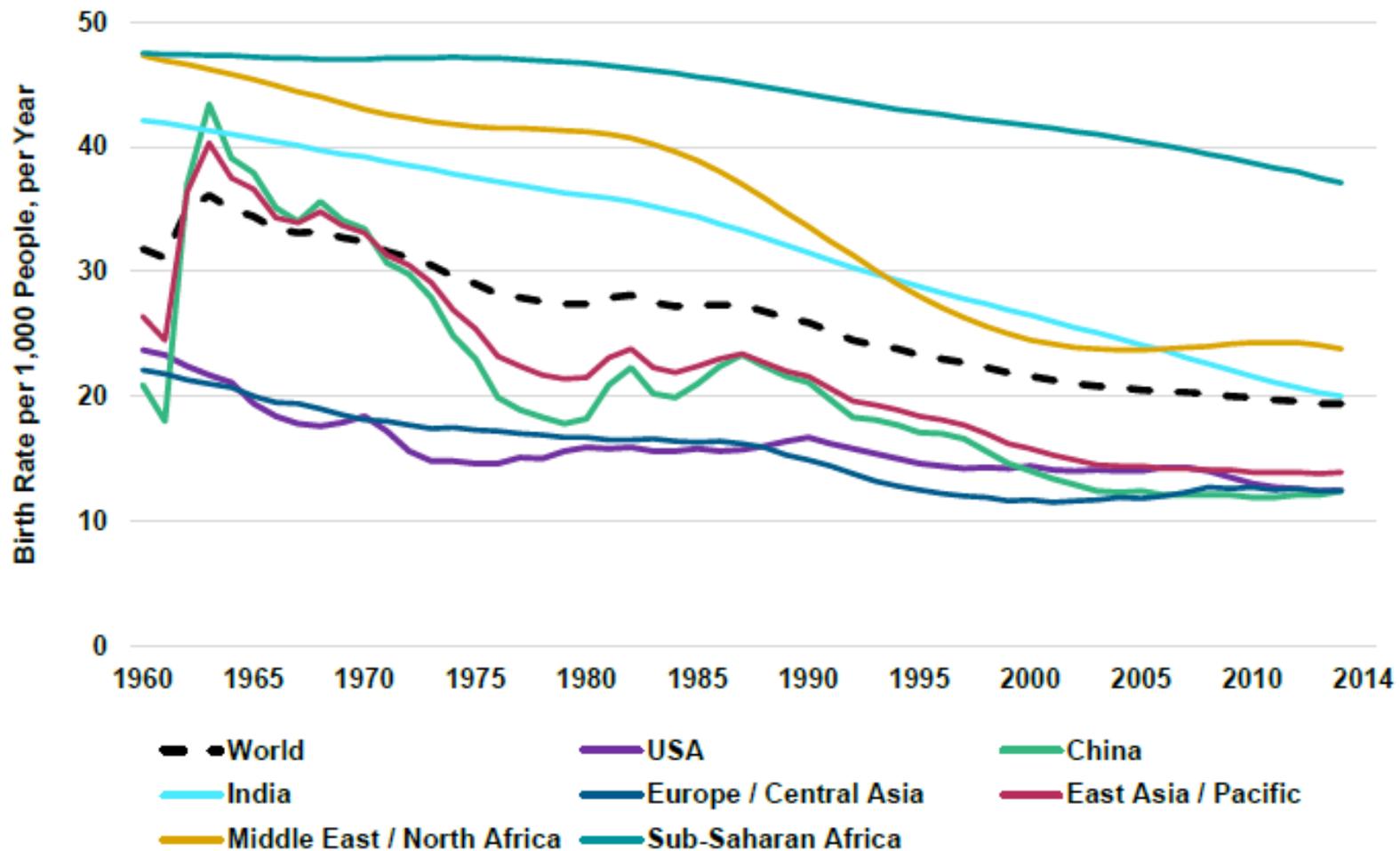
Global Concerns

- **North Korea**
- **ISIS**
- **Antimicrobial Resistance**
- **Aging Populations – Low Birth Rates**

Global Concerns

Global Birth Rates =
Down 39% Since 1960 (1% Annual Average Decline)

Birth Rates per 1,000 People per Year, By Region, 1960 – 2014



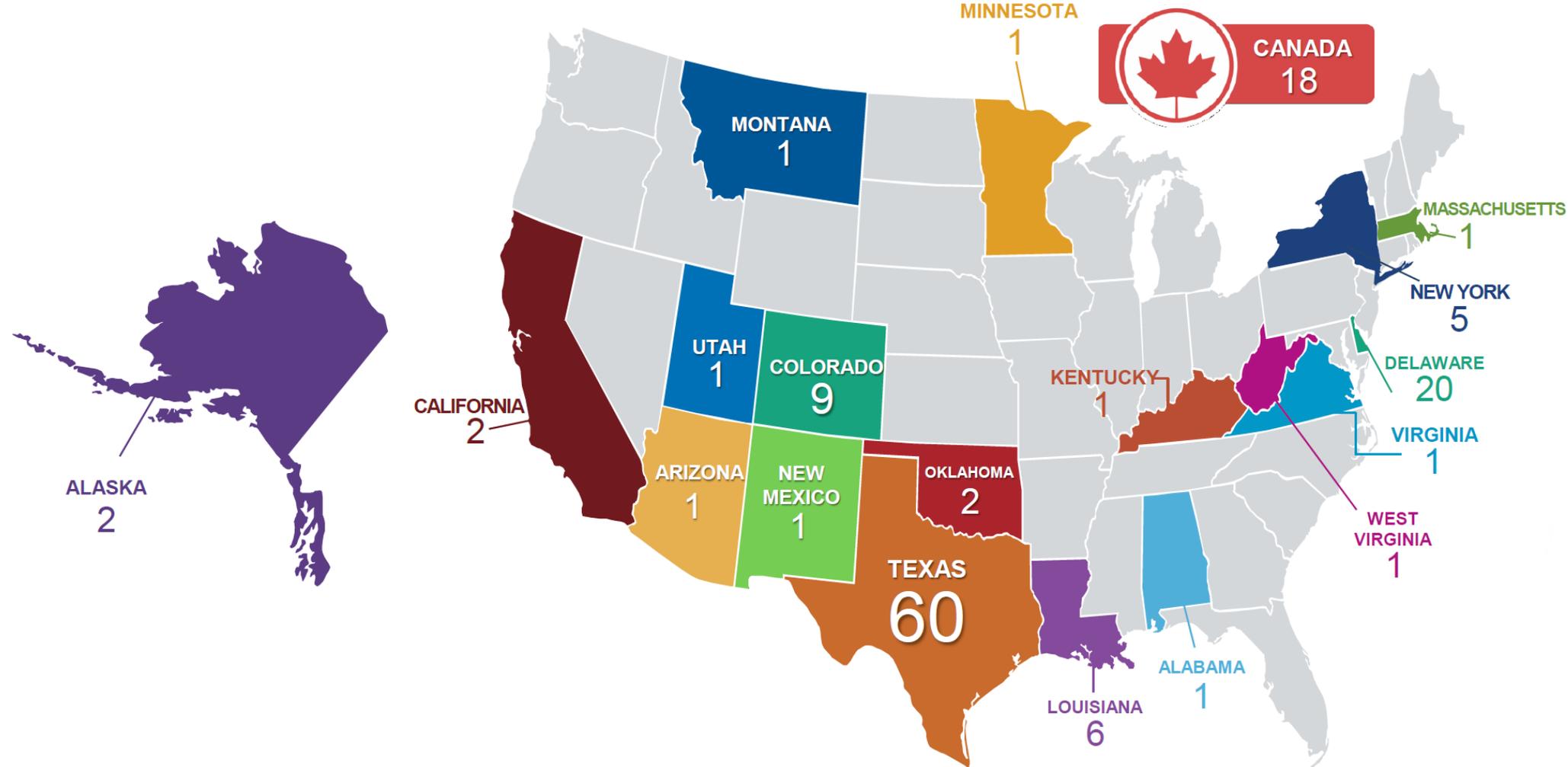
The US Picture

- **Speculation on GDP Covers a Wide Range**
 - Low 2% to Mid 3% Range
- **Business and Consumer Confidence High**
 - Stock Market Levels
 - 401(K) Status
- **Tax Plan Impact is the Unknown**
 - Certain Result – Corporations Will Have More Money
 - What They Do With It Will Determine Impact



State of the Energy Business: The Bloodbath Ends

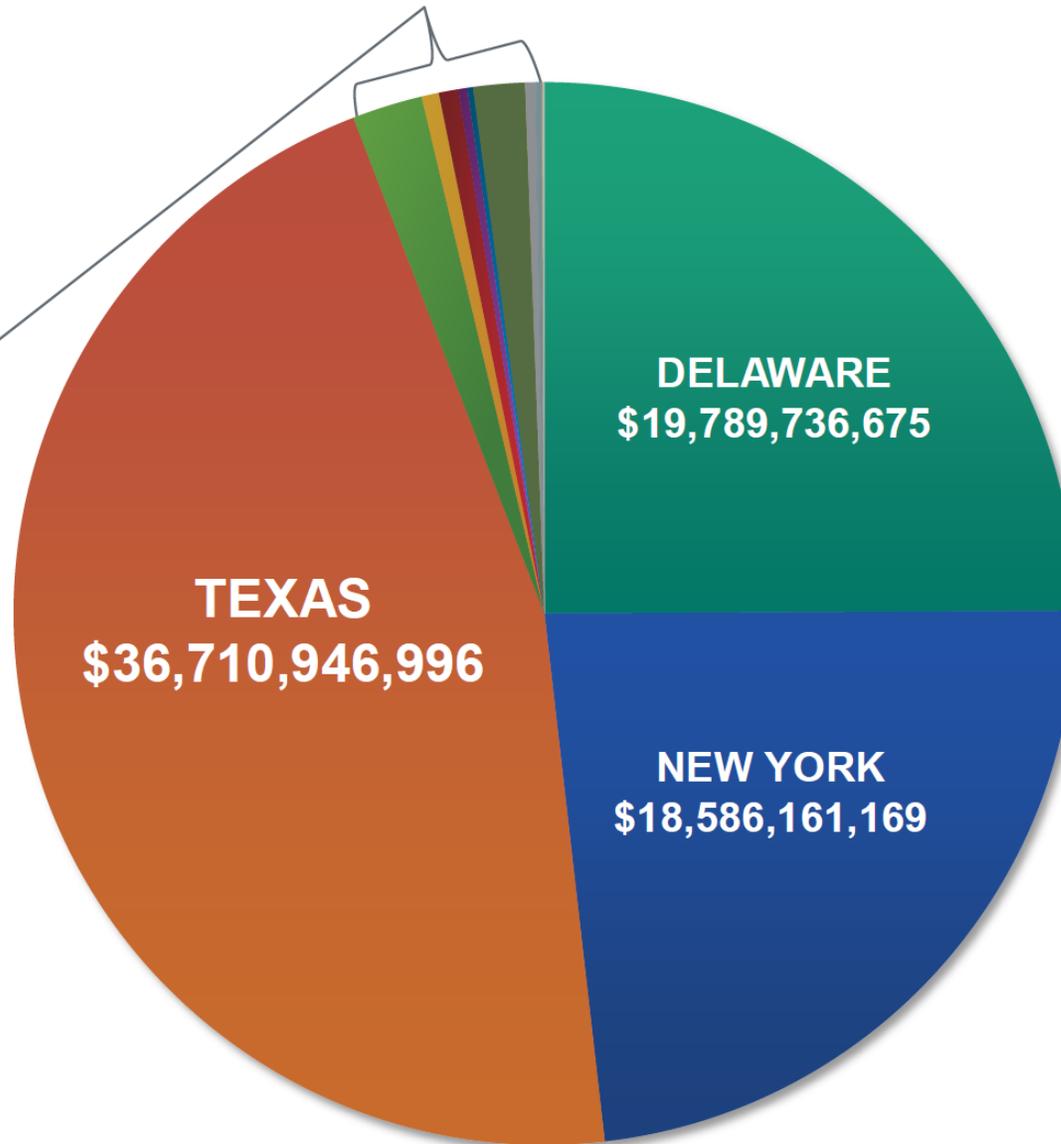
2015-2017 E&P BANKRUPTCY FILINGS BY LOCATION



Source: Haynes & Boone LLP

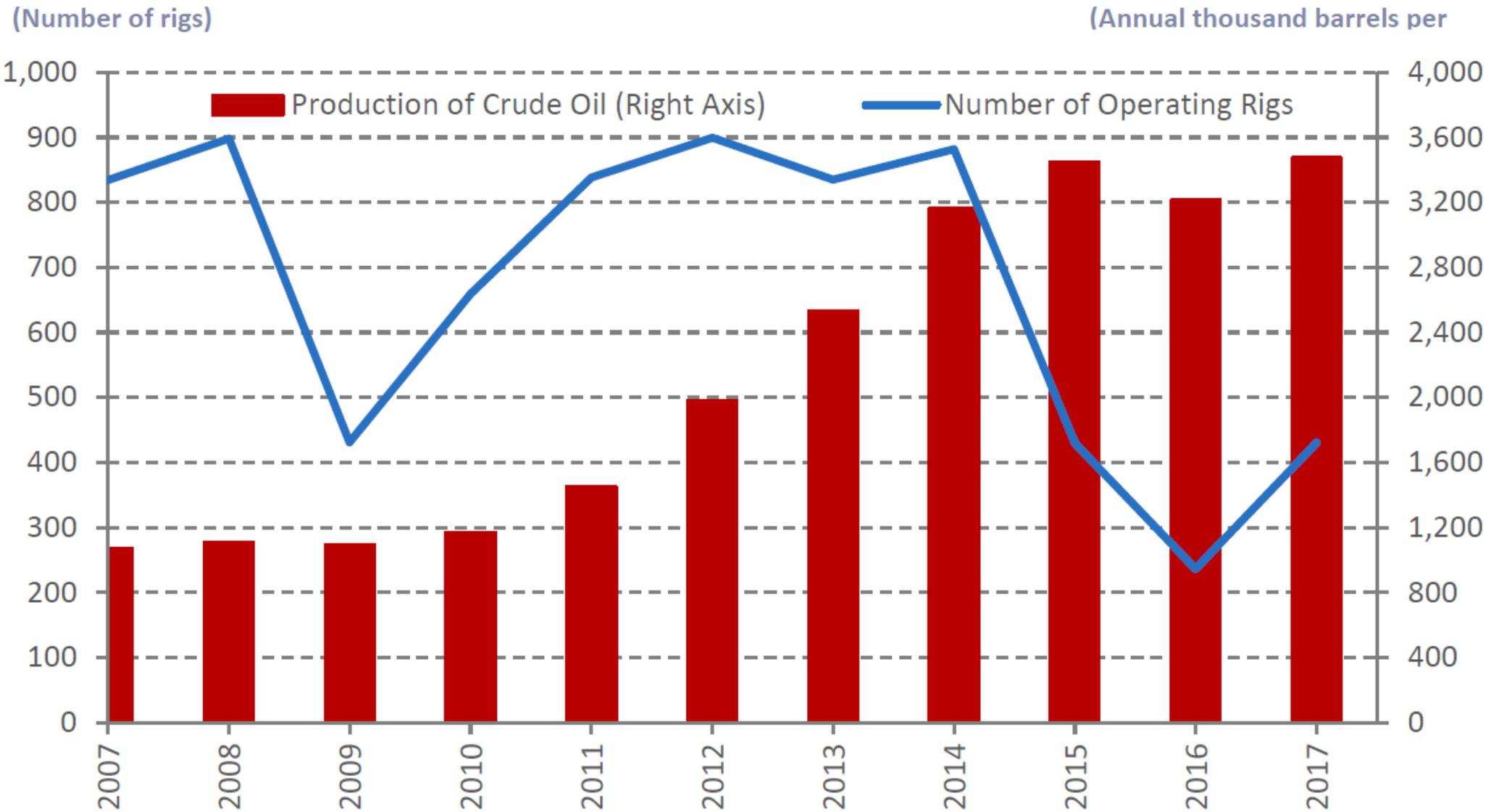
2015-2017 E&P SECURED AND UNSECURED DEBT BY FILING LOCATION

ALABAMA	\$212,726
ALASKA	\$217,158,133
ARIZONA	\$3,699,213
CALIFORNIA	\$64,383,419
CANADA	\$1,710,380,228
COLORADO	\$421,728,274
KENTUCKY	\$13,717,247
LOUISIANA	\$474,067,137
MASSACHUSETTS	\$3,578,276
MINNESOTA	\$1,233,733
MONTANA	\$83,726,167
NEW MEXICO	\$1,286,649
OKLAHOMA	\$138,654,485
UTAH	\$252,040,449
VIRGINIA	\$1,250,928,395
WEST VIRGINIA	\$40,865,611



(As of October 31, 2017)

Texas Production of Crude Oil and Rig Count (Count)



Note: Annual average.
 For more information, see [Texas Production of Crude Oil and Rig Count](#).
 Sources: Baker Hughes and U.S. Energy Information Administration

978/482 (2/23/18)

Source: RECON

STRATEGIC ISSUE #2



LOCAL ECONOMY

TEXAS
HOUSTON

Texas Gaining Momentum

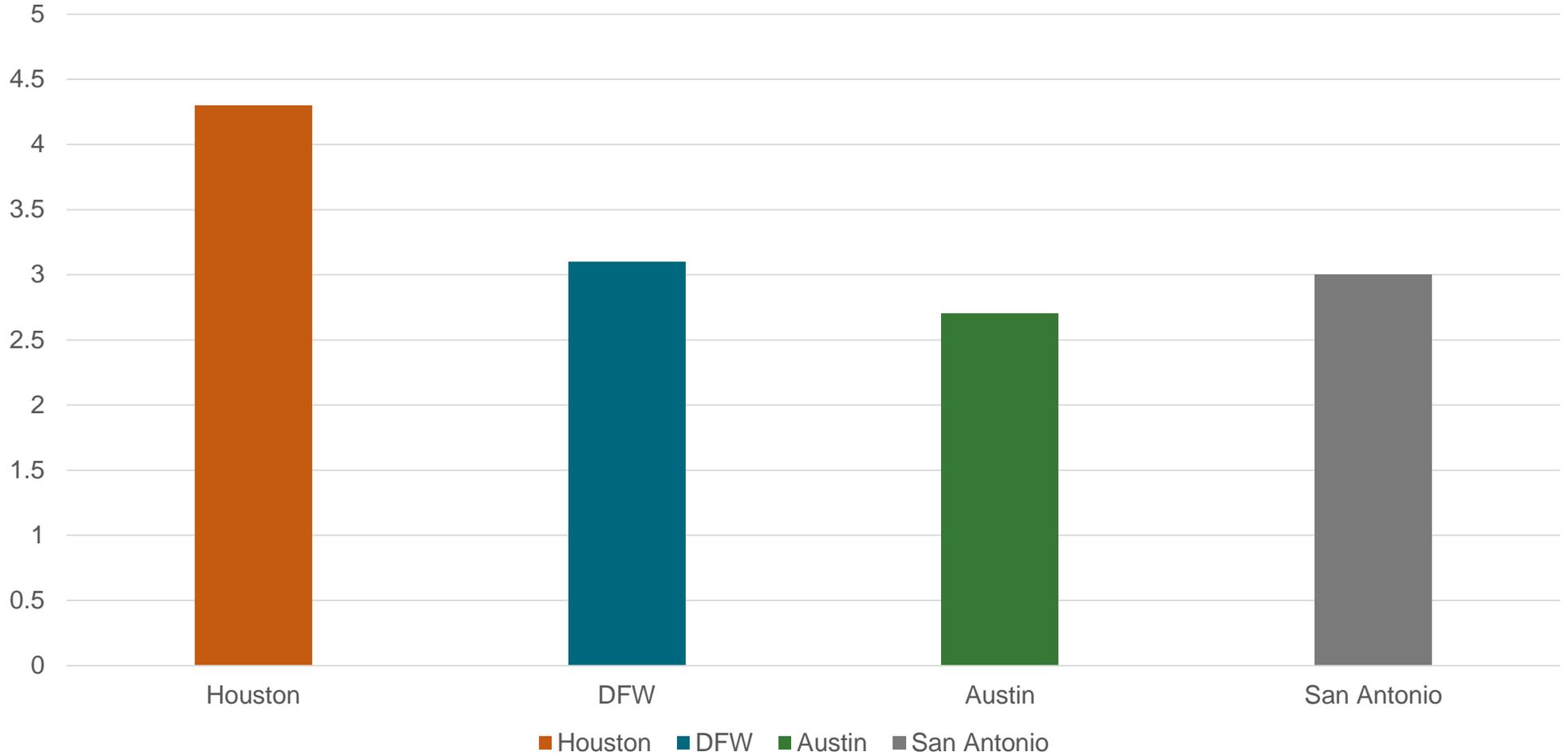
- **3.7% Unemployment (US at 3.9%)**
- **Added 306,900 Jobs in 2017**
- **State economy grew 2.5% (3% 2018)**
- **12.4 Million Workers (720,400 in Construction)**
 - Census Bureau Data Shows 13.6% of Texas workers are not US citizens (1.68M)
- **Immigration Reform**
 - From 2000 – 2010, Hispanics accounted for 65% of Texas' population growth
 - SB4 – Sanctuary Cities
 - DACA Program - \$6B+ loss to Texas GDP; \$2B+ to Houston

Sources: U.S. Census Bureau, Wells Fargo, Texas Workforce Commission, Houston Hispanic Chamber of Commerce

All MSAs saw a decrease in their unemployment rate in 2017

Source: Texas Workforce Commission

December 2017 (NSA)



Texas Markets in 2018 YoY

Source: CBRE, CBRE Hotels, RECON, Marcus & Millichap

	Growing	Steady	Declining		
MSA	Office	Light Industrial	Multifamily	Retail	Hospitality
DFW	Returning to normal 2 nd busiest office market in 2017	Has been rising rapidly and should steady in 2018		Slowing Backlog Mixed Use Focus	
Austin	3 rd busiest in 2017; just set a new record low vacancy	Strong but vacancy rising as tenants choose cheaper options		Lack of available Class A space	One of the best in the nation
San Antonio		Record pipeline of 5.2 msf		Mixed Use Focus	

HOSTED THE SUPER BOWL.

SURVIVED A HURRICANE.

WON THE WORLD SERIES.

PLAYED IN THE SNOW.

What a year, Houston.

Houston's Road to Recovery

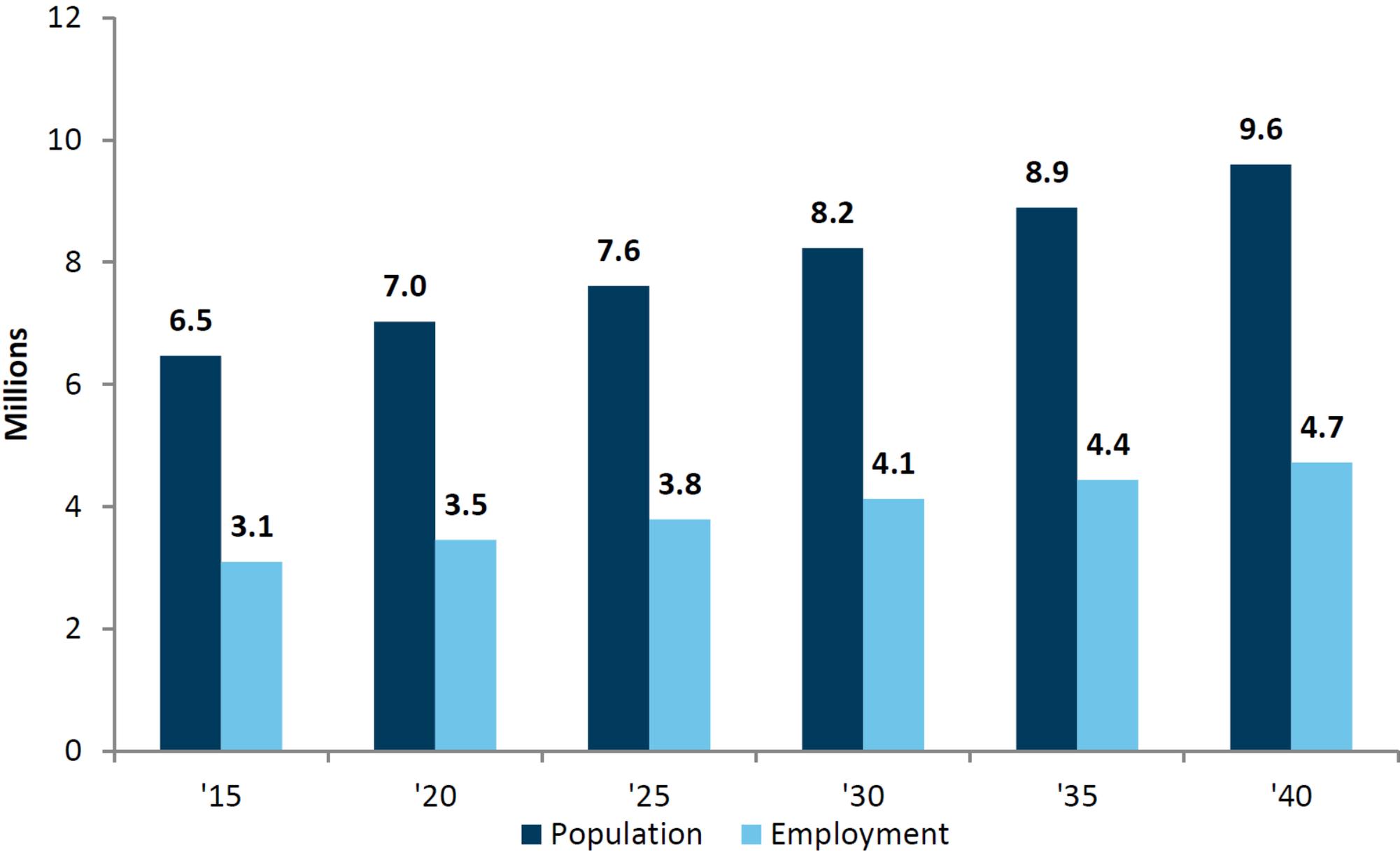
Sources: Greater Houston Partnership, Texas Workforce Commission



- Construction lost 800 jobs YoY
- At 46,000 (Dec. o Dec.)

Population and Employment

Houston-The Woodlands-Sugar Land MSA



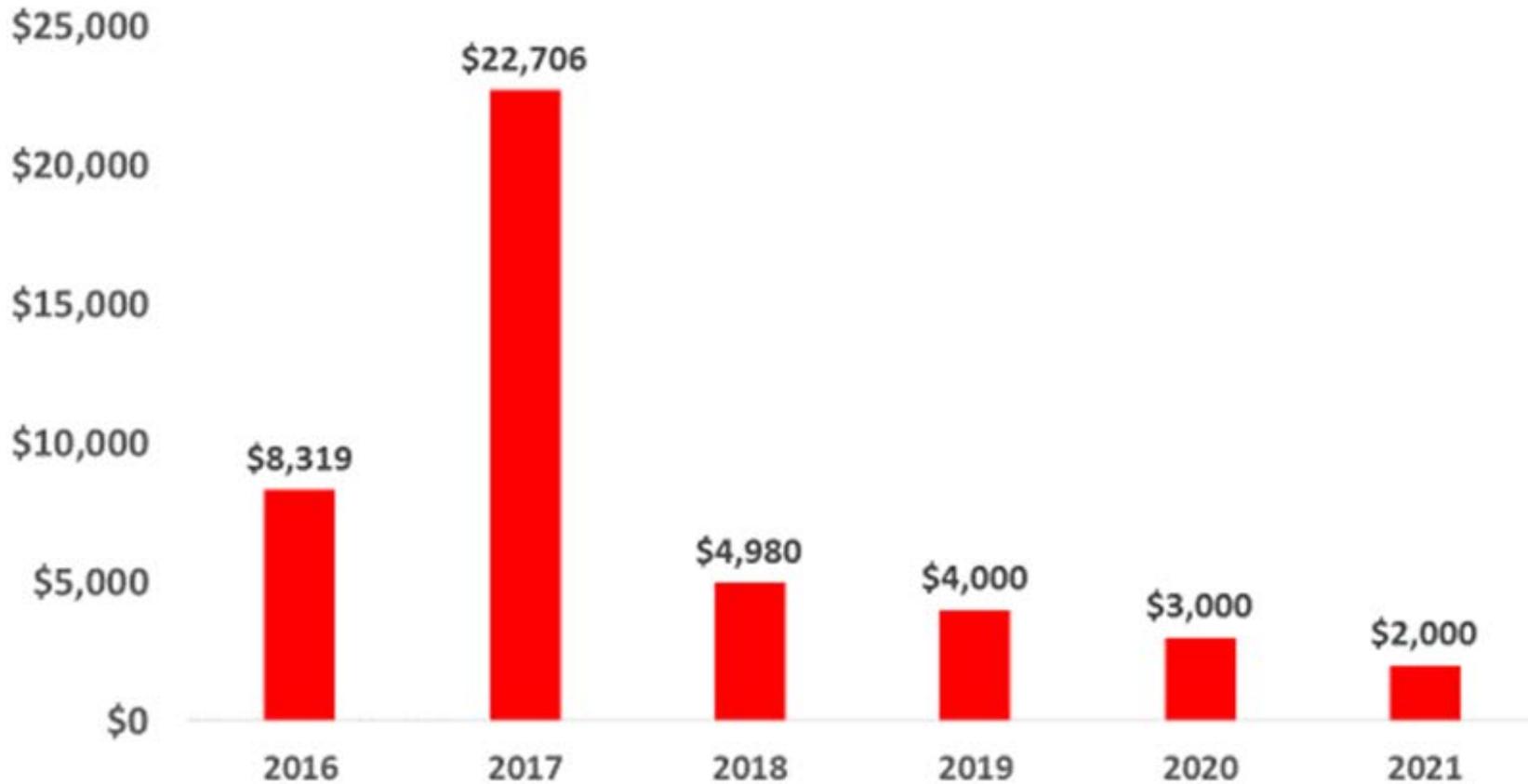
Source: The Perryman Group, Summer 2016

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Heavy Industrial

Projects Begin To Wind Down Rapidly In 2017

(Value of Projects Completed, \$ million)





Single Family Steady

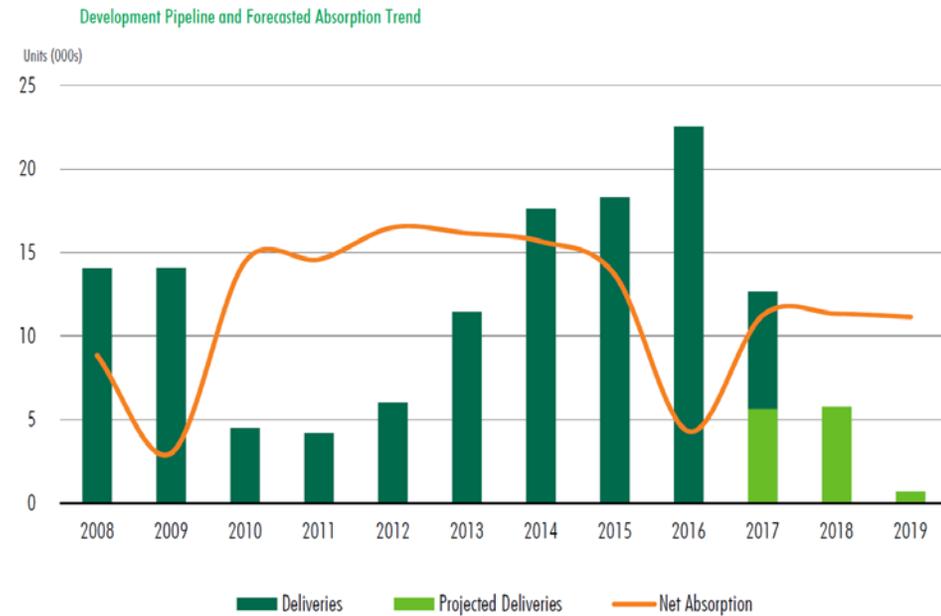
Sources: Metrostudy, John Burns Consulting, Real Estate Center at Texas A&M

- **Homes above \$250k showing weakness**
 - Pockets of Success as Market Has Declined
 - Houston and Dallas MSAs lead the nation in SF Housing Permits (2016)
- **2018 New Home Starts – 28,500**
- **Harvey Impact**
 - Estimated 82,000 homes needing repair
 - More damaged but with repairs not deemed necessary
 - Renovation market will temporarily surge
 - Supply will diminish as homes are condemned; dry homes/land in demand

Multifamily Rebalancing

Sources: CBRE, Metrostudy, Apartment Data Services

- **Occupancy 89.4%**
- **Overbuilt Pre-Harvey**
- **Harvey Impact**
 - ADP reporting 15,600 units affected
 - Over 10,900 units absorbed since Harvey (22k YTD)
 - Temporary boost from displaced residents
 - Emergence of permanent renters
 - Accelerated recovery timeline and stronger absorption expected in 2018
- **Still Seeing Select Projects Moving Forward (River Oaks)**
- **9,750 units under construction**



Office Flat

Source: CBRE

Vacancy	Under Construction	Sublease Space
17.3% (21.7%)	2.2 msf	10.5 msf

- **50+ Office Buildings Damaged by Harvey (0.5% of nra)**
- **Flight to Quality Continues**
 - Energy efficient/high-end amenities
 - Spec construction slowing down
- **Flat Absorption Expected in Q1 2018 along with Rising Vacancy**
- **Weighted Down by Sublease - Needs to Convert to Direct Availability**

City of Houston Pushes to 2019

PUBLIC UP

Department	2018	2019	2020	2021	2022
Aviation Facilities	\$345.97	\$680.94	\$402.48	\$2.33	\$38.43
Bayou Greenways	\$32.05	\$29.68	\$40.17	\$0.00	\$0.00
Fire Protection Facilities	\$4.11	\$11.31	\$6.89	\$3.77	\$4.24
General Government Facilities	\$5.10	\$53.71	\$1.80	\$8.04	\$6.51
Health Facilities	\$7.89	\$25.49	\$11.02	\$14.95	\$1.72
Homeless & Housing Facilities	\$1.10	\$1.10	\$1.10	\$1.10	\$0.00
Library Facilities	\$0.78	\$8.08	\$3.15	\$1.60	\$0.00
Parks and Recreation Facilities	\$42.65	\$8.14	\$7.34	\$7.58	\$22.11
Police Facilities	\$3.93	\$5.03	\$14.84	\$11.95	\$3.47
Solid Waste Management Facilities	\$3.32	\$10.18	\$1.07	\$1.29	\$1.00
Total	\$446.90	\$833.66	\$489.86	\$52.61	\$77.48

HIGHWAY/CIVIL WAY UP

Department	2018	2019	2020	2021	2022
Storm Drainage System	\$43.33	\$72.96	\$89.76	\$66.22	\$151.33
Street & Traffic Control	\$110.71	\$119.66	\$145.27	\$168.27	\$109.01
Wastewater Treatment Facilities	\$139.04	\$176.73	\$172.00	\$179.61	\$197.41
Water Utility System Facilities	\$573.20	\$1,046.37	\$249.52	\$170.37	\$143.66
Total	\$866.28	\$1,415.72	\$656.55	\$584.47	\$601.41



Public Work/Civil

PORT OF HOUSTON HAS A STRONG 2018

- Metro: \$20 - \$32M
- Harris County: \$3.1M
- Fort Bend County: \$21M
- Port of Houston: \$274M

HIGHWAY/CIVIL - LESS DOLLAR VOLUME BUT STILL HOT

- TxDOT – \$1.43 Billion (\$1.54B last year)
 - 290/Grand Parkway Winding Down
 - \$8.59B Texas Transportation Commission being spent in our area over the next several years – most already underway
 - 69/610 underway (\$287M)
 - Widening I-45/NASA (\$112M)
 - Widening of I-10 W (\$242M)
 - 69/45 to kick off in 2020/2021 (\$7B)
- Harris County - \$234M

Bullet Train Update

- **Federal Study Released Routes**

- Yellow Route
- Public Hearings Underway

- **Texas Central Partners privately funded \$15B**

- **Construction to Begin Early 2019, with service beginning in 2023**

Figure 2-17: Potential HSR Corridors





Hospitality Weakens

Sources: CBRE Hotels

- **Post Harvey Impact**

- 900,000 room occupancy increase in the first six weeks
- Projected 2 million additional room nights directly related to Harvey

- **Slowdown in New Hotel Additions Expected**

- **Expect to give back in 2018 some of the occupancy and ADR gains seen in 2017**

- Occupancy expected to dip from 66% to 54.5%
- Average Daily Rate from \$105.50 to \$104
- RevPAR gain of 6.4% in 2017 to RevPAR loss of 3.9% in 2018

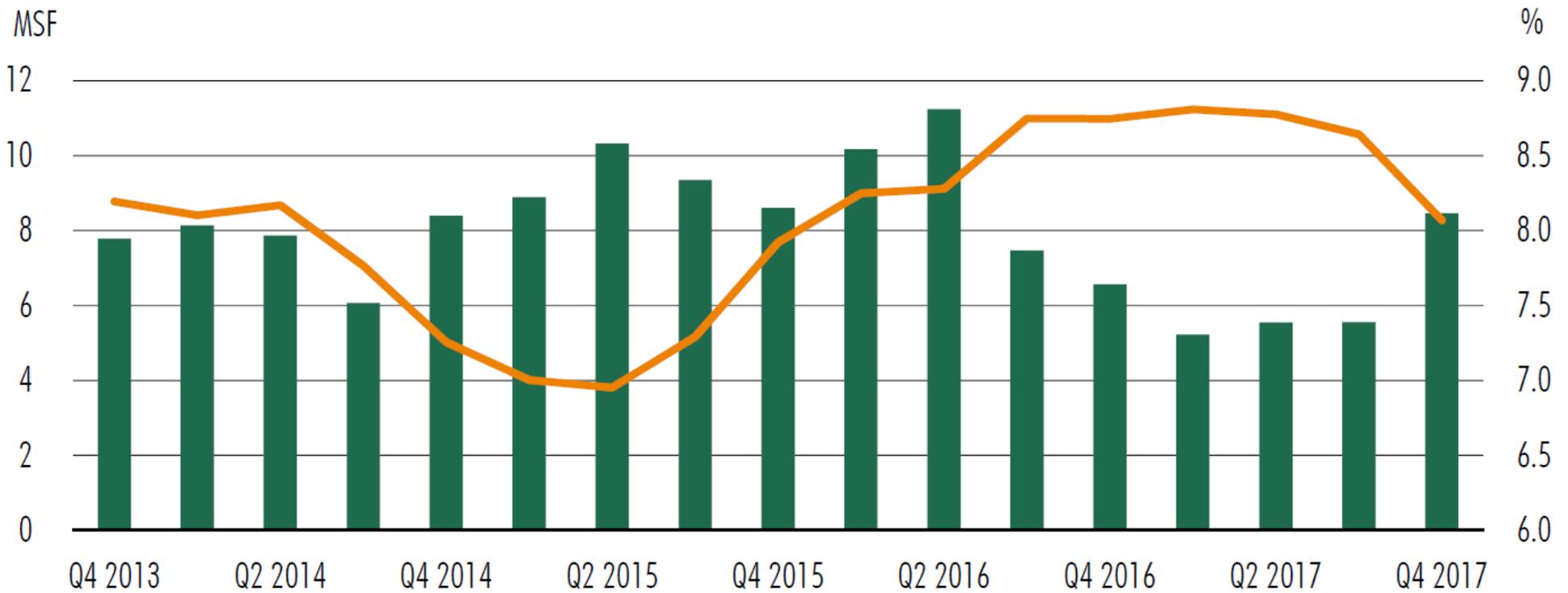
- **Many Projects on the Books Expected to be Delayed/Shelved**

- Financing More Difficult
- Rising Construction Costs

Light Industrial Continues to Tighten

Vacancy	Under Construction	Absorption
5.4%	8.4 msf	1 msf

- Positive Drivers Remain
- Increased Demand Post-Harvey
- Spec Making a Comeback



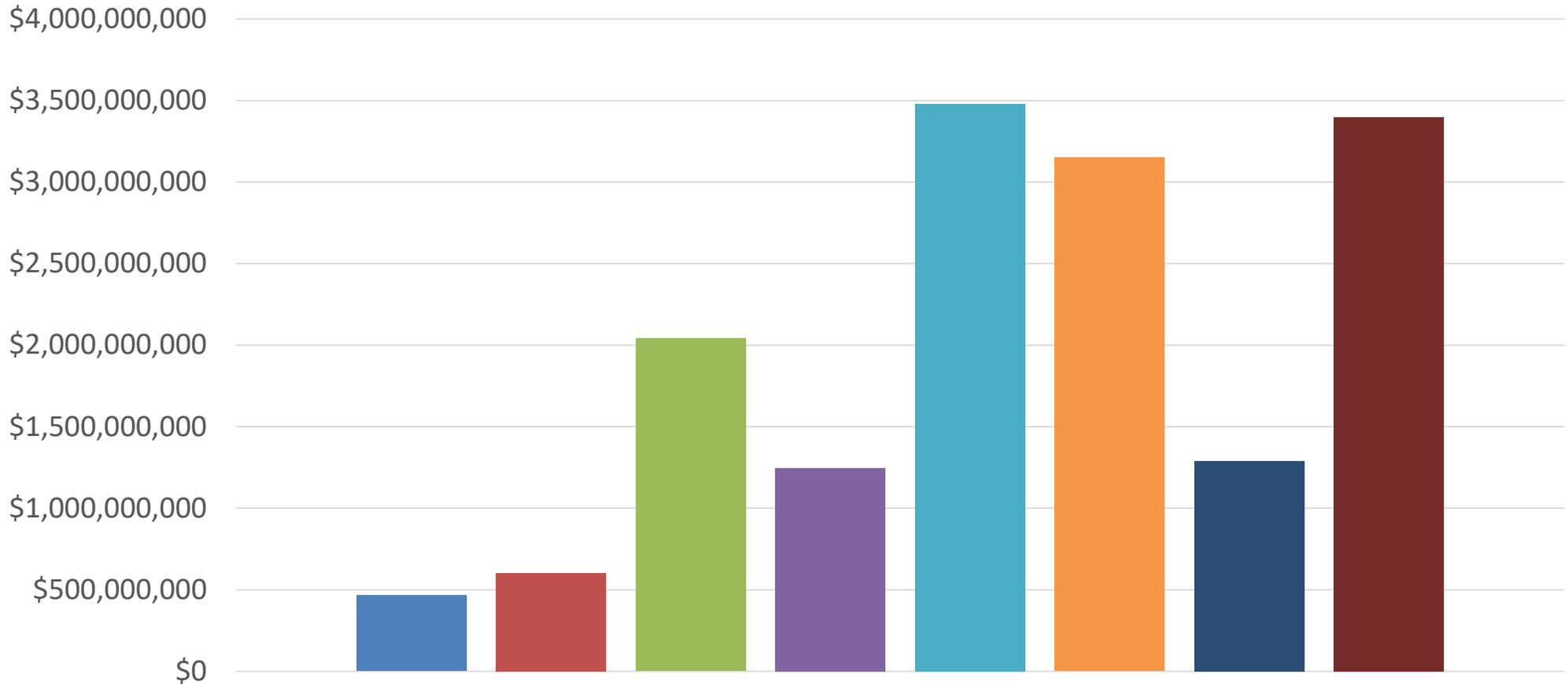
Source: CBRE Research, Q4 2017.

Under Construction (L) Availability (R)

Education Strong

Houston MSA K-12 Bonds Carried

■ 2010 ■ 2011 ■ 2012 ■ 2013 ■ 2014 ■ 2015 ■ 2016 ■ 2017



- \$11.3B 2014-2017 (\$6.8B)
- Over 1.2B from 21 districts
- Higher Ed - Slower Volume
- Harvey Impact
- School Concerns
- Voter Fatigue

Retail Remains Active But Slower

Sources: CBRE

Vacancy	Under Construction	Sublease Space
5.9%	1.5 msf	1.1 msf

- Lack of quality space hampering absorption
- 71% of current construction is pre-leased
- Localized Flooding by Harvey
- Mixed Use Developments Continue
- Regional Retail Sales Volumes Up Q4 and Projected to Continue Growing over Next 5 Years

Looking Ahead to 2030

- **Increasing shift from transactional towards service/experience**
- **Driverless cars and automation**
 - Sensors and tracking used for inventory and auto-order purposes
- **Both Bricks & Clicks Helps**
- **Access over Ownership**



Medical Outlook Cloudy

Sources: Texas Medical Center

- **4 New Leaders Find Their Footing**
 - Texas Medical Center
 - MD Anderson
 - Memorial-Hermann System
 - CHI St. Luke's Health

- **Lots of Beds Added – Suburban – Last 4 Years**
 - Smaller Projects
 - Perhaps a MOB
 - Telehealth Emerging
 - Reimbursement?? – ACA/Tax Plan
 - 14M to 30M+ Chuck Stokes (MH)



TMC Focus on Innovation

Sources: Texas Medical Center

- **Largest Concentration of Awarded Scientists in the World**
- **TMCx - Largest Life Sciences Startup Incubator**

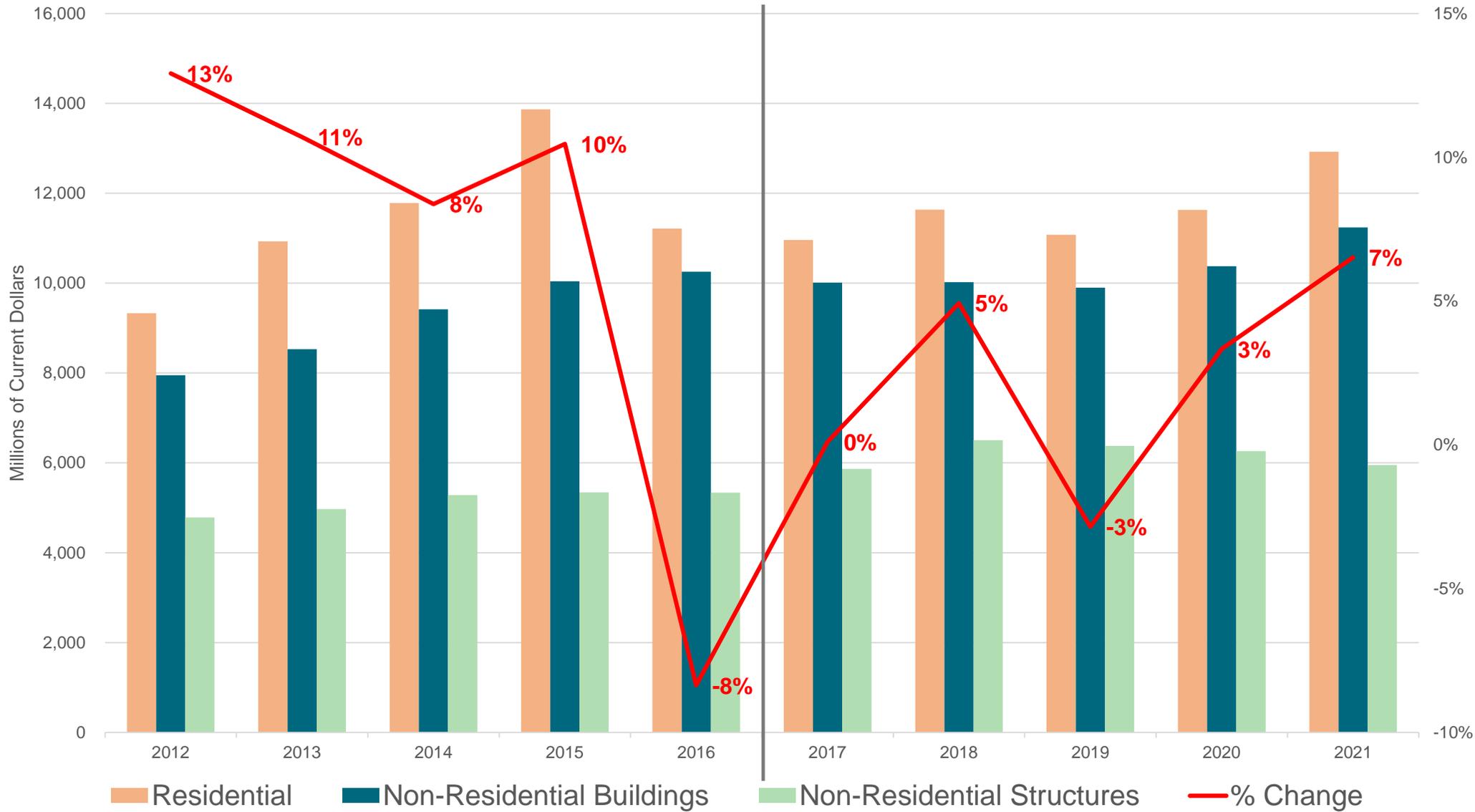
**Devices*

**Drugs*

**Data*

- **TMCx+**
 - J Labs – Houses Johnson & Johnson’s Global Device Business
 - In Partnership with Google – building “Verve”, 2nd Generation Surgical Robot
- **138 Companies/\$146 Million in Venture Money now Involved**

Houston, Texas Construction Put in Place, 2011 - 2021



STRATEGIC ISSUE

#3

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DISRUPTIVE INNOVATION

TECHNOLOGY
PREFABRICATION
ROBOTICS

Technology Marches Forward

● Paperless

- Plans/Specs Project Atlas
- BIM Use Grows

● Increasing Jobsite Applications

- Drones – Fly/Crawl
- Sensors
 - Machines – Predictive/Preventive Maintenances
 - Attach on Handheld - Walbot/Hidden Conditions
- Virtual Reality/Augmented Reality/Machine Learning
- Operator Assistance – XO Suits that Help with Lifting
- Smart Phones are Life
- Robotics
- Trend Toward Offsite Build/On Site Install
 - Prefabrication – Robotics/Modularization = Productivity
- 3D Printing gains ground



"World's first" 3D-printed concrete bridge opens in the Netherlands

The McKinsey Productivity Story – Total New Players?

STRATEGIC ISSUE

#4

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PEOPLE

WORKFORCE SHORTAGES
THE WAR FOR TALENT

Workforce

• Workforce Shortages

- AGCA – 75% of firms
- Construction Career Collaborative
- Immigration Reform a Must
- 60x30TX

• The War for Talent Continues

- CEO/Senior Leader Involvement Imperative
- Culture is a Key Attractor
- Millennials Are the Targets – STEM grads
- Many Traditional Attitudes Changing
 - Coaching/Mentoring – “Tour of Duty”
 - Work/Life Balance
 - Competitive Pay
 - More Structured Incentives
 - Short & Long Range
- Our Companies have Advantages
 - Privately held/stable leadership
 - Longer term view



STRATEGIC ISSUE #5

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LEADERSHIP CHALLENGE

The Leadership Challenge

The majority of construction and other type firms will need to replace the majority of their senior leadership team in the next **ten years**.

- **Companies are addressing this challenge – non traditional thinking required**
 - Clear assessment of individual's current competencies
 - Studied/researched assessment of competencies needed for next role
 - Targeted gap closing strategies
 - Experiences
 - Exposures
 - “Leaders who know who they are” – Experience Learning
 - Allow Time to See if it Works

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Profile of CEO/Senior Team

- **Self Aware Diverse Strategic Thinkers**
- **Performance Driven – Clarity of Vision**
- **Focused Strategic Goals**
- **Data Driven – Technology Enabled**
- **Creators of Value-Based Culture**
 - Walk the Talk
 - Serves as True North for Their People
- **Perpetual Learners**
 - Peer Groups/Board
 - Build Learning Organizations

Enduring Organization





For a copy of our forecast, text

FMIHOUSTON

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