



Rice Global E&C Forum  
**Engineering &  
Construction**

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# **Lower for Longer: The Impact On the Greater Houston Construction Market**

**July 8, 2016**

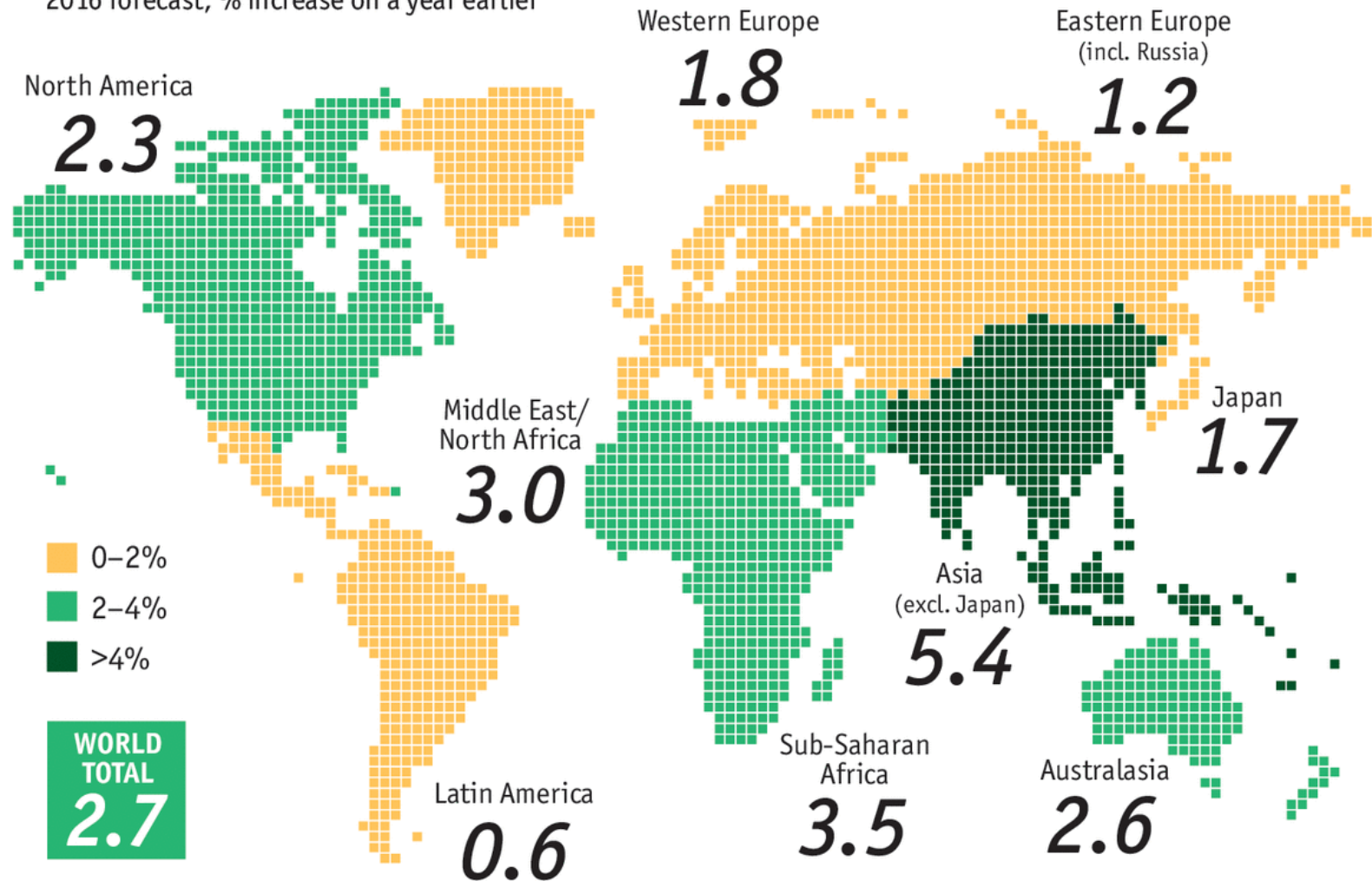
- 
- **Global Trends That Will Impact**
    - **Major International City – 5700 Businesses**
  - **State of the Energy Business**
    - **Houston 37%**
    - **Texas 14.2%**

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# Trend 1: Rate of Global Growth Slowing

## World GDP\*

2016 forecast, % increase on a year earlier



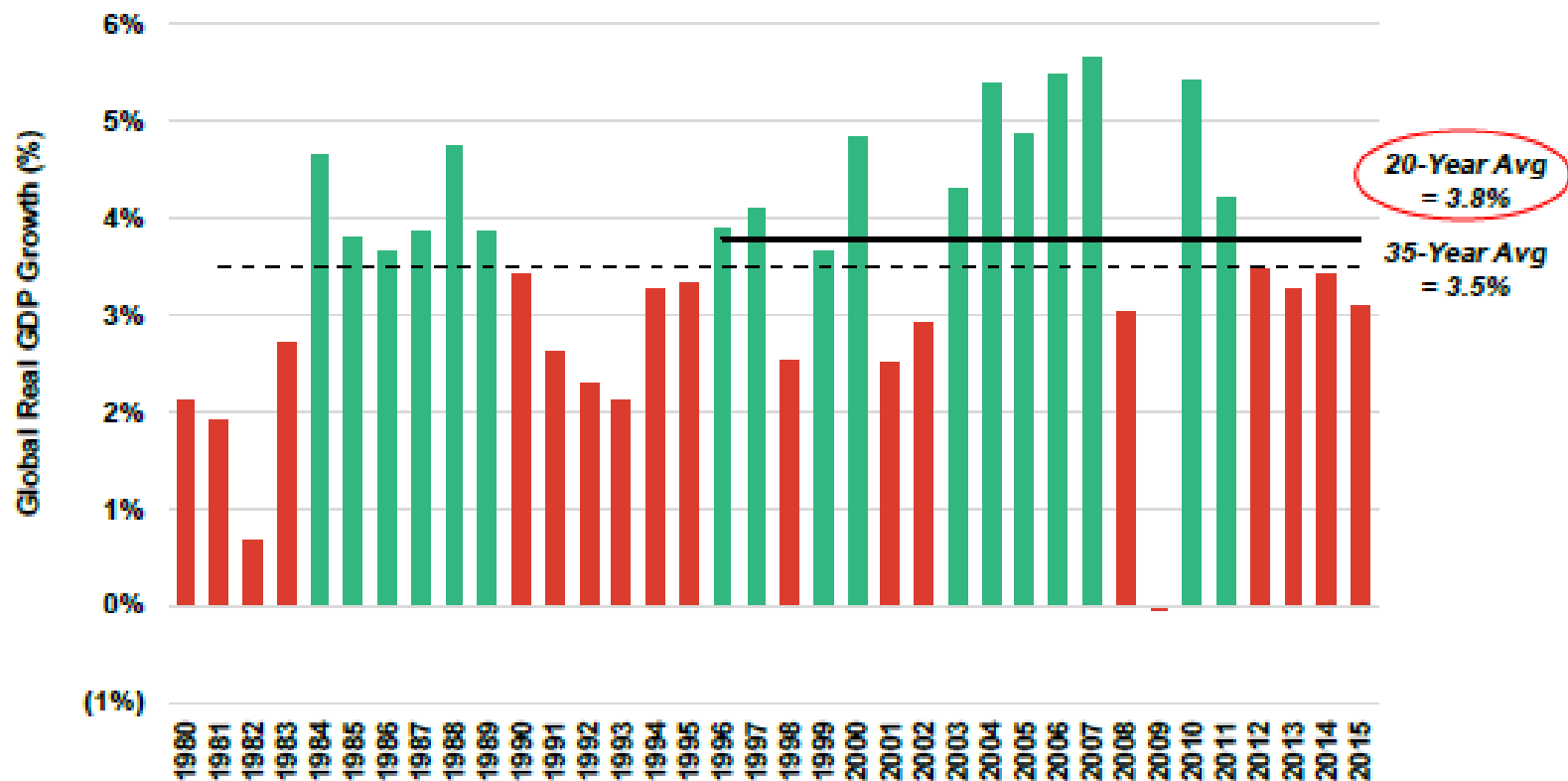
Source: Economist Intelligence Unit

Economist.com

\*At market exchange rates

# Global GDP Growth Slowing = Growth in 6 of Last 8 Years @ Below 20-Year Average

Global Real GDP Growth (%), 1980 – 2015



**Table 1.1. Overview of the World Economic Outlook Projections***(Percent change, unless noted otherwise)*

	2015	Projections		Difference from January 2016 WEO Update <sup>1</sup>	
		2016	2017	2016	2017
<b>World Output</b>	<b>3.1</b>	<b>3.2</b>	<b>3.5</b>	<b>-0.2</b>	<b>-0.1</b>
<b>Advanced Economies</b>	<b>1.9</b>	<b>1.9</b>	<b>2.0</b>	<b>-0.2</b>	<b>-0.1</b>
United States	2.4	2.4	2.5	-0.2	-0.1
Euro Area	1.6	1.5	1.6	-0.2	-0.1
Germany	1.5	1.5	1.6	-0.2	-0.1
France	1.1	1.1	1.3	-0.2	-0.2
Italy	0.8	1.0	1.1	-0.3	-0.1
Spain	3.2	2.6	2.3	-0.1	0.0
Japan	0.5	0.5	-0.1	-0.5	-0.4
United Kingdom	2.2	1.9	2.2	-0.3	0.0
Canada	1.2	1.5	1.9	-0.2	-0.2
Other Advanced Economies <sup>2</sup>	2.0	2.1	2.4	-0.3	-0.4
<b>Emerging Market and Developing Economies</b>	<b>4.0</b>	<b>4.1</b>	<b>4.6</b>	<b>-0.2</b>	<b>-0.1</b>
Commonwealth of Independent States	-2.8	-1.1	1.3	-1.1	-0.4
Russia	-3.7	-1.8	0.8	-0.8	-0.2
Excluding Russia	-0.6	0.9	2.3	-1.4	-0.9
Emerging and Developing Asia	6.6	6.4	6.3	0.1	0.1
China	6.9	6.5	6.2	0.2	0.2
India <sup>3</sup>	7.3	7.5	7.5	0.0	0.0
ASEAN-5 <sup>4</sup>	4.7	4.8	5.1	0.0	0.0
Emerging and Developing Europe	3.5	3.5	3.3	0.4	-0.1
Latin America and the Caribbean	-0.1	-0.5	1.5	-0.2	-0.1
Brazil	-3.8	-3.8	0.0	-0.3	0.0
Mexico	2.5	2.4	2.6	-0.2	-0.3
Middle East, North Africa, Afghanistan, and Pakistan	2.5	3.1	3.5	-0.5	-0.1
Saudi Arabia	3.4	1.2	1.9	0.0	0.0
Sub-Saharan Africa	3.4	3.0	4.0	-1.0	-0.7
Nigeria	2.7	2.3	3.5	-1.8	-0.7
South Africa	1.3	0.6	1.2	-0.1	-0.6
<i>Memorandum</i>					
European Union	2.0	1.8	1.9	-0.2	-0.1
Low-Income Developing Countries	4.5	4.7	5.5	-0.9	-0.4
Middle East and North Africa	2.3	2.9	3.3	-0.6	-0.2
World Growth Based on Market Exchange Rates	2.4	2.5	2.9	-0.2	-0.1

Source: IMF World Economic  
Outlook, Survey Published April 12,  
2016



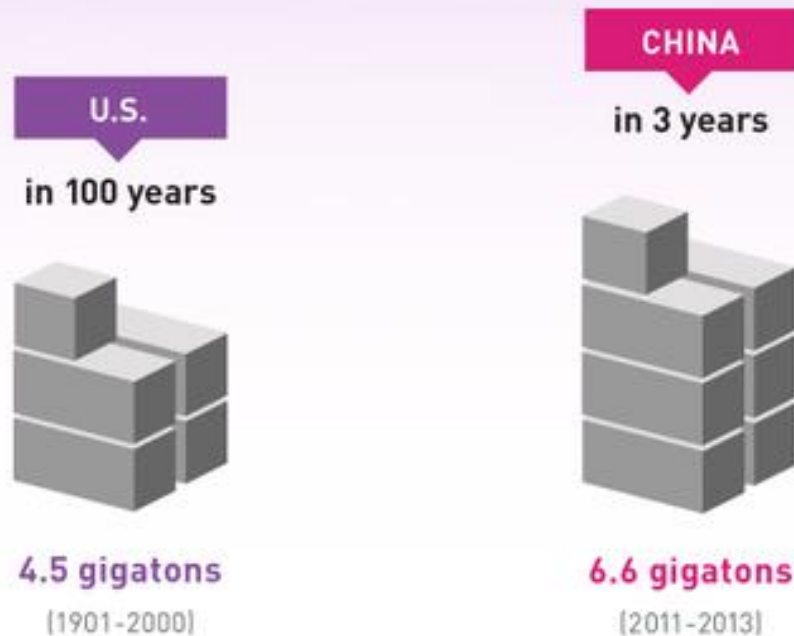
**KILEYADVISORS**

# China Trends

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- GDP Growth Slowing
  - 6 – 6.5%
  - Some offset by India 7%
- Converting to a Consumer Economy
  - 50% Savings Habit – trying to change that.
  - Middle class is growing and luxury good move there
- One Belt/One Road Initiative (OBOR)
  - Building Infrastructure for Trading Partners
  - Infrastructure Bank has committed \$ 1 Trillion

# China used more cement in the last three years than the U.S. used in the entire 20th century.



SOURCES: USGS, Cement Statistics 1900-2012; USGS, Mineral Industry of China 1990-2013



# Aftermath

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- European Union
  - GDP Will Drop 0.5% (Draghi)
- United Kingdom
  - GDP Drop 0.5% in 2016
  - GDP Drop 1.7% in 2017
  - 2/3 of Economists See a Recession

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# Trend 2: Technology Exploding

# Technology Exploding

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- Mary Meeker – 2016
  - The Global Internet Adoption Rate is Flattening at 9%
  - 42% of the World's Population (3 Billion People) Are Now on the Internet
- Non-Tech Giants Are Acquiring Tech Companies to Fuel Their Growth and Transition to Digital as Data Becomes the Next Big Platform Thanks to the Many Devices that Capture It
  - GE's Move
  - Driverless Cars Many Players
- Platform Companies Remain the Darlings
  - Uber/Lyft/Air B&B – Investments in Ride Sharing Co;s.
  - Facebook – Global Scale Quickly

# Technology Exploding

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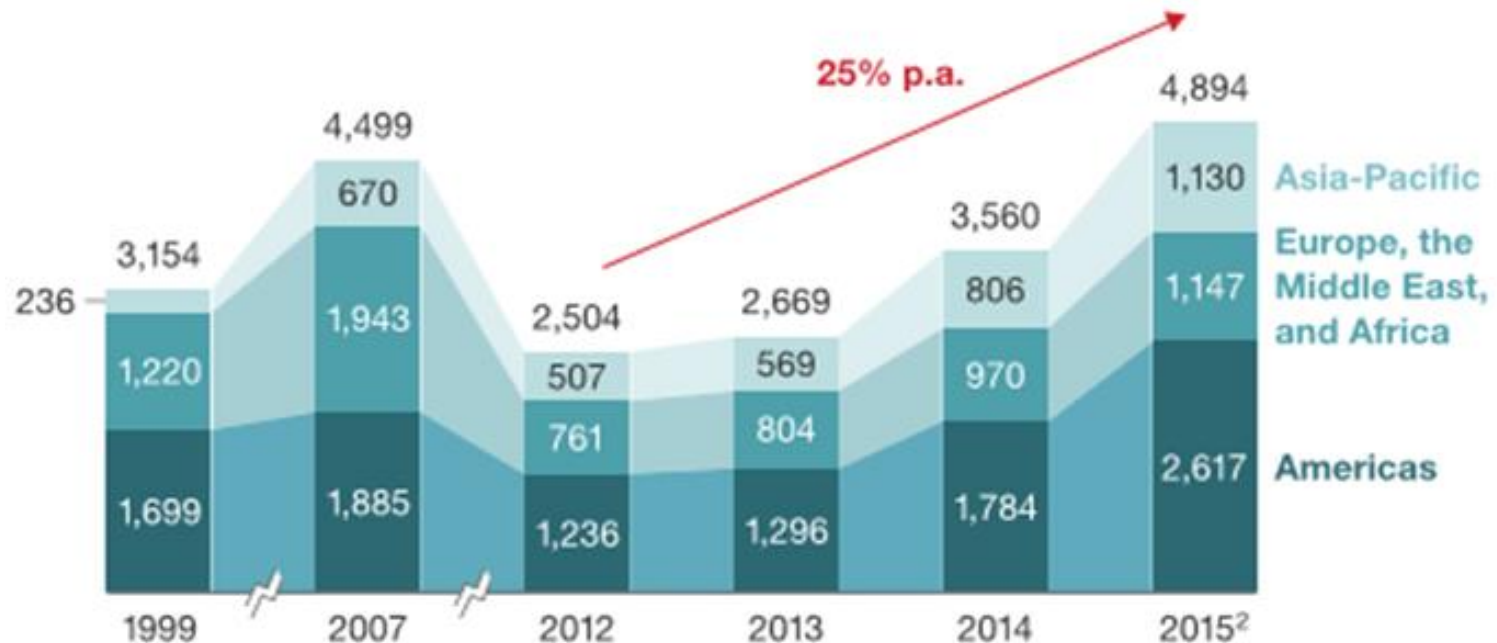
- Personal Assistants – Getting Better – Voice Recognition is About 95% Accurate
  - Siri
  - Echo
- Allowing Companies to Know More; Do Things Better – But Not Increase Productivity
- Helping to Improve Bottom Lines – But Investors Also Want Top Line Growth

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Trend 3:  
Merger and Acquisition Activity  
Exploded  
2011 - 2015

# A Flurry of Mergers & Acquisitions

Value of announced deals,<sup>1</sup> \$ billion



<sup>1</sup>Includes deals with value of more than \$25 million only. Figures may not sum, because of rounding.

<sup>2</sup>Data extrapolated to show expected results for entire year based on announced activity (not withdrawn) through Nov 30, 2015.

McKinsey&Company | Source: Dealogic; McKinsey analysis

# M&A Activity

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- Slowing This Year
- Longer Term – More Seems Inevitable
- Low Interest Rates Played a Big Role
- Regulatory Hurdles Caused Some to Come Unglued

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# The State of the Energy Business

# History

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- Thanksgiving 2014 – OPEC Decides to Leave the Spigots Open
- Strategy – Force US Shale Producers to Become the Swing Producers
- It Appears to Have Worked

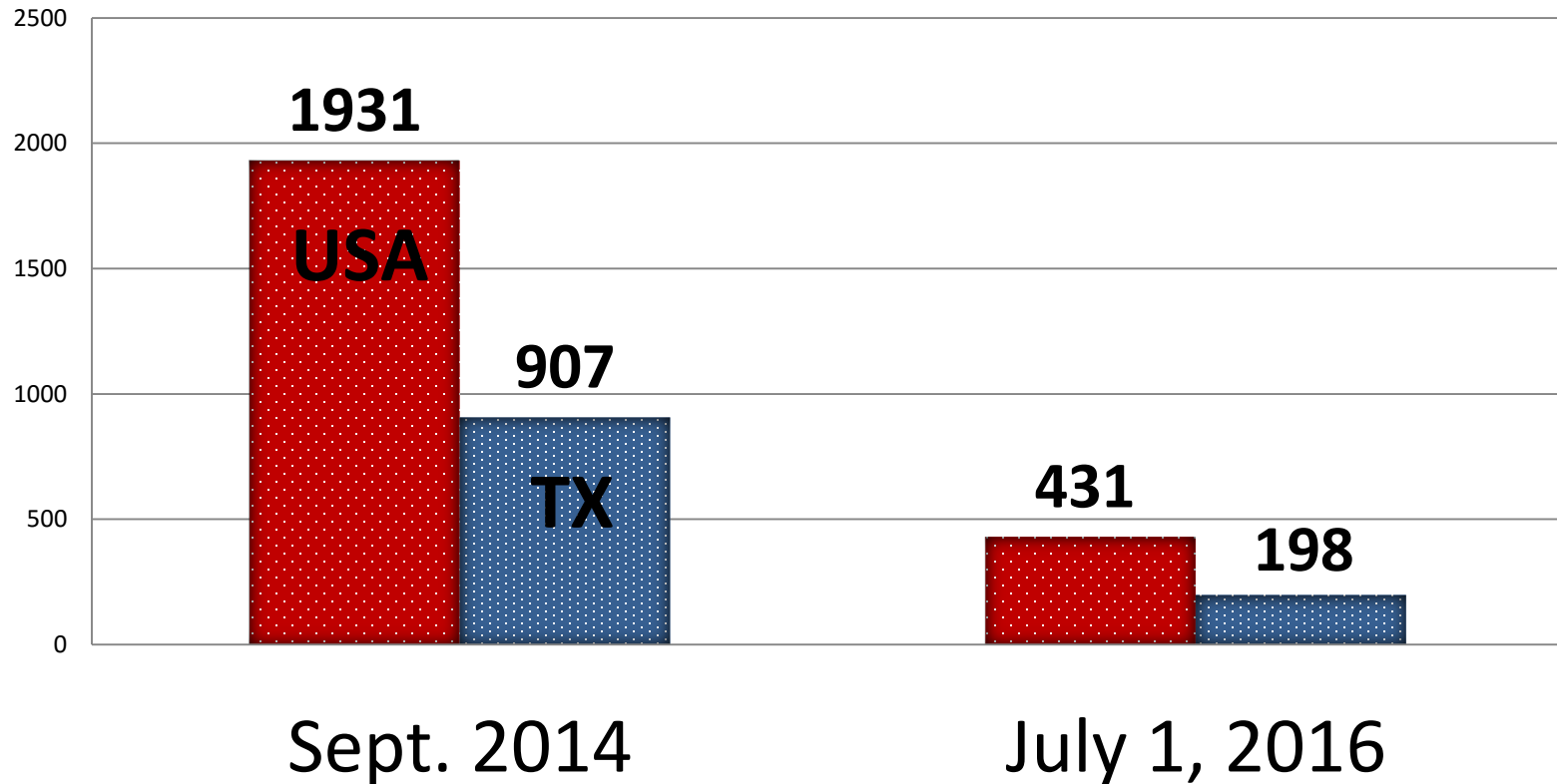
# Consequences

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- Prices Fell
  - \$77 - Thanksgiving 2014
  - \$26 - February 2016
  - \$45 - \$52 Recently
- CapEx Cancelled or Postponed
  - Globally \$1 Trillion
- Rig Count Plummeted

# Rig Count May Have Finally Bottomed

## USA vs. TX Rig Count



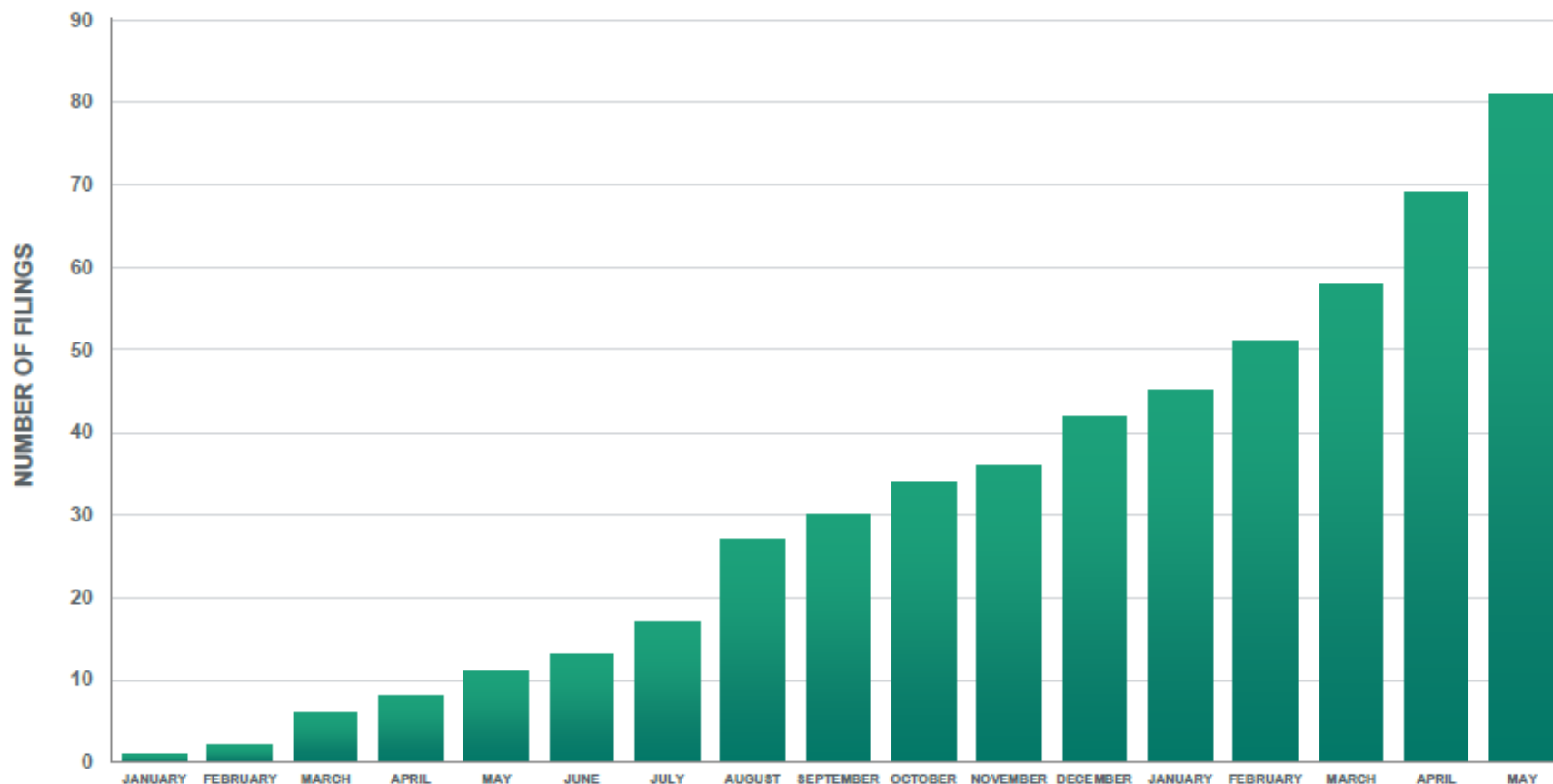
# Consequences

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- Layoffs – Now 118,000
- Credit Window Slammed Shut
  - Industry Heavily Overleveraged
    - From '09 to '13, the industry outspent its cash flow by \$272B
  - Hedges were Rolling Off
  - Alternative Sources of Credit Developing
    - Bernstein Fund
- Bankruptcies

# 2015-2016 CUMULATIVE NORTH AMERICAN E&P BANKRUPTCY FILINGS

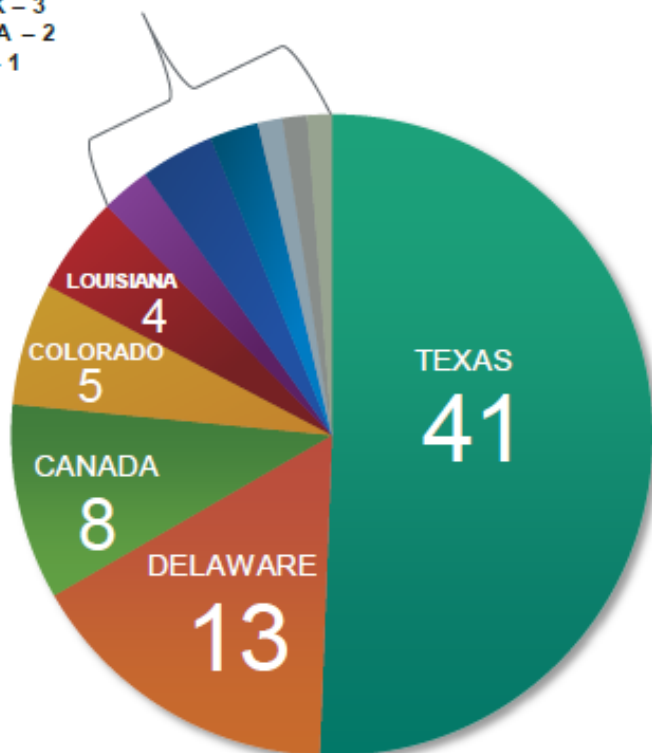
## HAYNES AND BOONE OIL PATCH BANKRUPTCY MONITOR



See pages 6-7 for a complete list of bankruptcies.  
(As of May 31, 2016)

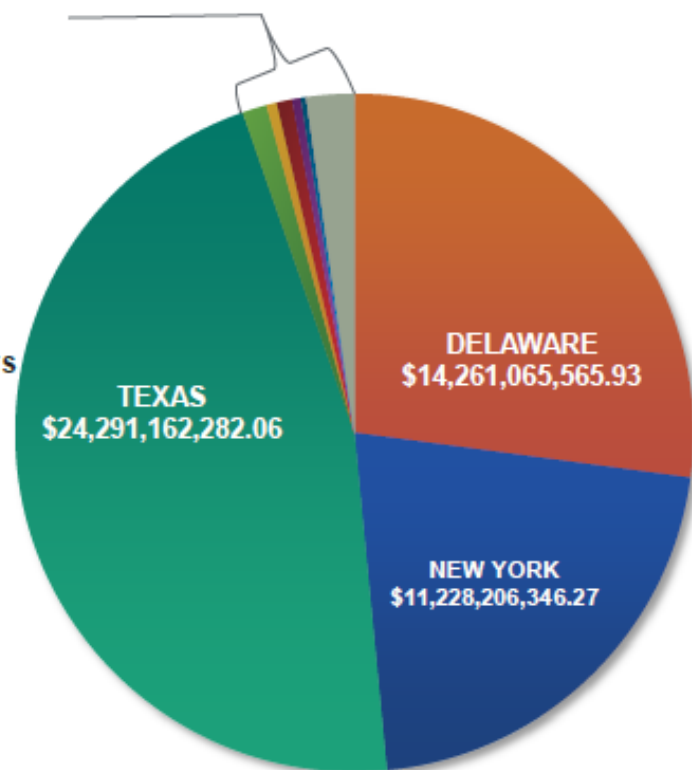
## 2015-2016 E&P BANKRUPTCY FILINGS BY LOCATION

ALABAMA – 1  
ALASKA – 2  
MASSACHUSETTS – 1  
NEW YORK – 3  
OKLAHOMA – 2  
VIRGINIA – 1



## 2015-2016 E&P SECURED AND UNSECURED DEBT BY FILING LOCATION

ALABAMA  
\$212,726.14  
ALASKA  
\$215,936,836.12  
CANADA  
\$613,927,749.32  
COLORADO  
\$259,040,110.93  
LOUISIANA  
\$384,720,963.39  
MASSACHUSETTS  
\$3,578,275.95  
OKLAHOMA  
\$138,654,484.41  
VIRGINIA  
\$1,188,000,000.00



(As of May 31, 2016)

# The Current Picture

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- Optimism Returns
  - Production Per Day Declining – 1 Million BBLs/day
  - OPEC Holding (Iran & Libya)
  - US About 750k BBLs/day Down
  - Temporary Supply Interruption in Canada/Nigeria
  - Some CapEx & Hiring Slowly Returning
- Breakeven Prices Lower for Texas Drillers
  - \$50 & \$65
  - Lift Costs \$20 - \$30 (Few in the Teens)
  - Demand Growth Increasing Too
    - India
    - US – Gasoline Usage

# The Current Picture

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- Rebalancing???
- Lots of Speculation
- Some Feel By End of 2016
- Others by Mid-2017
- EIA – Still Overproducing 500k BBLs/day
- DUCs +150,000 Day; 200 Rigs Quickly
- Patient/Opportunistic Capital Has Formed
  - \$1.4 Billion (Hilcorp/Carlyle Group)
- More M&A

# Saudi Arabia

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- A New Era Dawns
- The Deputy Crown Prince – Muhammad bin Salman Al Saud – Clearly Driving the Future Agenda
  - Minister of Defense, Chief of the House of Saud Royal Court and Chairman of the Council for Economic and Development Affairs
  - Pro-Western Economic Approach
    - McKinsey/Key Staff
    - Converting Away from Oil and Government Dependency
      - 75 – 90% Oil Driven
    - Privatizing Airports, Education, Healthcare



# Saudi Arabia

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- The Big Move
  - An IPO on Saudi Aramco
    - Wealthiest Corporation in the World? – Opaque
    - Reserves = 10x Exxon
  - Wants to Create a \$2 Trillion Sovereign Wealth Fund
  - Energy Assets
  - Others – Just Put 3.5 Billion into Uber
- The Big Challenge
  - 30 Million People – 70% Under 30
  - The Strict Wahabi (Sunni) Sect Clerics Rule
  - Women Can Vote & Hold Office – But Not Drive
  - Not Yet Has the Deputy Crown Prince Really Challenged the Clerics, But . . . .
- Internet Savvy Young People
  - Liking “Western Ways”
- A Cauldron of Many Ingredients – Bears Watching

# Other International Factors

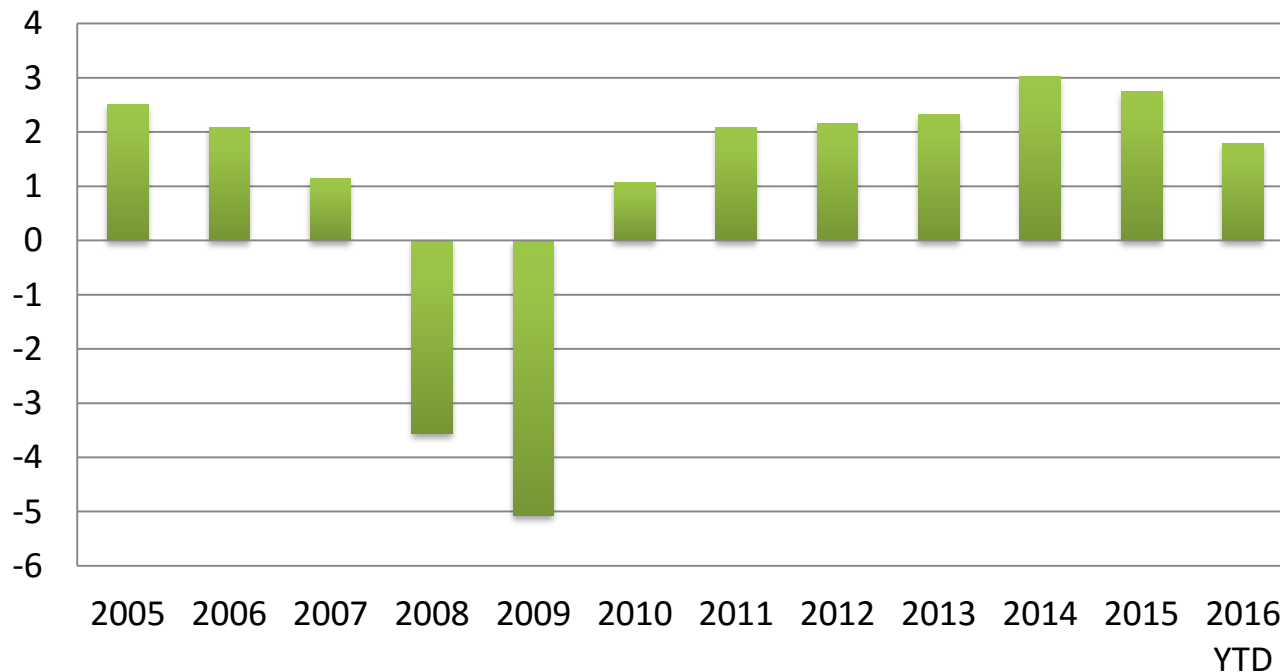
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- Terrorism
- More EU Exits
- Zika And Other Viruses/Diseases (Jim O'Neil's work)
- The American Presidential Elections
- Population Growth and GDP

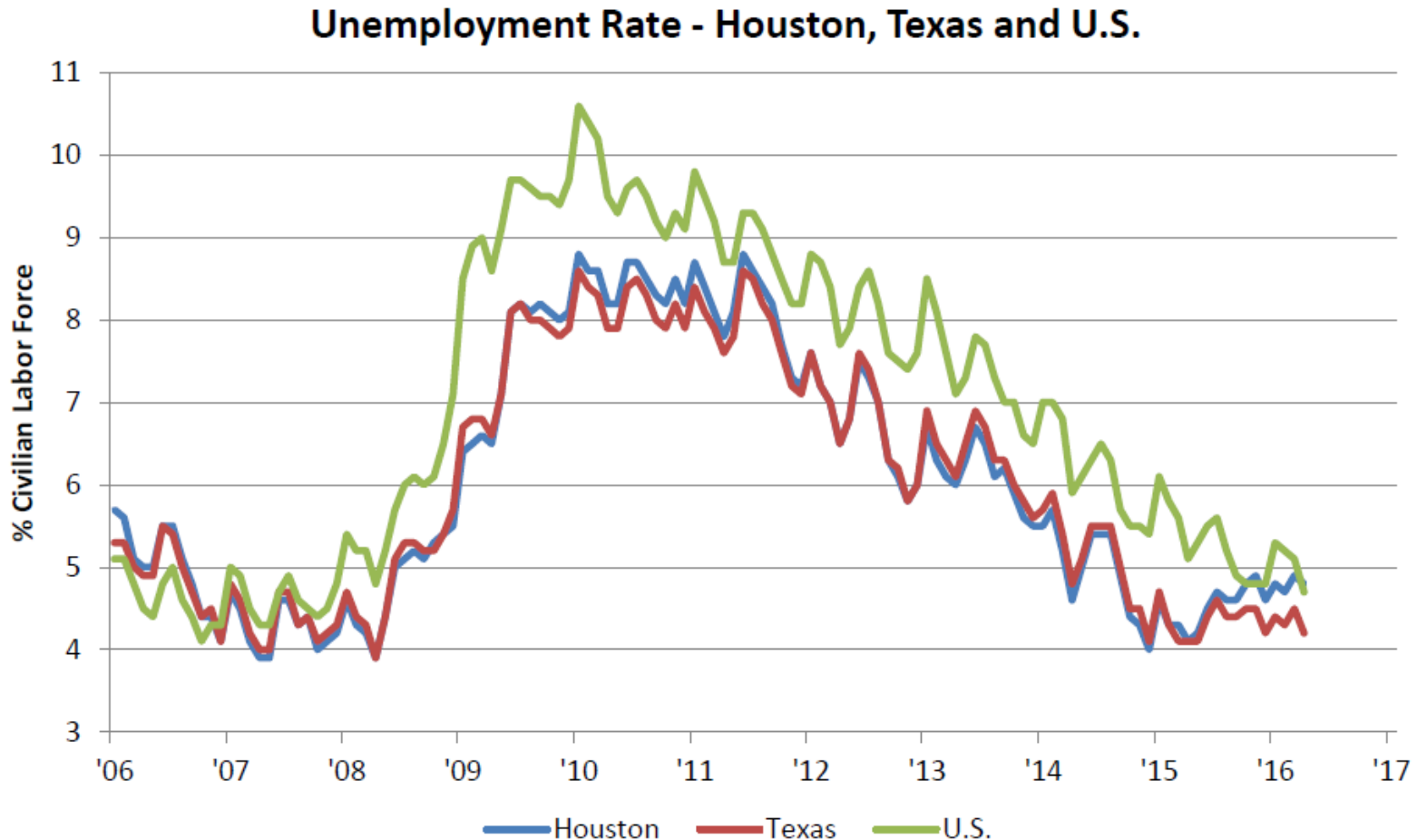
# The US Picture

- Steady Low Growth: 1.5% – 2.5% GDP
- Steady Job Growth: 200,000/month

US Annual Job Growth (Millions)

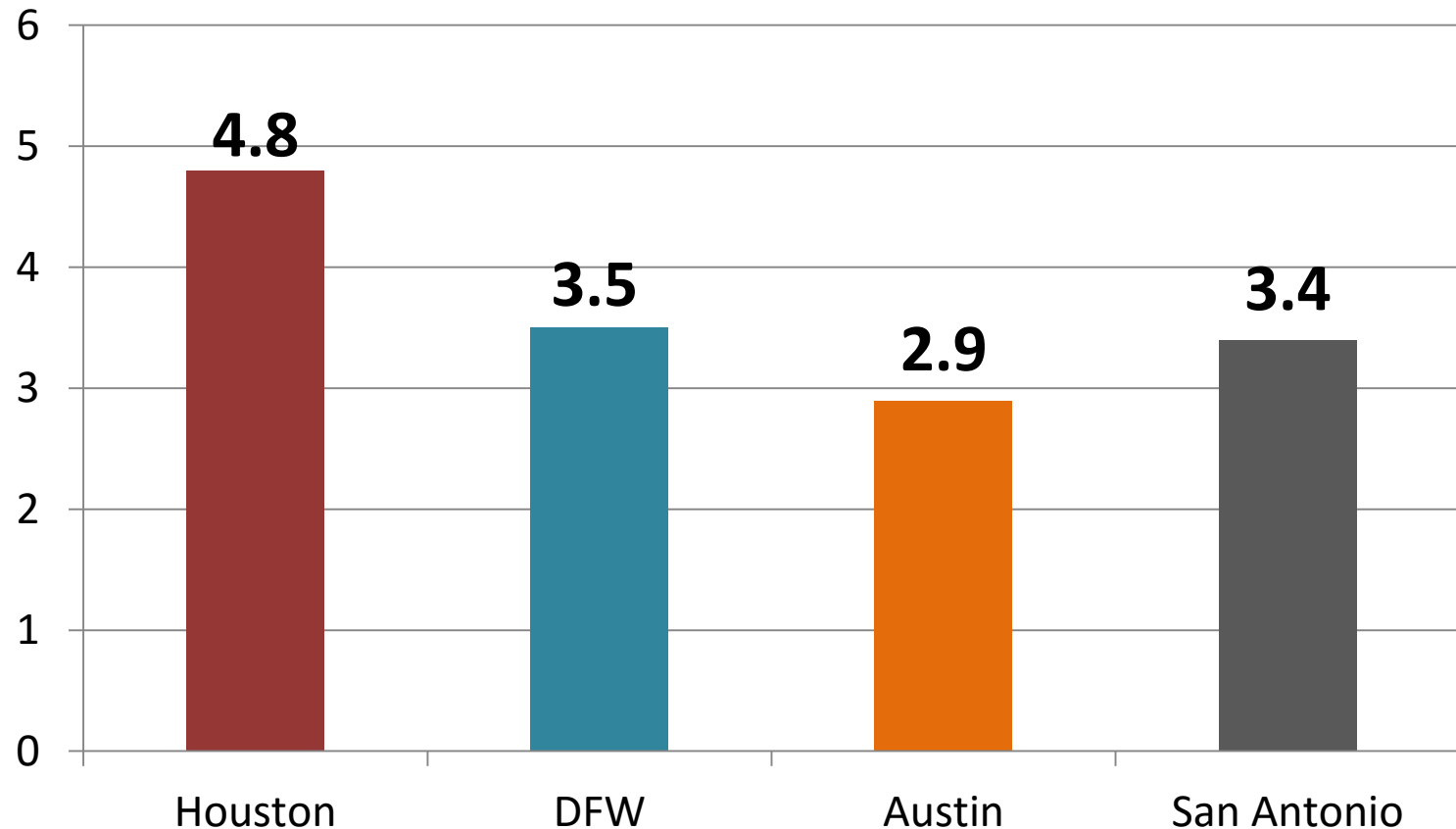


# Steadily Declining US Unemployment Rate Since '10



# Houston Continues to Be the Weak Sister

May 2016 (Not S.A.)



# The Texas Landscape

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- 1.8 Million People Added Since 2010
- 14.2 % of Texas Economy Related to the Energy Companies
  - Job Growth Has Slowed
    - 166,900 (2015) vs. 361,200 (2014)
  - Job Losses in Energy & Manufacturing
    - 33,600 Mining & Logging (Energy)
    - 41,900 Manufacturing
  - One Energy Job Supports Four Others
- 5% Unemployment Rate by Year End
- 1.6% GDP (3% in 2015)

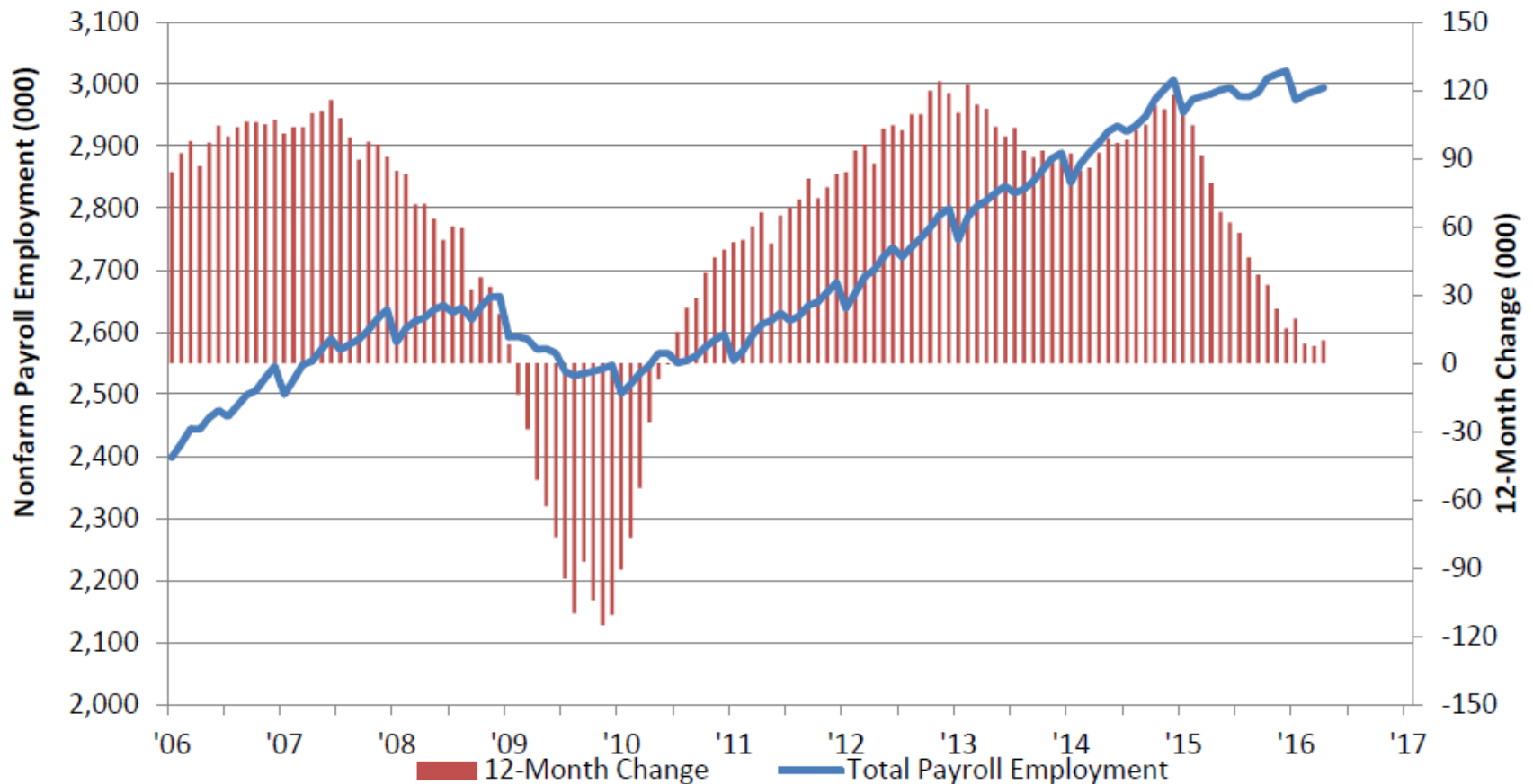
# Population and Employment Projections

Population			
	DFW	Austin	San Antonio
2015	7.1	1.9	2.3
2020	7.7	2.2	2.6
2025	8.5	2.4	2.8
2030	9.2	2.7	3.1
2035	10	2.9	3.3
<b>2040</b>	<b>10.8</b>	<b>3.2</b>	<b>3.6</b>

Employment			
	DFW	Austin	San Antonio
2015	4.3	1.2	1.3
2020	4.8	1.3	1.4
2025	5.2	1.5	1.5
2030	5.7	1.7	1.7
2035	6.3	1.9	1.9
<b>2040</b>	<b>6.9</b>	<b>2.1</b>	<b>2.0</b>

# Houston Employment

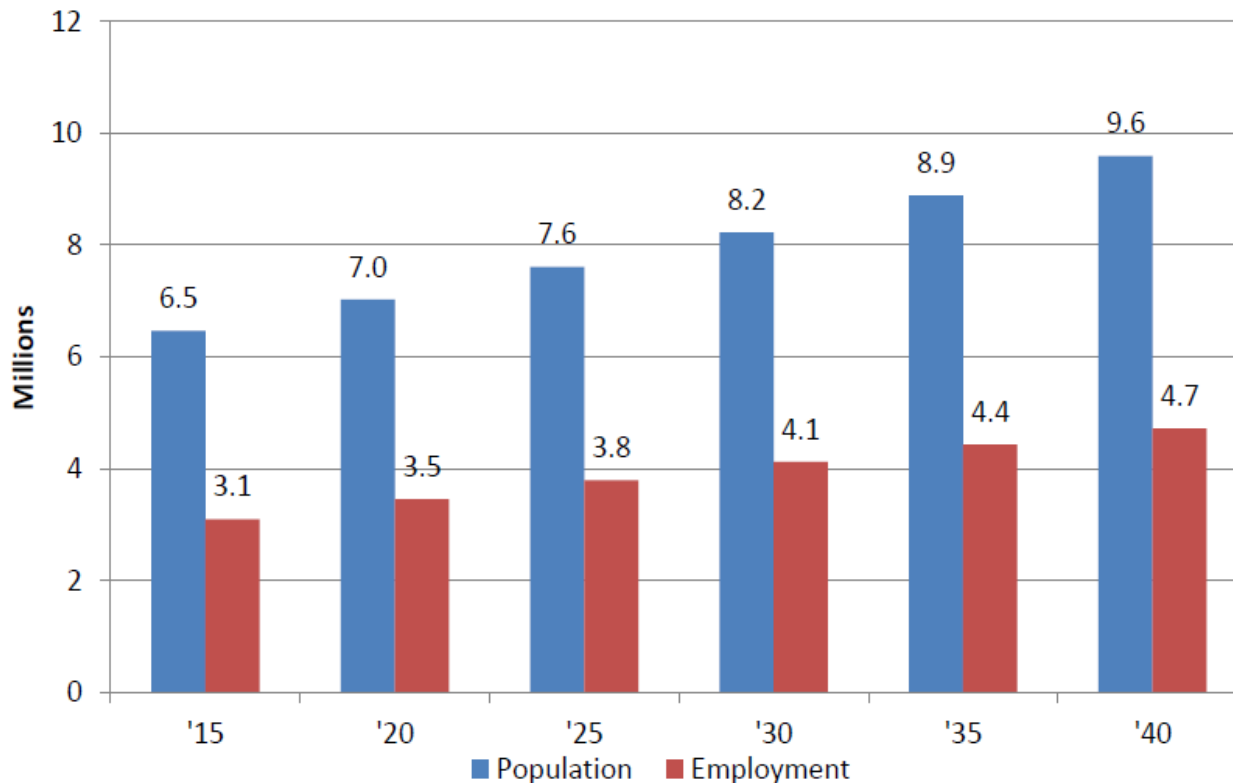
## Nonfarm Payroll Employment, Houston MSA



Source: Texas Workforce Commission

# Forecasted to Grow Faster Than Texas and US

**Population and Employment**  
**Houston-The Woodlands-Sugar Land MSA**

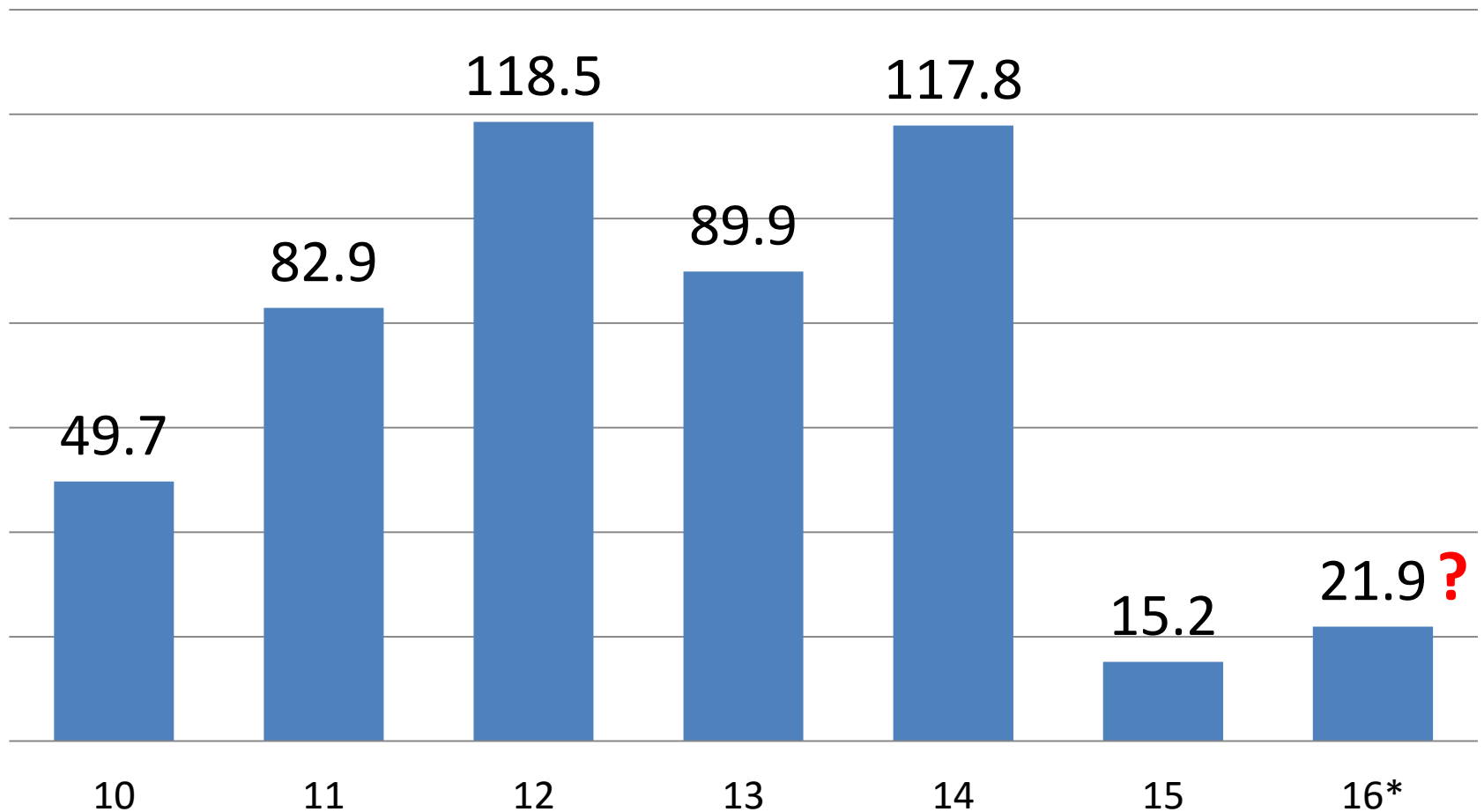


**From 2015 to 2040:**

- 3.1 Million People
- 1.6 Million Jobs

Source: The Perryman Group, Summer 2016

# Metro Houston Job Growth (000s)



\* Partnership Forecast Dec. 2015

# A More Recent Forecast for Houston






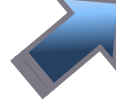
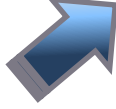
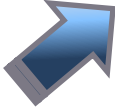
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## Dr. Gilmer's 30/50/20 Weighted Projections (5/16)

2016	-10,800
2017	-30,000
2018	62,900
2019	97,100

# Houston Construction Markets YOY

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- Office 
- Light Industrial 
- Hospitality 
- Residential 
- Multifamily 
- Public Work 
- Medical 
- Education 
- Retail 

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# Declining Markets in 2016

# Office – Q1

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- Saw an Expected Marked Slowdown in 2015
- Vacancy Rate: 14.3% (15% Q2?)
- 5.8 msf Under Construction (15.9 msf in Q1 '15)
- 10 msf Sublease Space
- Further Declines Expected Ahead
  - Increased M&A
  - Rents Declining
  - 4.9 msf to be delivered in 2016 (12 msf in 2015)
- Long Road to Recovery

# Multifamily

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- Held up Better Than Expected in 2015
- Occupancy 89.7%
- Overbuilding and Aware
  - 20,000 units under construction
  - Roughly 25K units in lease up
  - Rents Flattening
  - YTD absorption Half the Pace of 2015
  - Lower Job Growth Preventing the Bounce Back
  - Class A Concessions – 3 Months Free
  - Class B, C & D still relatively strong

# Light Industrial Returns to Normal (Q2)

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- Vacancy Rate: 5.0%
- Absorption: 6.3 msf
- 5.6 msf Delivered in First Half
- 11.2 msf Under Construction (66 Projects)
  - 4 msf = Daikin; 8.4 msf pre-leased
- Sublease Space Up Sharply
- Positive Drivers Remain
  - Low Natural Gas Fueling Petrochem Projects
  - Panama Canal Expansion Now Complete
  - Increasing Amount of Shipments Through the Port

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# Strong Markets in 2016

# Heavy Industrial

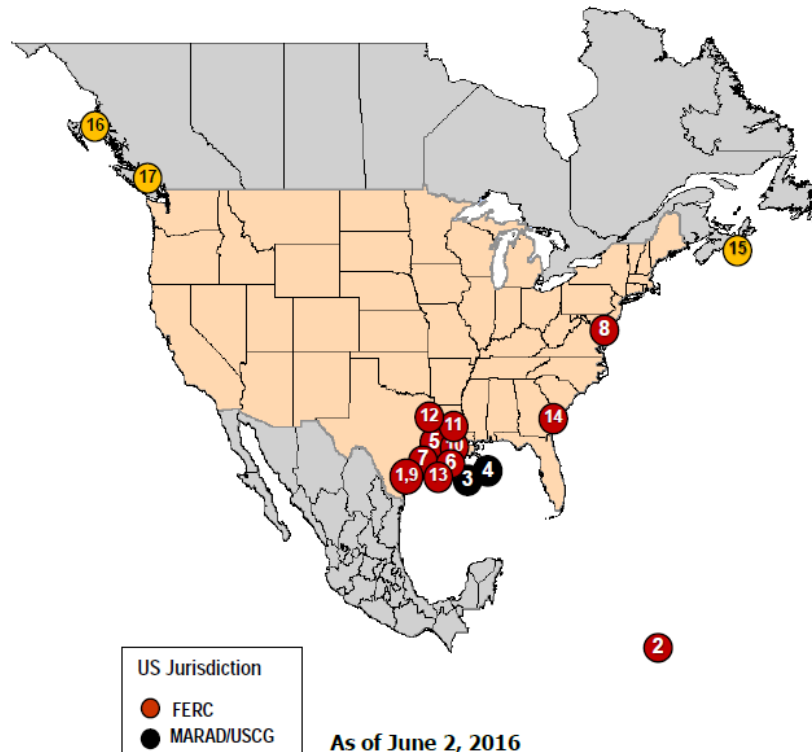
## Large Projects Headline Over \$50 Billion in East Houston Construction

Company	Location	Project	Completion	Value (\$ mil)
Exxon	Baytown	Ethylene	2017	\$5,000
Chevron	Freeport	Ethylene	2017	\$4,000
Dow	Baytown	Ethylene	2017	\$3,500
BASF	Freeport	Ethylene	2017	\$3,000
Freeport LNG	Freeport	LNG Export	2019	\$3,000
Freeport LNG	Freeport	LNG Export	2020	\$3,000
Bayer	Baytown	PUR Facility	2021	\$2,000
CPV	Freeport	Gas to Polypropylene	2017	\$1,500
Freeport LNG	Freeport	Methane to Propylene	2018	\$1,400

Source: Bill Gilmer, IRF

# LNG Plants/Terminals - \$10B each

## North American LNG Import/Export Terminals *Approved*



### Import Terminals

#### U.S.

##### APPROVED - UNDER CONSTRUCTION - FERC

1. Corpus Christi, TX: 0.4 Bcfd (Cheniere – Corpus Christi LNG) (CP12-507)

##### APPROVED – NOT UNDER CONSTRUCTION - FERC

2. Salinas, PR: 0.6 Bcfd (Aguirre Offshore GasPort, LLC) (CP13-193)

##### APPROVED - NOT UNDER CONSTRUCTION - MARAD/Coast Guard

3. Gulf of Mexico: 1.0 Bcfd (Main Pass McMoRan Exp.)
4. Gulf of Mexico: 1.4 Bcfd (TORP Technology-Bienville LNG)

### Export Terminals

#### U.S.

##### APPROVED - UNDER CONSTRUCTION - FERC

5. Sabine, LA: 2.1 Bcfd (Cheniere/Sabine Pass LNG) (CP11-72 & CP14-12)
6. Hackberry, LA: 2.1 Bcfd (Semptra–Cameron LNG) (CP13-25)
7. Freeport, TX: 1.8 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction) (CP12-509)
8. Cove Point, MD: 0.82 Bcfd (Dominion–Cove Point LNG) (CP13-113)
9. Corpus Christi, TX: 2.14 Bcfd (Cheniere – Corpus Christi LNG) (CP12-507)
10. Sabine Pass, LA: 1.40 Bcfd (Sabine Pass Liquefaction) (CP13-552) ★

##### APPROVED – NOT UNDER CONSTRUCTION - FERC

11. Lake Charles, LA: 2.2 Bcfd (Southern Union – Lake Charles LNG) (CP14-120)
12. Lake Charles, LA: 1.08 Bcfd (Magnolia LNG) (CP14-347)
13. Hackberry, LA: 1.41 Bcfd (Semptra - Cameron LNG) (CP15-560)
14. Elba Island, GA: 0.35 Bcfd (Southern LNG Company) (CP14-103)

#### Canada

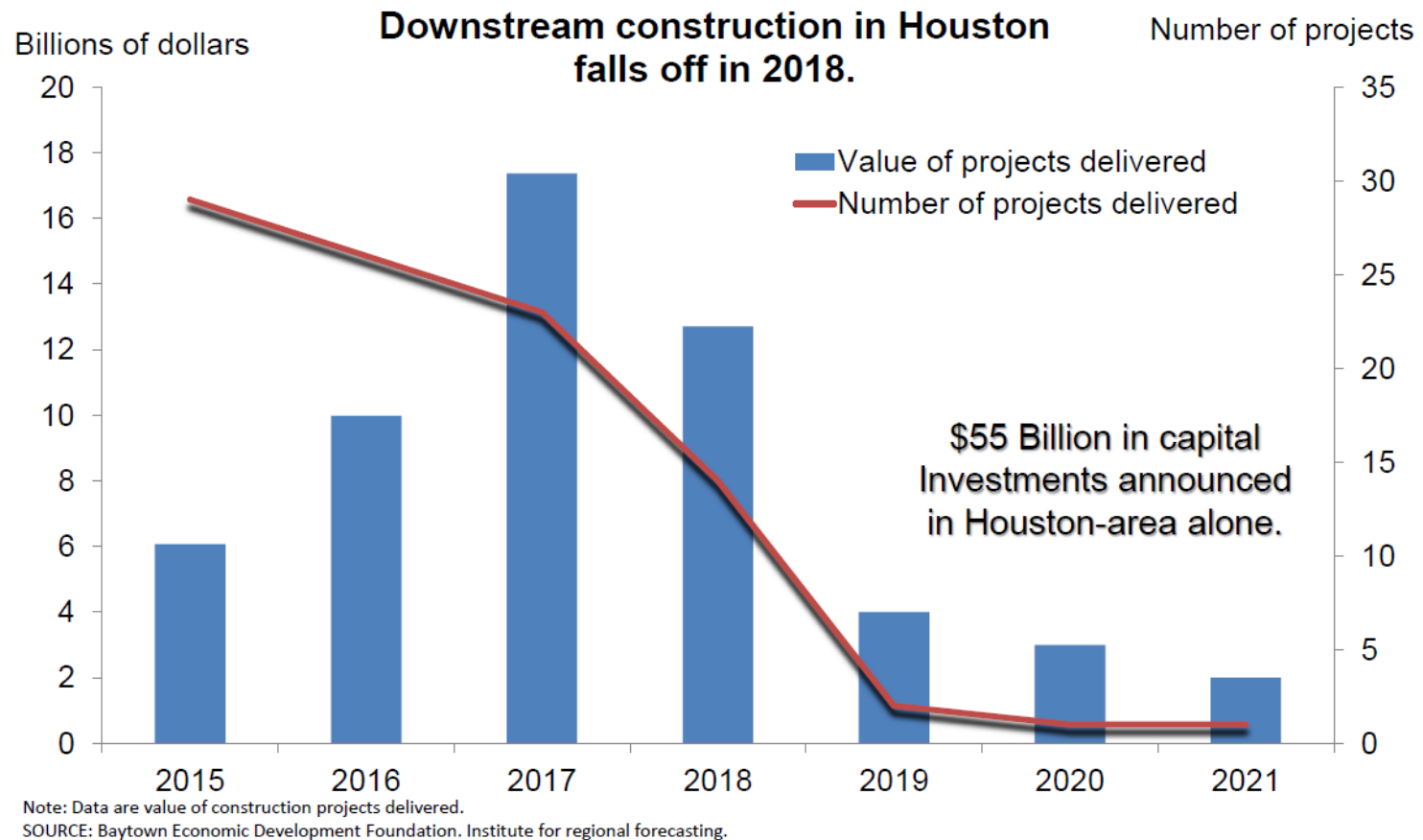
##### APPROVED – NOT UNDER CONSTRUCTION

15. Port Hawkesbury, NS: 0.5 Bcfd (Bear Head LNG)
16. Kitimat, BC: 3.23 Bcfd (LNG Canada)
17. Squamish, BC: 0.29 Bcfd (Woodfibre LNG Ltd)

★ Trains 5 & 6 with Train 5 under construction

# Nothing Good Lasts Forever

## Downstream Advantage



# Public Work/Civil

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## **PUBLIC WORK**

- City of Houston \$577M - up 54% and additional 31% in 2017
- Metro: \$21.57M
- Harris County: \$68.4M
- Port of Houston: \$315M

## **HIGHWAY/CIVIL**

- TxDOT – 1.42 Billion (Largest in 10 Years)
  - Additional \$447M - State Highway Fund
- Harris County - \$233.3M (\$850M Bond in 2015)
- City of Houston – \$565M - flat/down slightly YOY

# K-12 Market

District	Construction
Alief	91.57M
<b>Alvin</b>	<b>168.1M</b>
Angleton	6M
Barbers Hill	4M
<b>Conroe</b>	<b>177.4M</b>
<b>Cy-Fair</b>	<b>150.7M</b>
Damon	1M
Danbury	1.2M

**\$1.79 Billion**

District	Construction
East Chambers	10M
<b>Houston</b>	<b>836M</b>
Humble	64M
<b>Katy</b>	<b>111.4M</b>
Klein	67M
New Caney	54.57M
Royal	1.75M
Waller	50M

- 29 districts reported \$1.365M last year (25 districts this year)
- Channelview, Friendswood, Hull-Daisetta, Splendora, Spring, Spring Branch, Sweeny and Tomball all report no work in 2016.

# School Backlog & Future

District	Bond (2014)
Brazosport	175M
Cy-Fair	1.2B
Dayton	87.8M
Dickinson	56M
Fort Bend	484.1M
Hardin	16.8M
Katy	748M
Lamar	240.6M
La Porte	260M
Pasadena	175.5M
Sweeny	26M
<b>Total</b>	<b><u>3.5 Billion</u></b>

District	Bond (2015)
Aldine	798M
Alief	341M
Alvin	245M
Conroe	487M
Cleveland	35M
East Chambers	10M
Klein	498.1M
Liberty	33.5M
Magnolia	92M
Montgomery	256.75M
New Caney	173M
Willis	109.5M
<b>Total</b>	<b><u>3.1 Billion</u></b>

Combined  
Nearly **\$6.6 Billion** with  
more bond  
elections being  
planned!

Other Districts are still working off their backlogs from previous years' bonds

# Higher Education - \$2B?

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University of Texas	\$550M
Houston Community College	\$250M
Texas A&M	\$225.5M
Lone Star System	\$140M
Texas Southern University	\$60M

+ a new 48 acre UH Katy Campus was announced last month

\$3.1 Billion in Tuition Bonds Approved by the Legislature in May 2015

# Retail (Q1)

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- Playing “Catch Up”
  - Absorbed 2.5 msf Last Year (most in 10 years)
    - 460 ksf absorbed in Q1
  - 6.2% Vacancy (2.3% in Class A)
  - 2.2 msf under construction (88.6% Preleased)
    - Wulfe & Co. forecasts 4.5 msf to be added this year (33% above 2015 and highest since 2008)
  - Supermarket Anchored Centers Losing Ground
    - Despite 28 new grocery stores coming online, 65% of construction is mixed-use, neighborhood centers and freestanding retail projects
  - Big Box Expansions on the Rise
  - Outside Retailers Continue to Move In
  - Grand Parkway a Hot Spot for Development

# Texas Medical Center

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The Bold New Leadership Visions and  
Initiatives in the Reenergized TMC

Innovation

Health Policy

Genomics

Regenerative Medicine

Clinical Trials

# Medical Center Projects

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- Projects – So Far – That Spin Out of These Initiatives
  - TMCx – Innovation Labs – Drugs/Devices/Technology
  - TMC 3 – 1.4 Million Square Feet of Shared Research Space
  - Plus Offices for Partners
    - Johnson & Johnson, AT&T, IBM, Apple, Private Equity/VCs
  - Hotel & Conference Center
  - Very Exciting to Follow

# And Then . . .

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- There is the University of Texas's 500 Acres South of TMC

## **“An Intellectual Hub”**

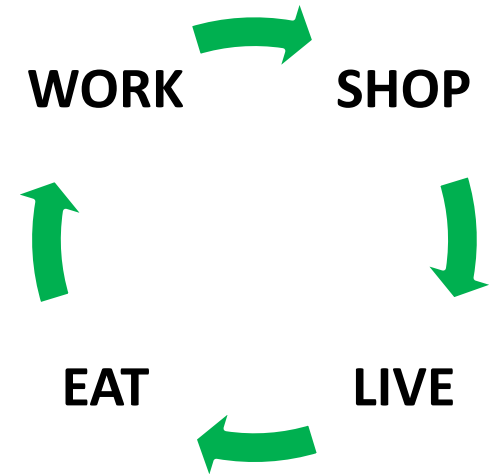
- Possible Engineering Institute
- Medical Mission – Cure Alzheimer's
  - A Mission Like the “Manhattan Project” – Admiral McRaven



# Strategic Issues

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- Changing Employer/Employee Relationship
  - Social Contract Broken
  - Gravitate to Where They Are Mentored/Coached
    - Learning/Development - #1 on Needs List
    - Will I Fall Behind At Your Company?
  - Work/Life Balance - #2 on Needs List
  - Performance Over Presence



# Strategic Issues

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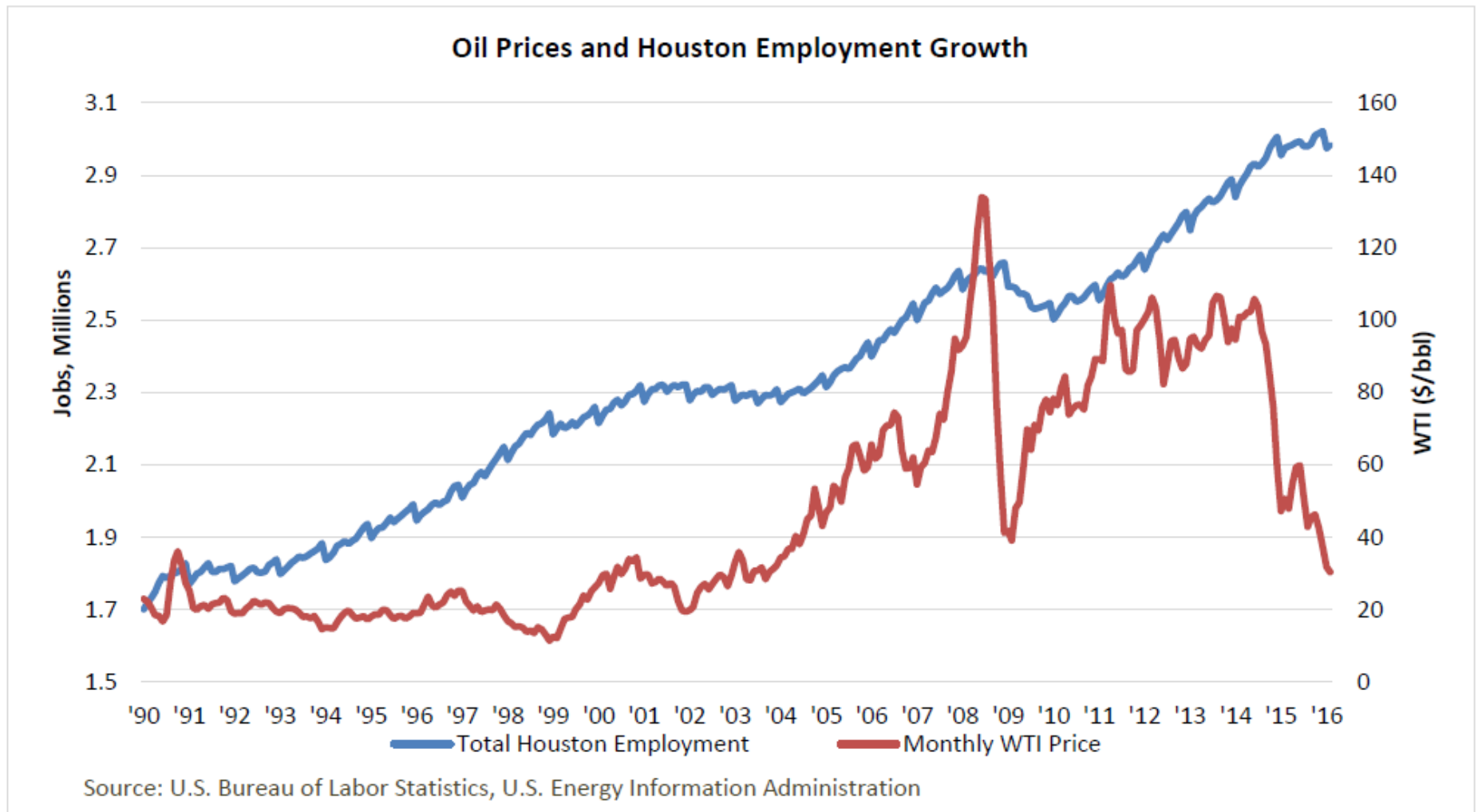
- Craft Worker Shortage
  - Real Issue Until 2018 for All Markets
  - Industry Making Real Efforts
    - Construction Career Collaborative (C3)
    - Upskill Houston
    - ConstructionCitizen.com
    - Immigration Reform
- Delivery Systems Changing
  - Prefabrication
  - Off Site Build/On Site Install
  - 3D Printing

# Strategic Issues

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- Technology Usage Growing
  - BIM and Beyond
  - Drones
  - Wearable – Vital Signs
  - Robotic Craft Workers
  - Strategic Separation – M&A Activity

# Oil vs. Employment in the 90's



# ABOUT KILEY ADVISORS



Kiley Advisors is retained to work as coaches and strategists or engaged to conduct strategic planning sessions and leadership workshops or retreats. Our areas of practice encompass long range growth plans, leadership development, human resources management, and market research. Our services include:

- **Strategic Planning Facilitation**
- **Talent Inventory, Evaluation and Development**
- **Facilitation of Peer Groups**
- **Facilitation of Labor Negotiations**
- **Free Monthly Newsletter with Latest Market Trends and Data**
- **Conferences on Strategic Issues Affecting Construction CEOs**
- **Presentations on a variety of topics including Millennials, Leadership, War for Talent and our Houston Commercial Construction Forecast**

**For more information on how Kiley Advisors can add value to your firm, please call 713-840-1775 or email [chernandez@kileyadvisors.com](mailto:chernandez@kileyadvisors.com)**