Rice Global E&C Forum
Engineering & Construction

2015 Market Forecast

Kiley Advisors LLC

August 14, 2015

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Houston – The Energy Capital of the World

- 70% of Employment Base
- Average Energy Compensation $185,000
- All Others Average $64,500

US Shale Plays

Source: Energy Information Administration based on data from various published studies.
Updated: May 9, 2011

Source: EIA

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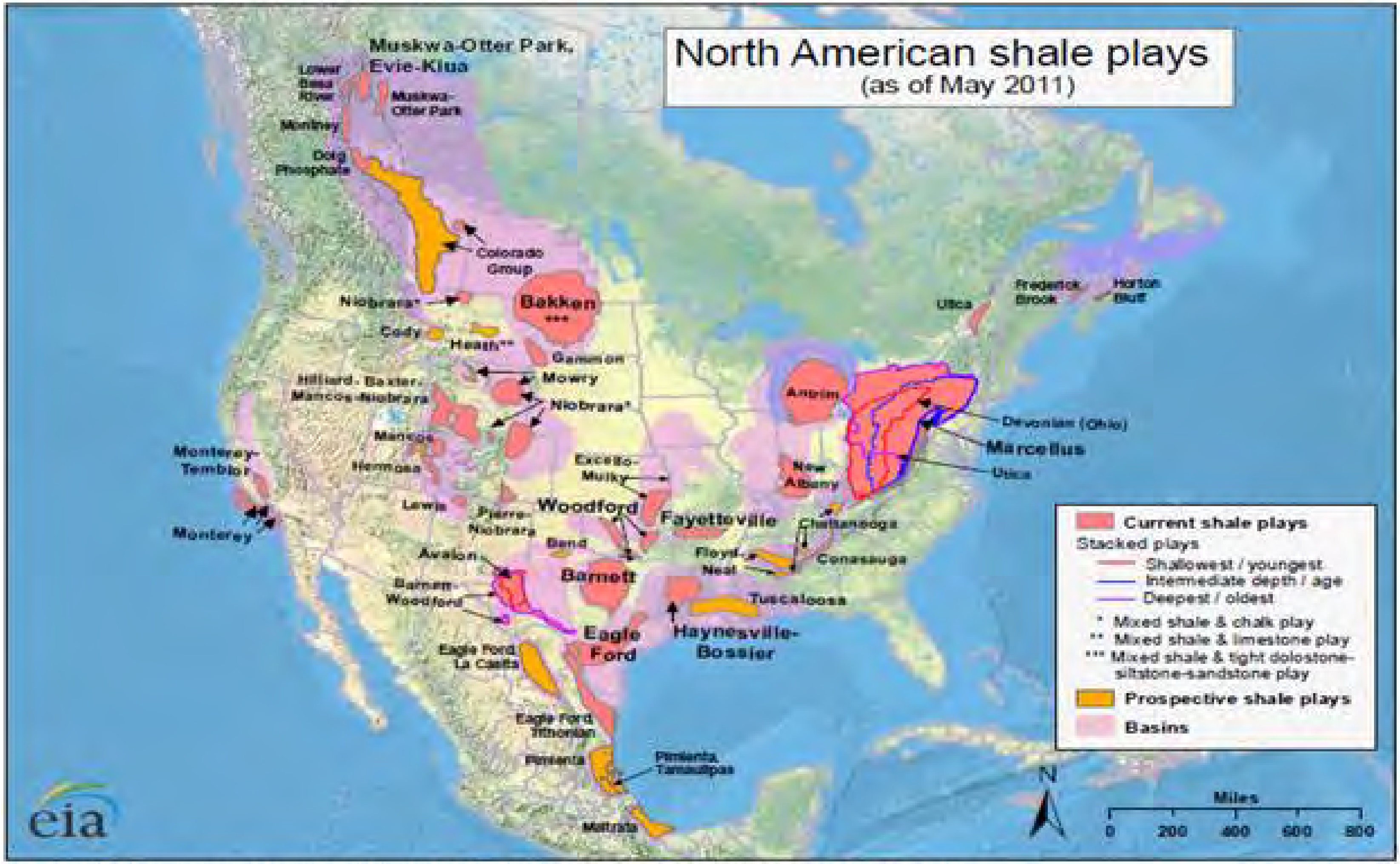
Upstream



Source: U.S. Energy Information Administration based on data from various published studies. Canada and Mexico plays from ARI.
Updated: May 9, 2011

Sources: Adam Purdue, IRF; EIA

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Upstream vs. Midstream vs. Downstream

- **Upstream** (Exploration and Production)
  - 4 of the 5 Major Oilfield Service Companies are Houston Based (Baker Hughes, Halliburton, Weatherford, Schlumberger)
  - Layoffs Are Not All in Houston
- **Midstream** (Pipeline and Storage) Mildly Affected
- **Downstream** (Processed and Refined) Thriving with the Low Prices

Source: GHP; Bill Gilmer, IRF

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The Current Challenge

- Demand Dropping
  - Slow down in Europe and Emerging Markets
- Production and Inventory Increasing
  - Prices are dropping – and significantly
- Need 93.6 Million BPD
- Producing 95.4 Million BPD
  - US: 9.5 Million BPD
  - TX: 3.6 Million BPD

Source: GHP; EIA

The Negative Impact of Oil Prices

Price of Oil

- “From ‘09 to ‘13, the industry outspent its cash flow by $272B”
- 3M barrels/day in Texas - $50 less per barrel means a loss of $150M/day in cash flow - for debt repayment and reinvestment

Sources: HIS Herold Research; EIA; CNN.com

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Global Impact of Low Oil Prices

- Consumers and Corporations Benefits
- International Monetary Fund (IMF)
  - 0.5% to Global GDP
- Federal Reserve
  - 0.5 – 0.6% to Domestic GDP
  - $675 - $700/Household

Source: Federal Reserve

The OPEC Dilemma

COUNTRY	ESTIMATED OIL PRICE REQUIRED TO BALANCE 2015 BUDGET
Norway	$40
Kuwait	$54
Abu Dhabi	$55
Russia	$105
Saudi Arabia	$106
Nigeria	$122
Iran	$131
Algeria	$131
Venezuela	$160

Source: IMF, The Telegraph

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Here Though is THE Concern

Four of the OPEC Countries:

- Saudi Arabia
- Qatar
- Kuwait
- United Arab Emirates (UAE)

Started **2.3 Trillion** in Surplus Funds!!

- Saudi = $664 Billion

Source: Industrial Information Resources, The Telegraph

Saudi Arabia – The OPEC Bell Cow

- Raised Production to 10,600 bbls/day – “Hydrocarbons Fading”
- Large Welfare Country – Richard Haass – CFR
- Spending 1/6 of their Reserves/Year to Finance Deficit
  - Population Continues to Grow
  - Increased Security Spending
- They Have to Change This Picture – Iran Looms

Source: Ian Bremmer, Eurasia Group

The Picture Right Now

- Rig Count Dropping Rapidly
  - Now Below 900
  - Sept 2014 – 1904
  - Too Low?
- The Picture
  - Private Companies – Many 100%
  - Public Companies 50 – 100%
  - Drilling Contractors Cutting Prices 40 - 50%
    - “Lift Cost” Much Lower
  - Cutting Employees as Well

Source: GHP; Wood Mackenzie; Federal Reserve Bank

The Reserve Evaluation Challenge

- Lending – Based on Proven Reserves

AND

- Projected Prices
- Hedges Rolling Off

Source: GHP; Wood Mackenzie; Federal Reserve Bank

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The Impact

- M&A Activity Abounds
  - Halliburton/Baker Hughes
  - Many More in Talks Now
- People Acquiring Assets – Right Time
  - PE Firms
  - Bigger Boys

Source: GHP

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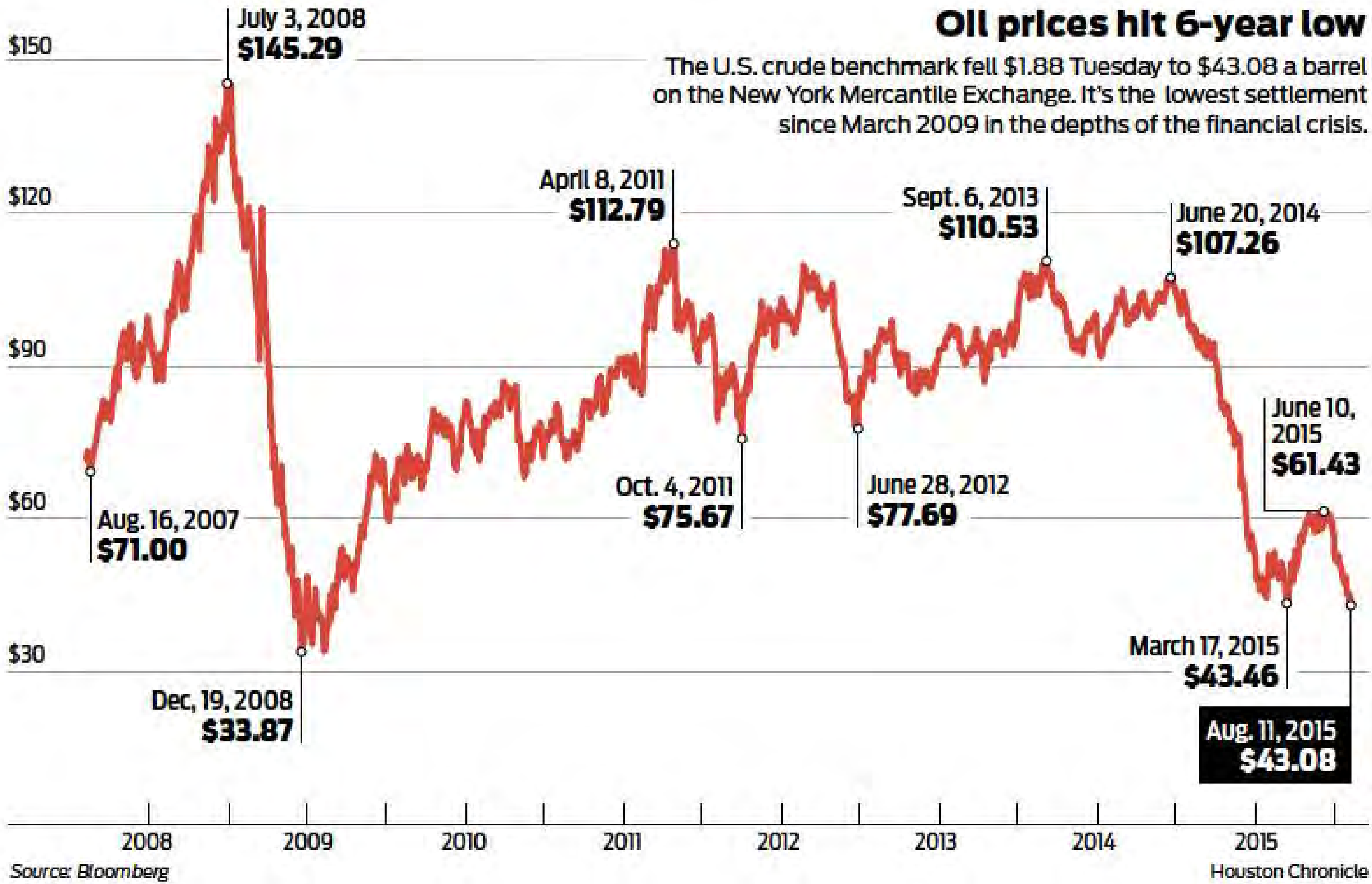
The New Challenges This Week

- Low 40's Oil
- Devaluation of the Chinese Currency – The Yuan
- What Will This Mean?
  - More Cuts – People and Production
  - Cheaper Imports/More Expensive Exports
  - Low Interest Rates



Sources: Houston Chronicle

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Interest Rates?

- Low Interest Rates
- How Much Longer?
  - Corporations Not Using For CAPEX to Grow
    - Stock Buy Backs
    - Enrichment of a Few
- Greenspan (8/10/15) – CAPEX Too Low to Allow Increased Productivity

Sources: Houston Chronicle

The Space Picture

- 2.7 msf Sublease since January 1st
- Vacancy Rate Up (Still Favorable)
- Rents Up
- Office Projects Being Delayed – Some Cancelled
- Light Industrial – Might Be Impacted Over Time

Source: GHP, CBRE

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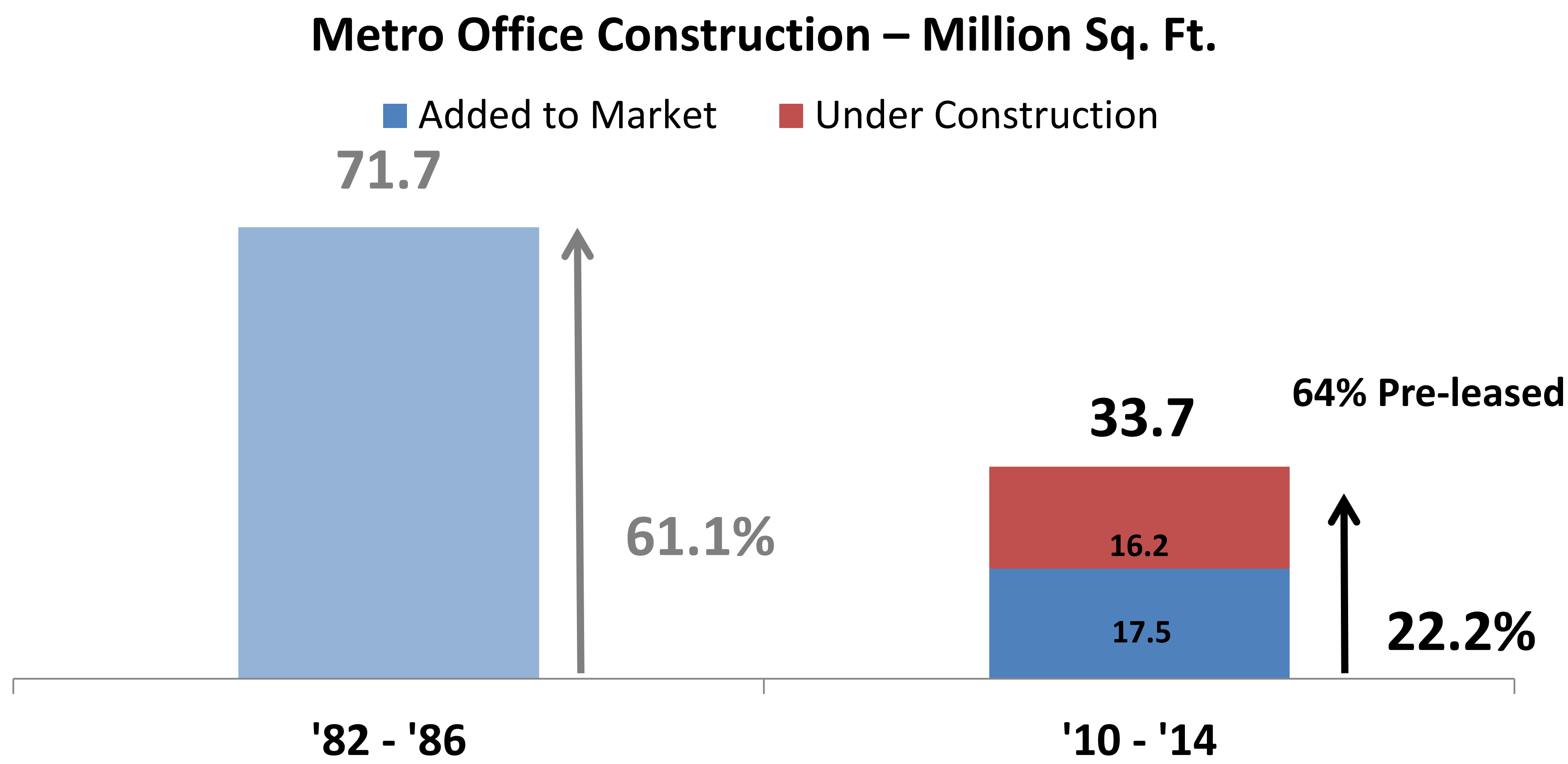
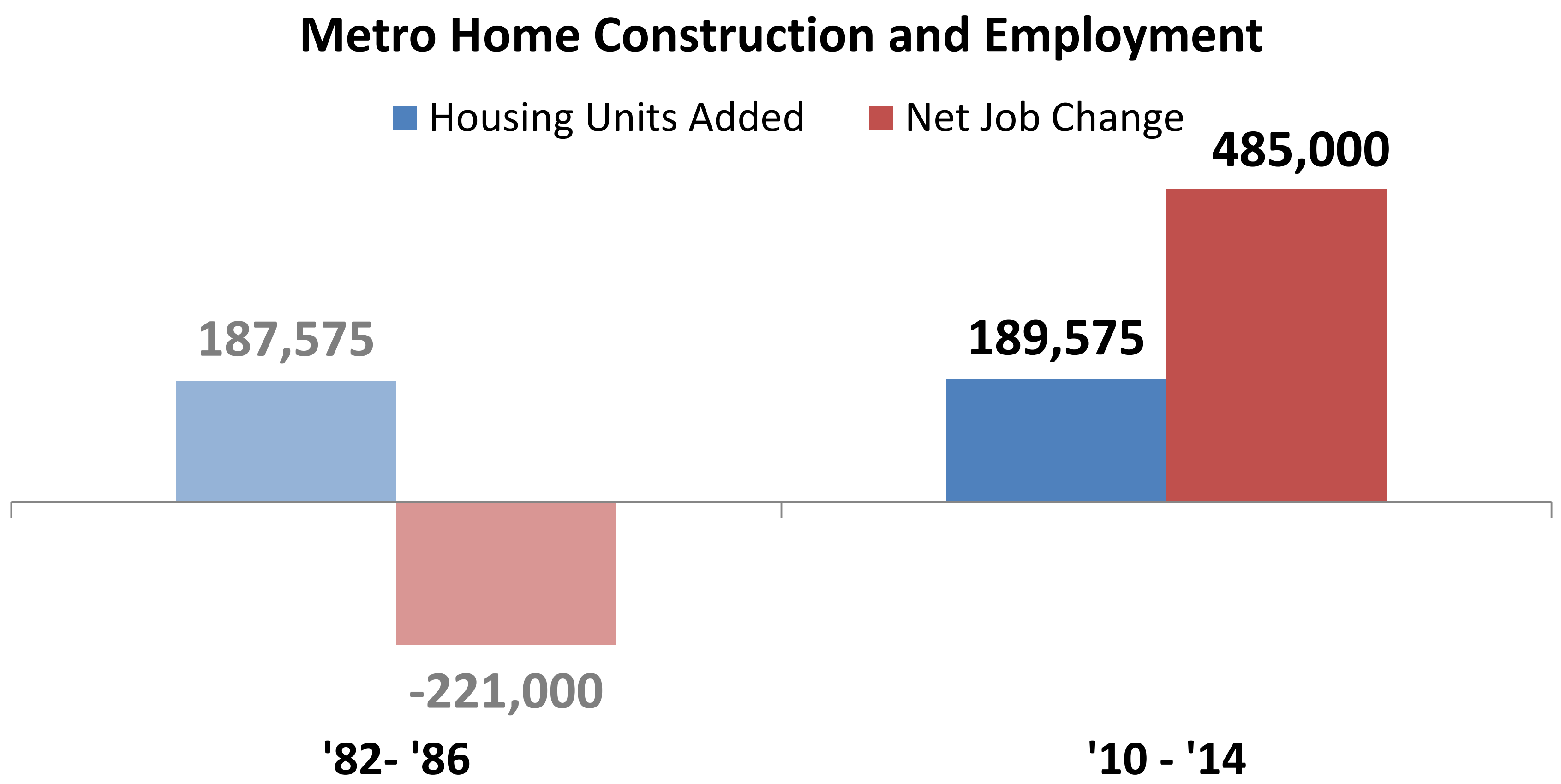
Not the 80's



Source: *Houston Facts, '82 – '87* and JLL Houston

Source: GHP

Not the 80's



Source: *Houston Facts '82 – '87 and* Texas Workforce Commission

Source: GHP

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The Mid Year Picture – Less Optimistic

- Supply is Strong – Potentially Getting Stronger
- Demand → Domestic / International → Weak

And Could Get Weaker

- US GDP 3%, now 2%+
- Europe 1.4% - O.K. (Greece!)
- China Struggling to Achieve Their 7%
  - Commodity Markets Worldwide Impacted – Brazil/Australia
  - One Belt One Road Initiative

Source: Federal Reserve; EIA; IMF

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Employment & Population Forecast

2015 Projected Texas Job Growth and by Major Metro

- Texas: +289,168
- Houston: +75,452 (GHP's forecast is 20,000 to be added. Perryman published their forecast before oil prices plummeted.)
- Dallas: +83,292
- Austin: +23,947
- San Antonio: +22,183
-

2015 Projected Texas Population Growth and by Major Metro

- Texas: +445,548
- Houston: +113,652
- Dallas: +118,509
- Austin: +42,037
- San Antonio: +41,414

Sources: IRF; The Perryman Group

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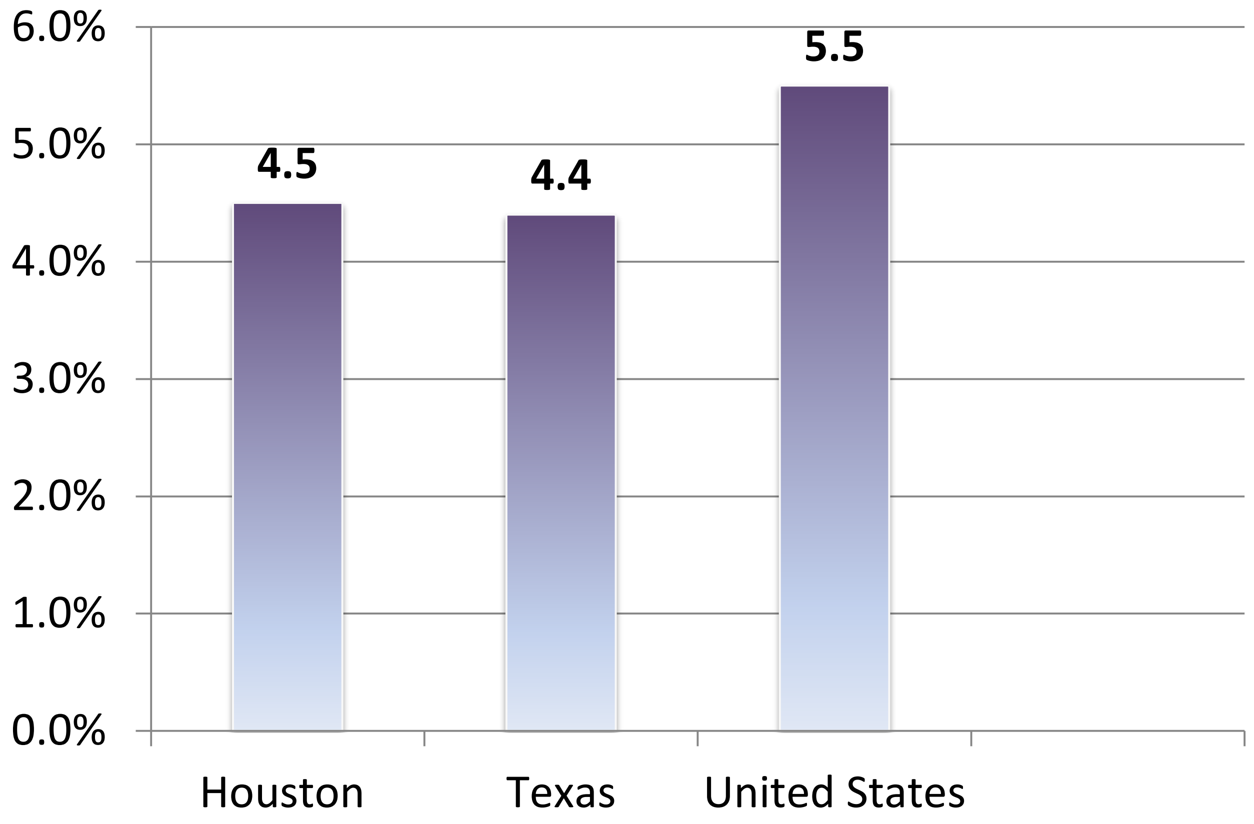
Current Unemployment (June)



Sources: Bureau of Labor Statistics

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America’s Fastest Growing Cities

America's Fastest-Growing Cities 2015

1. Houston, Texas

MSA: Houston-Sugar Land-Baytown, TX

2014 Population growth rate: 1.81%

2015 (Projected) pop. growth rate: 1.74%

Sources: GHP; Forbes

The Houston Picture

- Job Growth Sputtering (0 – 1%)
- Population Holding
- Vacancies Rising/Absorption Slowing – Sublease Space Growing
- Architects Still Getting Inquiries
- Money Still Available
- War For Talent (STE(A)M Continues)

Sector and Segment Highlights

2011 2-3 Years 2014

State Local Tax Revenue Increase

Jobs → Community Growth → Public Service

Energy Sector – Basic Jobs

Non-Basic Jobs

Sources: David Rowe, Durotech

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Source: Scott Bywater

Residential

- Continued Tight Market with Short Supply – 3.2 months
- June 2015 home sales are outpacing YoY 2014
- Home Prices are Rising
- 28,000 Homes Delivered by Year-End
- Potential for No Developed Lots in 2017/18
- Several New Master Planned Communities off Grand Parkway
  - Elyson, Cane Island, Woodson's Reserve, Valley Ranch, Harvest Green
  - NorthGrove at Spring Creek – Magnolia; Tavola – New Caney; The Groves & Bridges of Lake Houston – West Lake Houston Parkway
  - Replacing the MPC build outs (Cinco/Woodlands)
- Expect a Slowdown Towards Year End
  - Lower Oil Price and Lower Job Creation
  - Back to Normal

Multi-Family (Q2)

- Occupancy 91.4% and Rents Averaging $1.10 per sf
- Over 5,600 units delivered with almost 4,900 units absorbed
- Another 23,766 units under construction
  - Estimated 24,000 units to be delivered in 2015
- Pipeline Slowing
  - Developments that have not already broken ground have been put on hold indefinitely
  - Approximately 50+ commercial sites that were slated for multifamily have fallen out of contract
- 1 Apartment for Every 5-7 Jobs
  - 2014: 122K jobs = 17,500 – 24,500
  - 2015: 50K jobs = 7,200 – 10,000
- At Risk of Overbuilding?
  - 8,000 vacant drops occupancy 1-2%
  - Residential Buoy?

Heavy Industrial

Ethylene Projects Proposed or Under Construction In or Near Houston

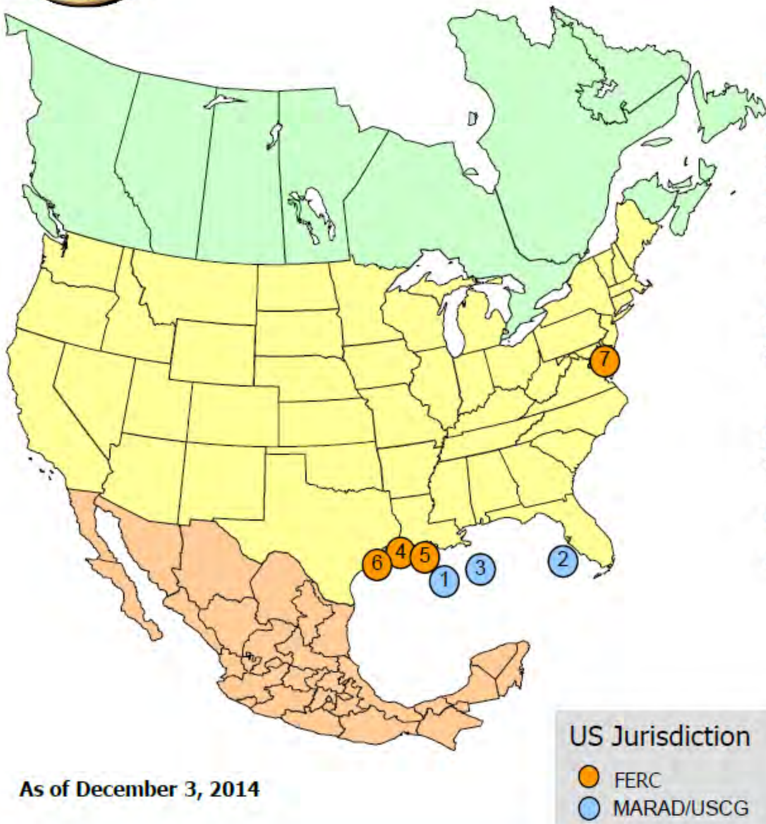
Company	Scale (thousand m tons/yr)	Location	Completion
ChevronPhillips	1,500	Baytown	2017
ExxonMobil	1,500	Baytown	2017
Dow	1,500	Freeport	2017
Sasol	1,500	Lake Charles	2018
Occidental	500	Ingleside	2017
Formosa Plastic	1,200	Point Comfort	2017
LyondellBasell	450	La Porte and Channelview	2016

Source: Bill Gilmer, IRF

LNG Plants/Terminals

North American LNG Import /Export Terminals

Approved



Import Terminal

APPROVED - NOT UNDER CONSTRUCTION
U.S. - MARAD/Coast Guard
1. **Gulf of Mexico:** 1.0 Bcfd (Main Pass McMoRan Exp.)
2. **Offshore Florida:** 1.2 Bcfd (Hoëgh LNG - Port Dolphin Energy)
3. **Gulf of Mexico:** 1.4 Bcfd (TORP Technology-Bienville LNG)

Export Terminal

APPROVED - UNDER CONSTRUCTION
U.S. - FERC
4. **Sabine, LA:** 2.76 Bcfd (Cheniere/Sabine Pass LNG) (CP11-72 & CP14-12)

APPROVED – NOT UNDER CONSTRUCTION
U.S. - FERC
5. **Hackberry, LA:** 1.7 Bcfd (Sempra – Cameron LNG) (CP13-25)
6. **Freeport, TX:** 1.8 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction) (CP12-509)
7. **Cove Point, MD:** 0.82 Bcfd (Dominion – Cove Point LNG) (CP13-113)

As of December 3, 2014

Office of Energy Projects

Source: Federal Energy Regulatory Commission

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Highway/Civil

- TxDOT - $496 Million
  - 290 continues to be majority of work
- Rainy Day Fund Puts 1.74B in Texas
  - $278 Million in Houston
- Metro has $172.7 Million in Metro Rail Expansion
- Harris County - $188 Million

Sources: TxDOT; Metro; Texas Condemnation

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Highway/Civil

- City of Houston - up 20% YOY
- AGC of Texas Survey Shows 2.2 Billion in Houston across all agencies

Department	Amount
Storm Drainage System	89.2 M
Street & Traffic Control	$146.4 M
Wastewater Treatment Facilities	$155.5 M
Water Utility System Facilities	$219.3 M
Total	**$610.4 Million**

Sources: City of Houston; Harris County

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Commercial and Light Industrial

Public Work

Commercial Public Work Up

- City of Houston flat YOY
- Metro – $186.8M
- Harris County - $10.5 Million
- Port of Houston - $200 Million

COH Departments	Amount
Aviation Facilities	$132.7 M
Fire Protection Facilities	$8.8 M
General Government Facilities	$3.7 M
Homeless & Housing Facilities	$36.7 M
Library Facilities	$9.5 M
Parks and Recreation Facilities	$57.3 M
Police Facilities	$58.1 M
Public Health Facilities	$3.7 M
Solid Waste Management Facilities	$1.1 M
Total	**311.6 M**

Sources: City of Houston, Metro, Harris County and Port of Houston

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School Market

Alief	$9,150,000	Humble	$29,000,000
Alvin	$21,000,000	**Katy**	**$335,500,000**
Barbers Hill	$9,000,000	**Klein**	**$189,000,000**
Conroe	$6,000,000	**La Porte**	**$181,000,000**
Cy-Fair	**$192,500,000**	Pasadena	$6,500,000
Damon	$1,000,000	Royal	$3,500,000
Dayton	$30,000,000	Spring Branch	$50,000,000
Hardin	$16,000,000	Sweeny	$17,000,000
Houston	**$267,200,000**	Texas City	$250,000
Huffman	$1,500,000		

Total **$1.365 Billion** (29 Districts)

- 21 districts reported $549M last year
- Channelview, Deer Park, Dickinson, East Chambers, Goose Creek, Hull-Daisetta, Pearland, Santa Fe, Sheldon and Waller all report no work in 2015.

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School Backlog & Future

School	Bond (2014)
Brazosport	175M
Cypress-Fairbanks	1.2B
Dayton	87.8M
Fort Bend	484.5M
Katy	748M
Dickinson	56M
Lamar	240.6M
La Porte	260M
Pasadena	175.5M
Sweeny	26M
Total	**3.4 Billion**

Bond in 2015
Alief - $341M
Klein – $498.1M
Montgomery - $256.75M
New Caney - $173M
Total: $1.3 Billion

November?
Alvin
Conroe
Santa Fe
Spring Branch
Waller

Other Districts are still working off their backlogs from previous years' bonds (HISD 2012 1.89B)

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Higher Education

University of Houston - $286 M

Sam Houston - $134.5M

Baylor University - $7M

Houston Community College - $250M

Texas Southern University – $1.5M

St. Thomas - $600K

Lone Star System – $130M ($485M Bond)

Texas A&M - $367M

Pent Up Demand but Contingent on State Budget and Revenue Bonds ($3.6B)

Sources: Texas Building Branch AGC

Churches

- Estimated $325M market
  - Archdiocese of Galveston-Houston has $25M in projects
- Grand Parkway will spur some projects
- Possible softening as fundraising can be more difficult in declining economy

Commercial and Light Industrial
Private Work

Office Buildings (Q2)

- Slowing (but Positive) Metrics
  - Absorption: 1.4 msf
  - Overall Vacancy: 13.4%
  - Sublease Market Hit High
    - 6.8 msf (2.7 msf this year)
  - Average Rental Rates: $27.57 - Up YOY
  - 11.8 msf under construction (55% preleased)
    - No spec buildings in the pipeline

Mixed Use

- 4 Large Mixed Use Projects Planned Along Grand Parkway
  - Grand Crossing
  - Verde Parc
  - Valley Ranch
  - Grand Hardy
    Riley Crossings
- Others
  - Generation Park
  - The Ivy District
  - The Village at Palm Center

Light Industrial (Q2)

- The Metrics are Favorable
  - Absorption: Over 1.1 msf
  - Nearly 12 msf Delivered (2008 - -12.3 msf)
  - Vacancy Rate: 4.8%
  - Average Asking Rates: $0.69 - Up YOY
    - And expected to continue to rise 4.3% annually through 2017
  - 6.1 msf delivered since beginning of the year
  - 10.3 msf under construction (72 projects)
- Panama Canal Expansion Completed Next Year
  - Houston Becoming a Distribution Hub
    - (Silver Eagle - 400K sf, Aldi – 650K sf)
- Grand Parkway Offers Affordable Opportunities
- Oil Price Impact

Sources: CBRE; GHP

Retail (Q2)

- More Favorable Metrics
  - Absorption: 715 ksf– up YOY
  - Vacancy Rate: 6.3% (NR) Even tighter in Inner Loop/West Houston
  - Rental Rates: Avg. $23.46 –up YOY
  - 1.3 msf under construction
    - Strong Pipeline of Work (over 8 msf proposed; 2.5 msf to begin soon)
    - 365 Concept; HEB; Kroger
- Population and Job Growth are Drivers
  - Increased spending money of consumer
- Subdivision Activities (Springwoods, Wrights Landing, Stonebrook Estates, Laurel Park North)
- In-Fill Around Grand Parkway
- Increasing Entertainment, Luxury and Fitness Expansions

Sources: CBRE; GHP; Houston Business Journal

Retail

Construction Cycles	Deliveries (MSF)	Occupancy (%)
1980 – 1989	35.3	75.9
1993 – 1996	17.1	86.9
1999 – 2002	21.9	87
2006 – 2009	20.2	86
2012 -2015	**5.6**	**93.5**

Sources: CBRE (Q1 Report)

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Hospitality

- Metrics Favorable
  - Occupancy/RevPAR/Rates
- Flat in 2015
- Slow Growth in 2016
  - Final Preparations for Super Bowl
- Stronger Convention Activity Expected This Year
- Additional Cruise Lines Out of Galveston
- Additional 6,000 – 8,000 Rooms In the Next Three Years

Sources: PKF Consulting; GHP

Medical

- $2B+ in Pipeline
- ObamaCare a “known”
- Accountable Care
  - Electronic Records, Integrated Providers
  - Premium Provided to Systems
- Research Park Initiative
- Projects
  - Memorial Hermann TMC Expansion - $533M
  - Methodist North Tower - $540M
  - Texas Children’s Expansion - $506M
  - CHI St. Luke’s at Springwoods - $110M
  - Memorial Hermann in Cypress - $168M
  - UTMB Galveston Expansion - $42M
  - MDA Cancer Center - $9.5M

Sources: Houston Business Journal; GHP; Healthcare Design Magazine; Houston Chronicle

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The Second Energy Corridor

290 to 59 N (38 miles) slated to open by year end 2015

Source: Houston Business Journal

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Issues

- Talent
  - Craftsman – C3
  - Industrial Tug
  - Millennials
    - Culture/Engagement
  - Immigration Reform – A Must
- Prefabrication and Modularization
  - Will We Be Disrupted? (2.0)
- Disruptive Technology is Here – 3-D Printing
- Margins Remain Low – Too Low

Infrastructure Challenges

- HGAC Plan – 2035
  - Add 4,000 Miles
    - Freeways
    - Tollways
    - HOV Lanes
  - 76% of all travel in Houston is by car with a single occupant
- Plus
  - 89 Miles of Light Rail
  - 84 Miles of Commuter Rail
  - 40 Miles of Signature Express Bus Service
  - Bullet Train - Houston/Dallas

Source: HGAC

Let's Stay Optimistic

- Exxon Forecast 2040
  - Demand will Grow 35%
  - 2 Billion More People
  - Energy Hungry Middle Class in Developing Countries

<u>Disciplined People</u>

<u>Disciplined Thought</u>

<u>Disciplined Action</u>

Let’s Stay Optimistic

Carlos Ghosn – current CEO of Renault and CEO of Nissan

- Car Metrics
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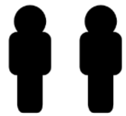
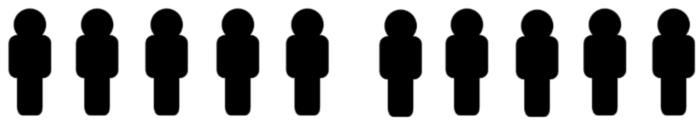
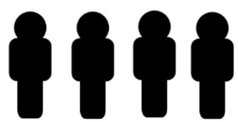
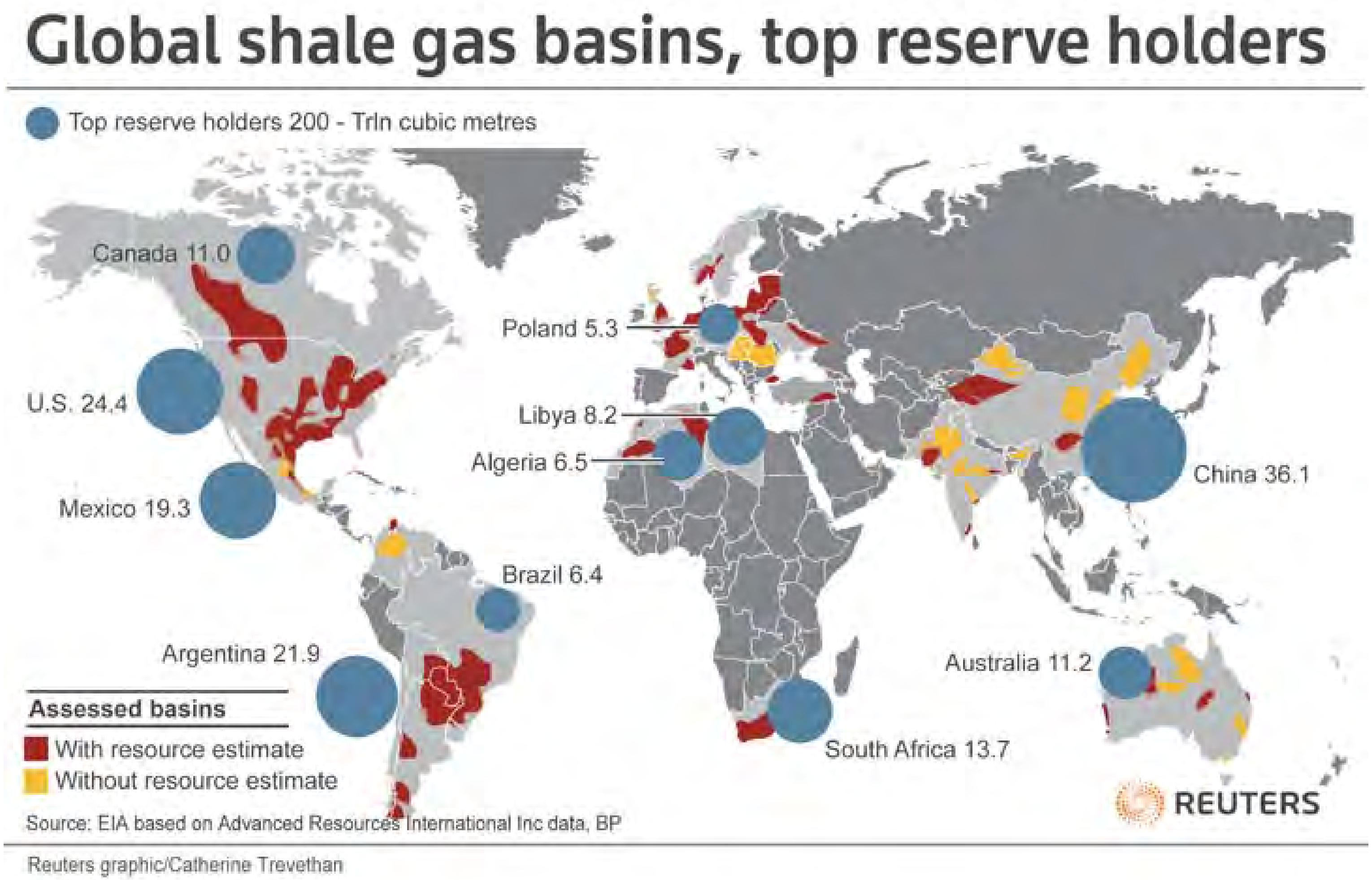
  -  =  (Europe)
  -  =  (Emerging)

- By 2025:
  -  =  (Emerging)

Source: Bloomberg

Global Shale Plays



Source: Reuters

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Summary

- Market has Slowed (except Industrial)
- Could Stay Flat for a Couple Years
- More Leadership Needed
  - Drivers, Not Drifters
- Long Range – Fantastic Market

"You might give some serious thought to thanking your lucky stars you're in Texas."

- Jim Goode

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Sources

The information contained in this report was obtained from various publications and sources. Special thanks to CB Richard Ellis, American Metro Studies, Greater Houston Partnership, Ken Simonson - National AGC economist, Industrial Info Resources, EIA, University of Houston Institute for Regional Forecasting, Dodge Data & Analytics, PKF Consulting, Houston Chronicle, Houston Business Journal, The Economist Magazine, Bloomberg, Gensler, Cadence Bank, various architecture firms, school districts, and other sources mentioned who supplied information and assistance for this forecast.

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