



**SOCIETY OF PETROLEUM EVALUATION ENGINEERS**

# **THIRTY-FOURTH ANNUAL SURVEY OF PARAMETERS USED IN PROPERTY EVALUATION<sup>©</sup>**

**Brent W. Hale**

**Committee Chairman**

**HALIFAX, NOVA SCOTIA, CANADA**

**JUNE 6-9, 2015**

**MODIFIED FOR THE DALLAS CHAPTER**

**JANUARY 21, 2016**

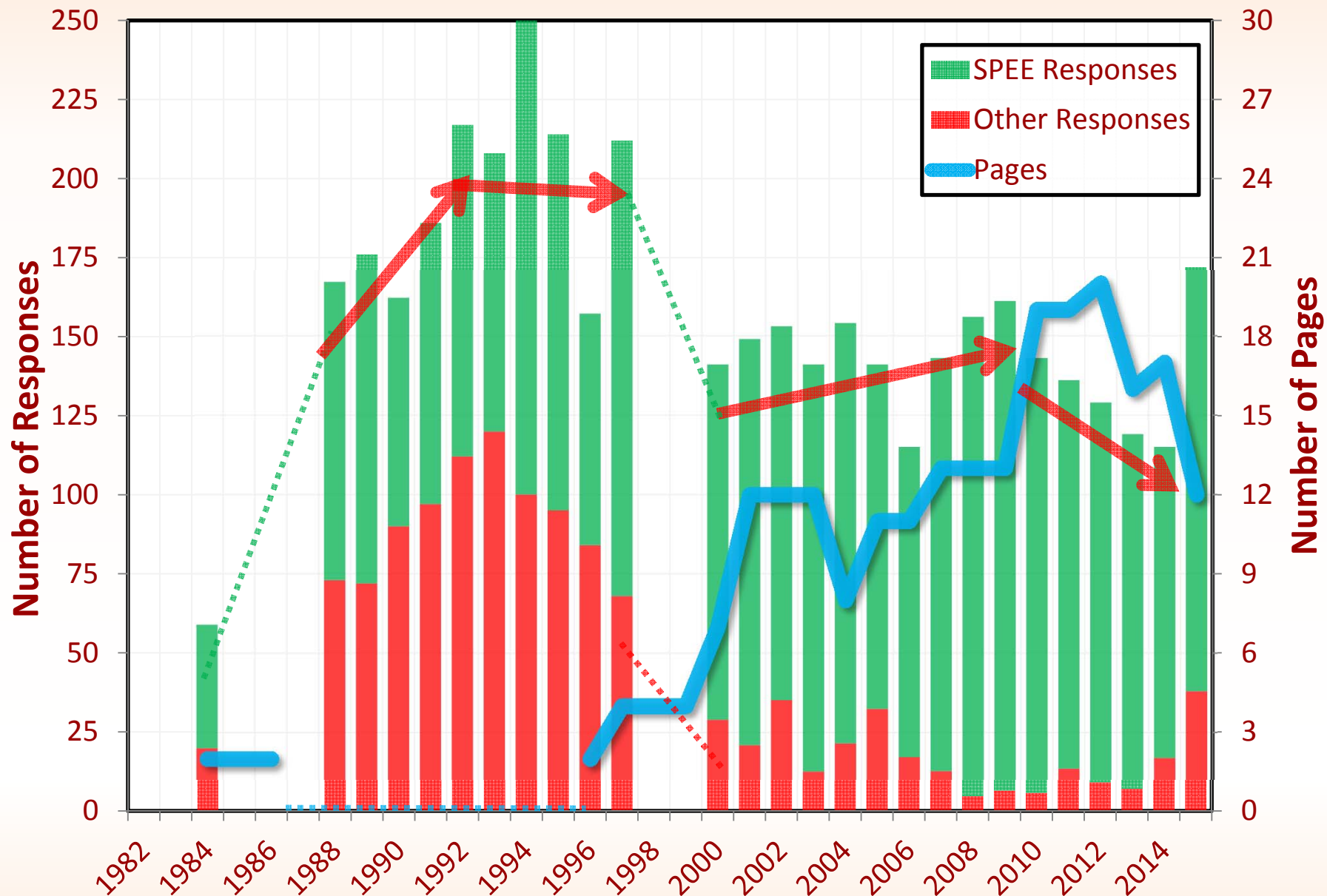
# **Part I**

## **Results of the 2015 Parameters Survey**

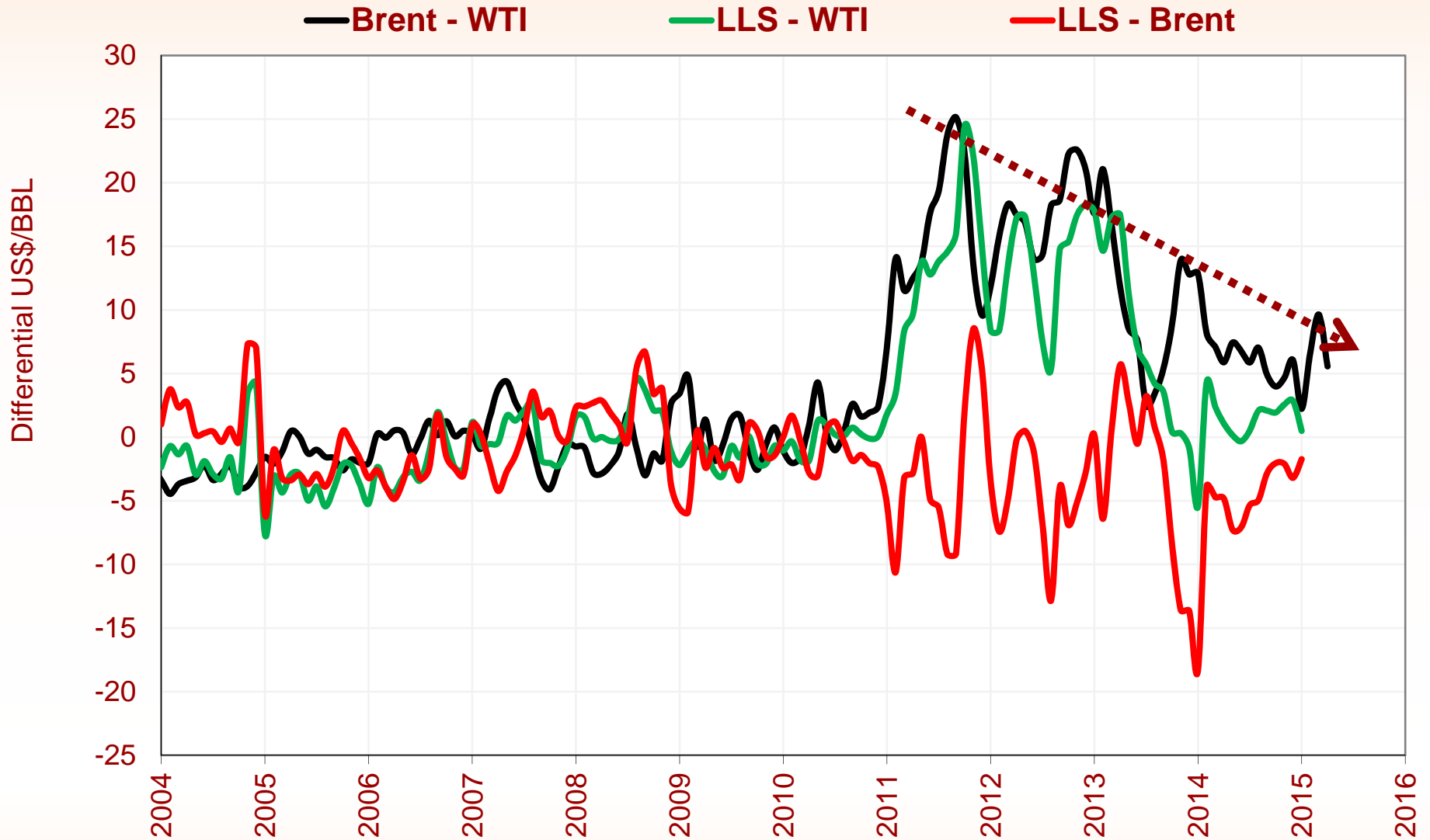
# **Part II**

## **Post Survey Trends Impacting Oil & Gas Industry**

# SPEE ANNUAL PARAMETERS SURVEY RESPONSES

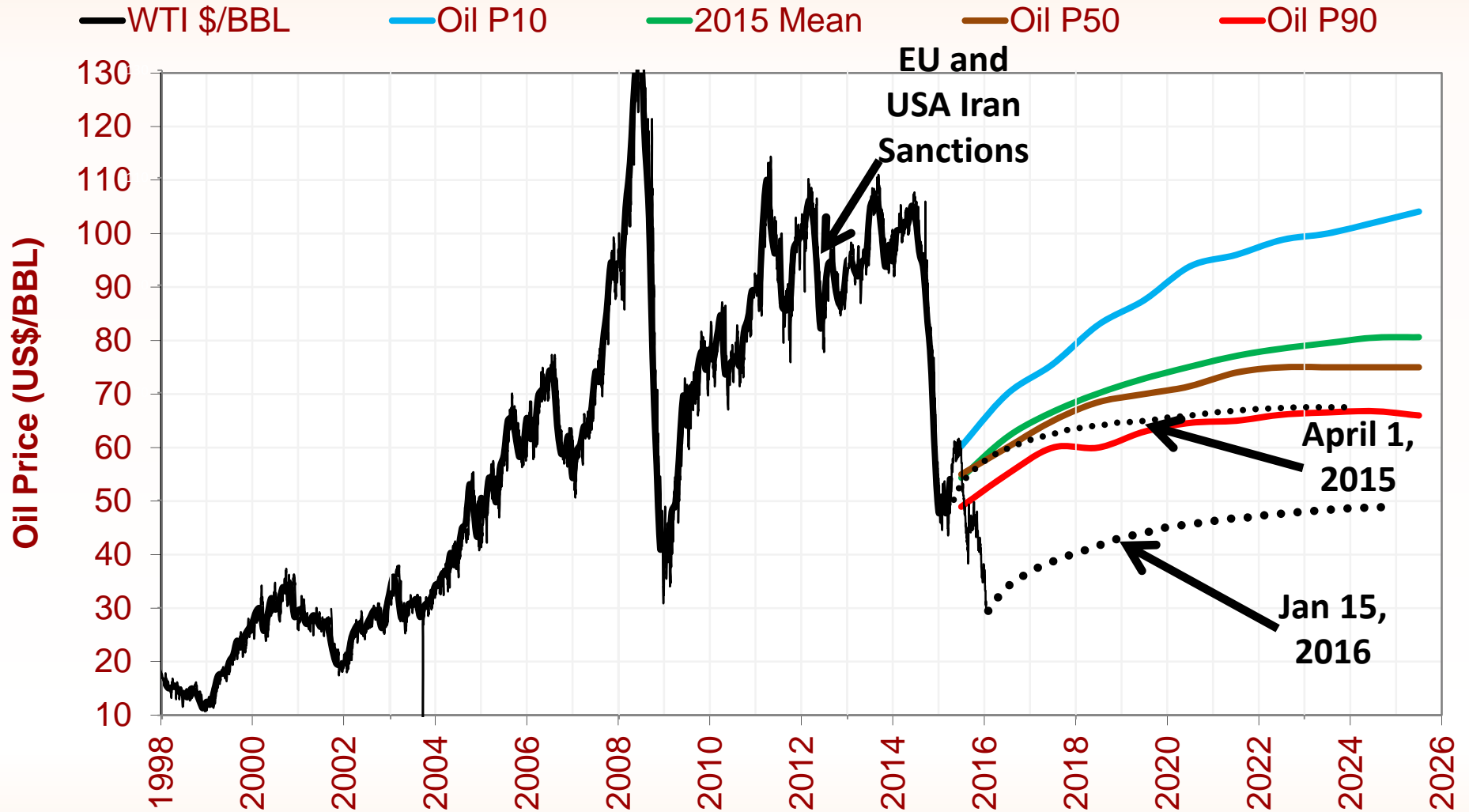


# WTI, Brent, LLS Oil Price Differentials



April 2015 Survey

# 2015 SPEE Survey Price Projection Uncertainty



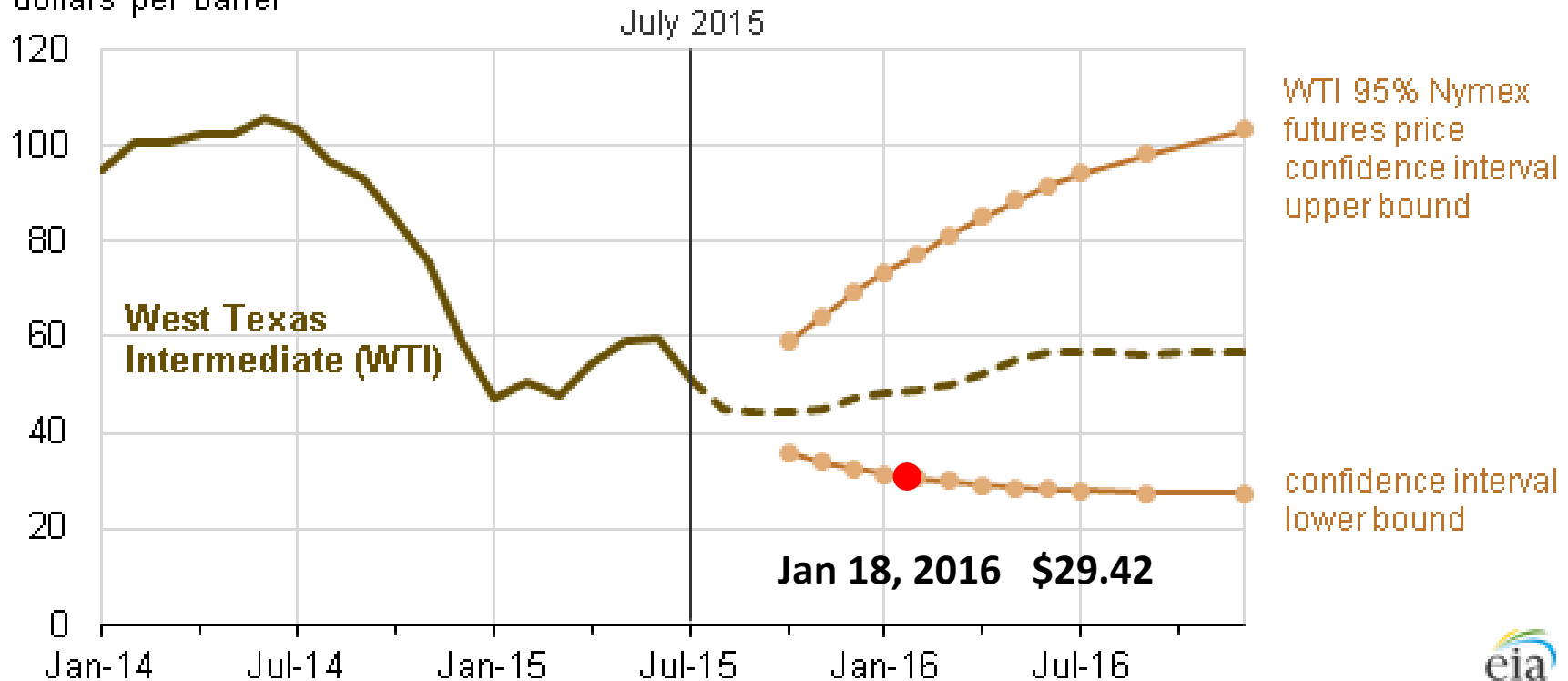
April 2015 Survey

AUGUST 19, 2015

# EIA lowers crude oil price forecast through 2016

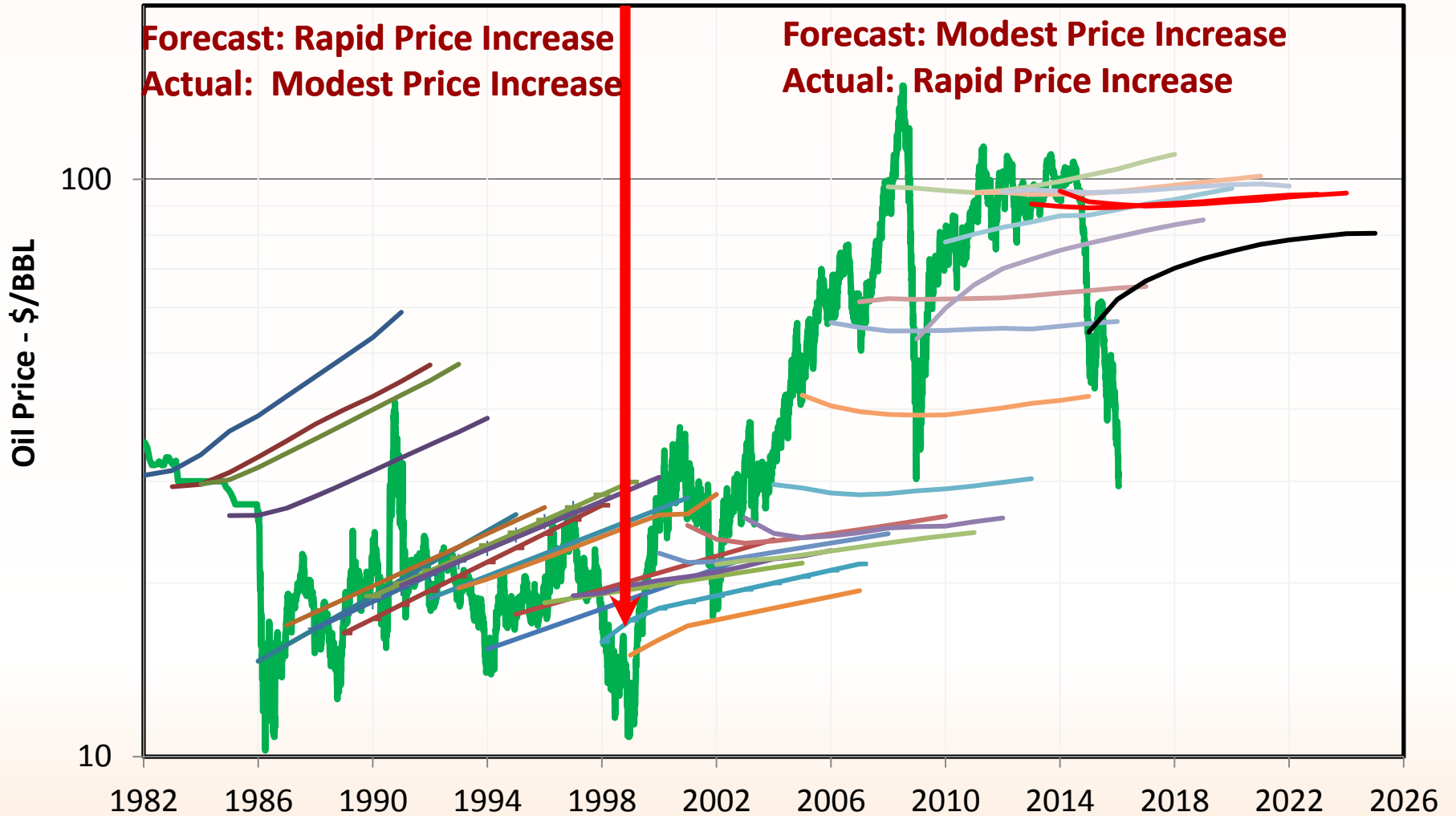
## Crude oil prices and Nymex confidence intervals

dollars per barrel



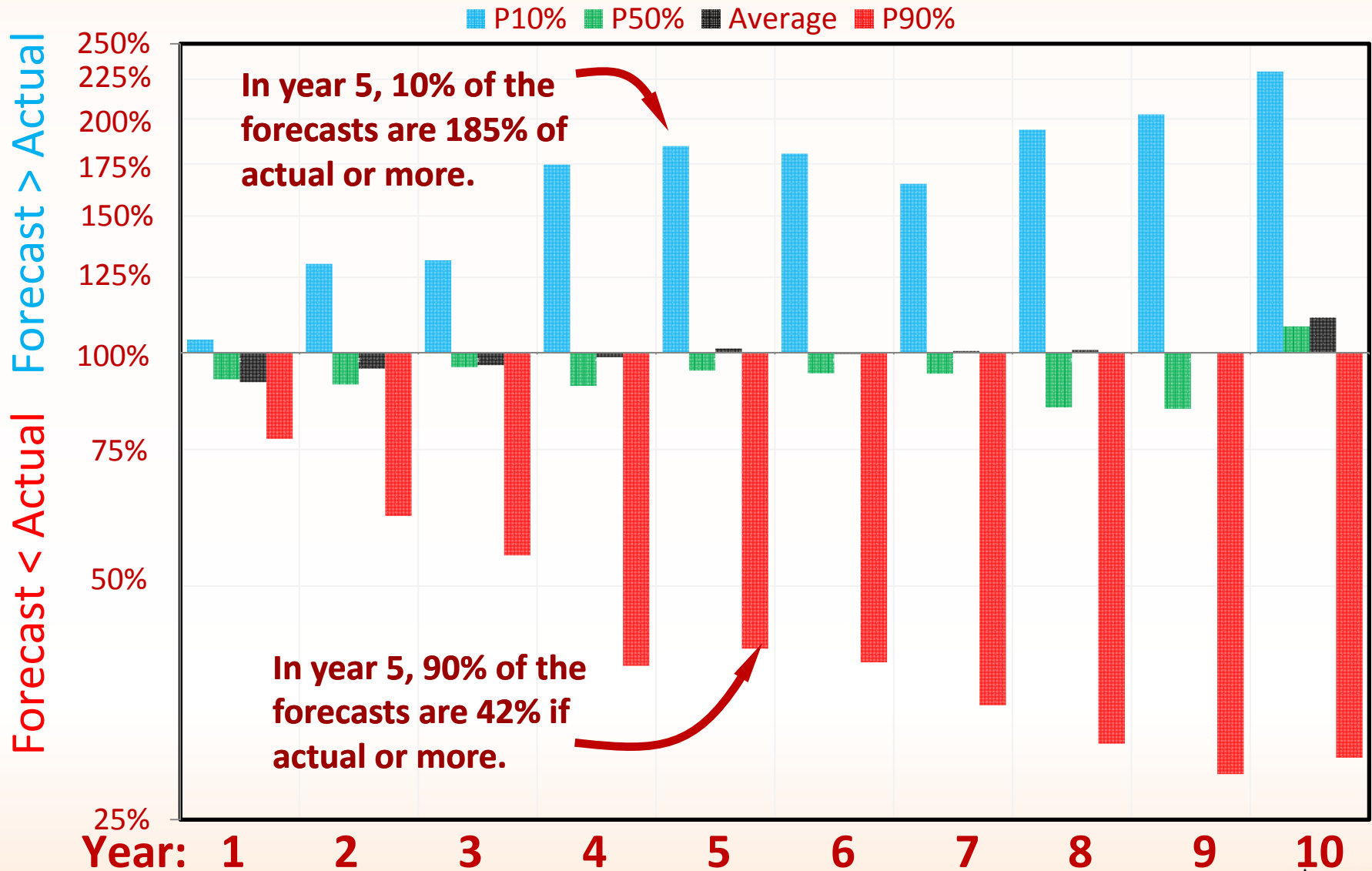
# SPEE Oil Price Forecasts and Historical WTI Oil Prices

- |           |           |           |           |           |            |           |
|-----------|-----------|-----------|-----------|-----------|------------|-----------|
| WTI       | 1982@7.5% | 1983@5.5% | 1984@5.5% | 1985@4.4% | 1986@6.7%  | 1987@5.4% |
| 1988@5.5% | 1989@5.8% | 1990@5.2% | 1991@4.9% | 1992@4.6% | 1993@4.2%  | 1994@4.1% |
| 1995@3.4% | 1996@1.8% | 1997@2.0% | 1998@3.5% | 1999@3.3% | 2000@1.0%  | 2001@0.4% |
| 2002@1.4% | 2003@0.0% | 2004@0.3% | 2005@0.0% | 2006@0.0% | 2007@0.6%  | 2008@1.3% |
| 2009@4.9% | 2010@2.2% | 2011@0.7% | 2012@0.2% | 2013@0.4% | 2014@-0.1% | 2015@4.0% |



## SPEE Parameters Survey - 34 Ten Year Forecasts (1982-2015)

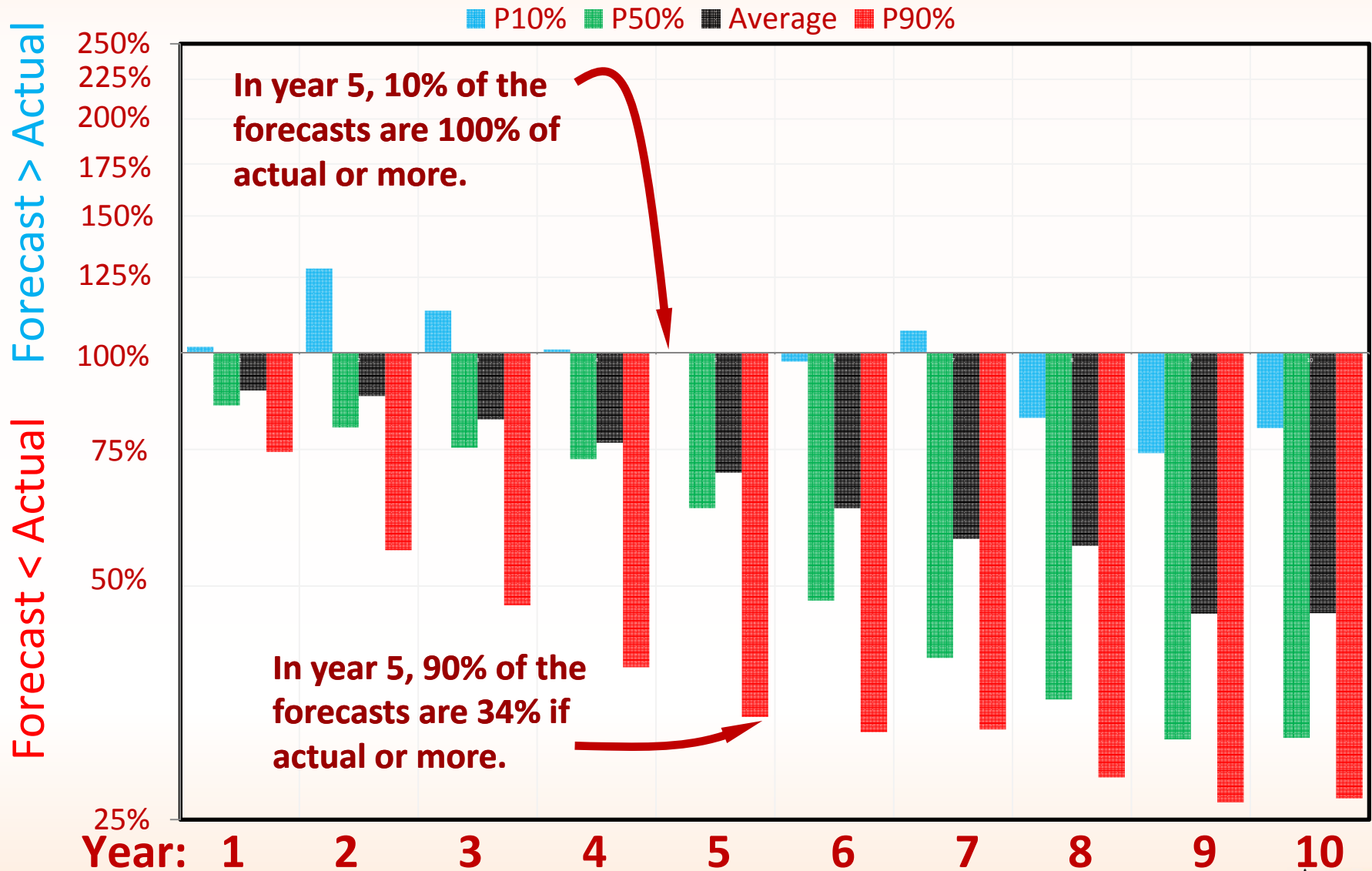
# Forecast Oil Price as Percent of Actual Oil Price



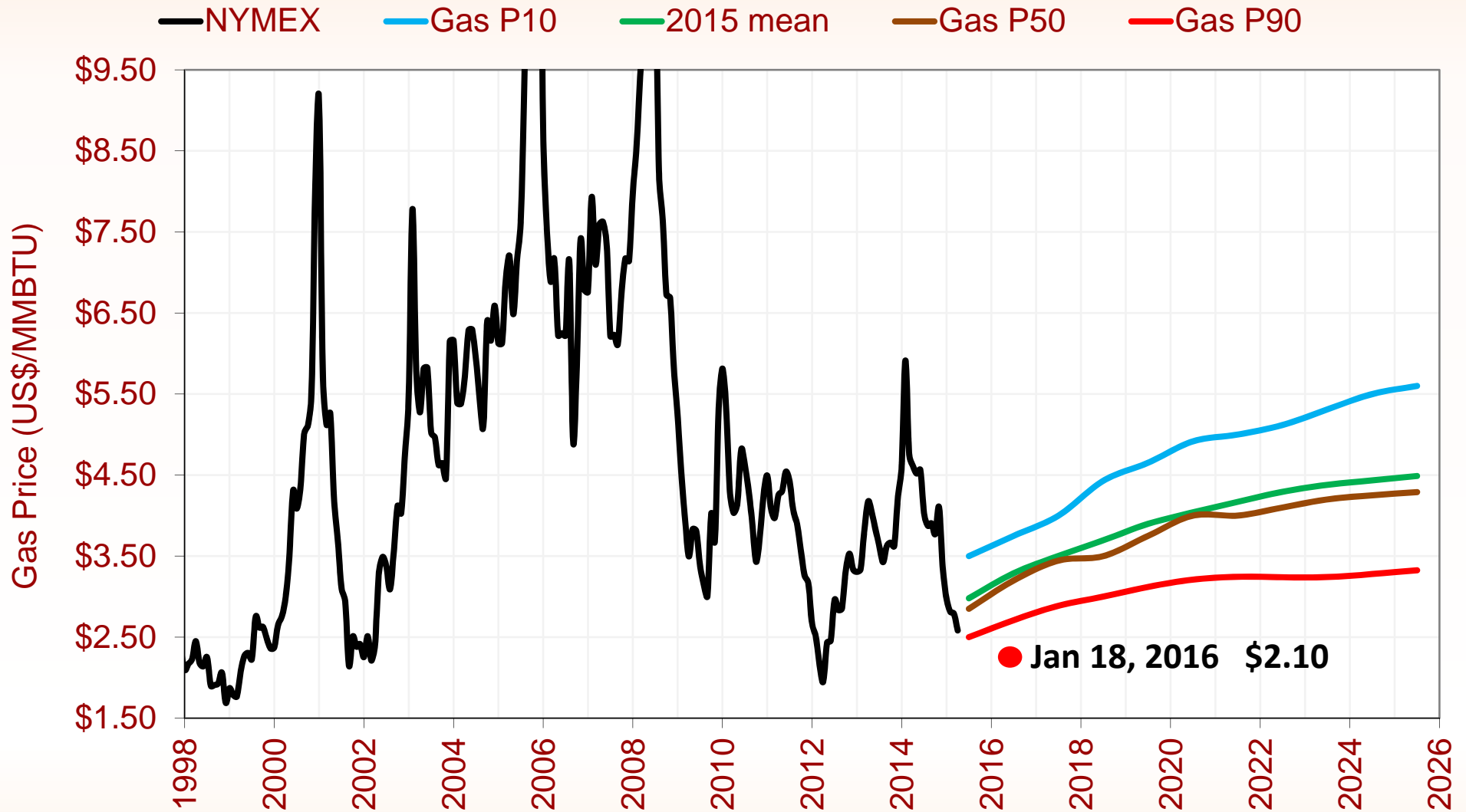


# SPEE Parameters Survey - 17 Ten Year Forecasts (1999-2015)

## Forecast Oil Price as Percent of Actual Oil Price



# SPEE Survey Price Projection Uncertainty



April 2015 Survey

# Part II

## Post Survey Trends Impacting Oil & Gas Industry

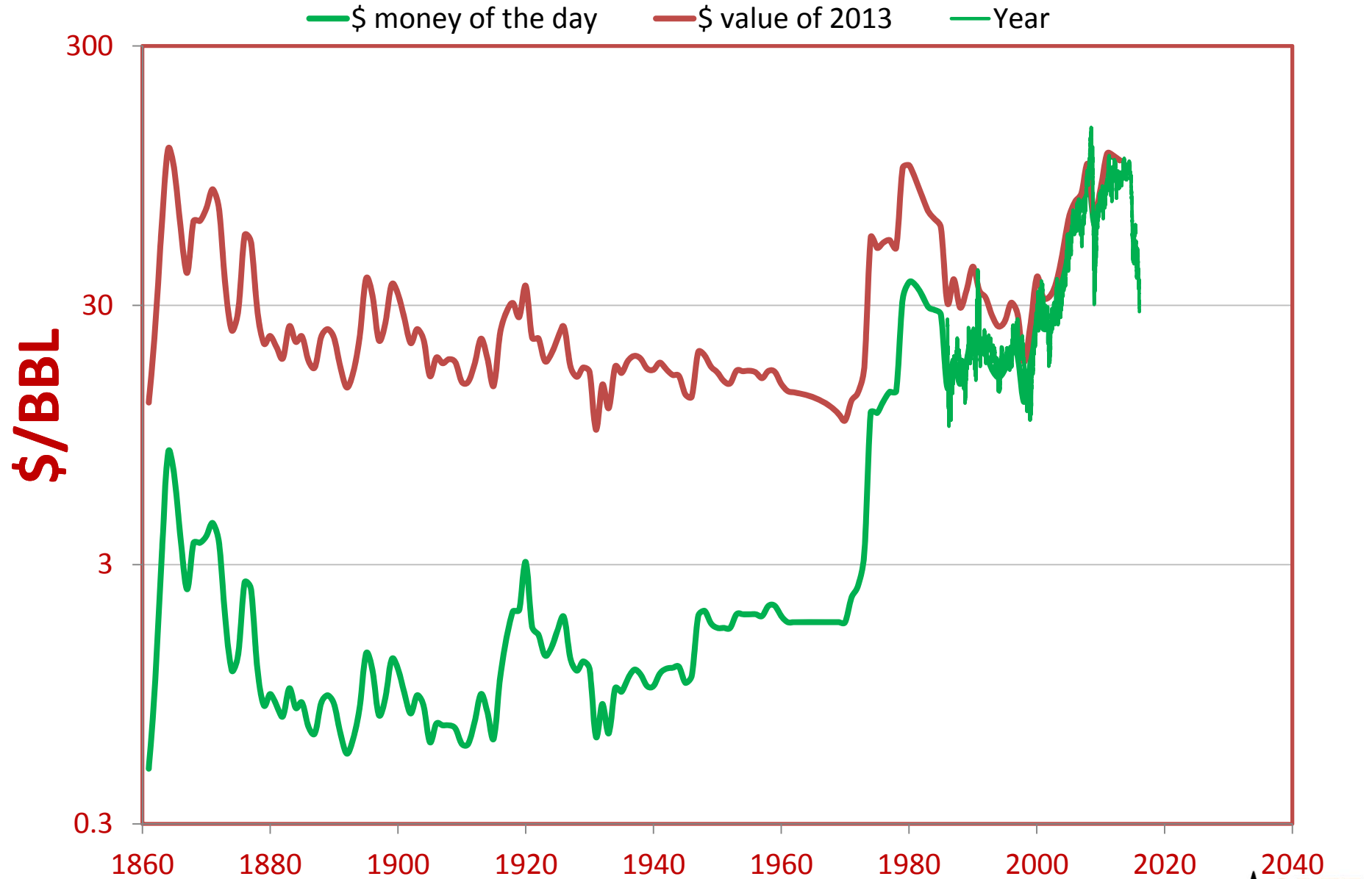
### 1. Supply/Demand Balance

1. United States – largest new supply
2. Other countries
  1. Russia
  2. Iran
  3. Saudi Arabia
  4. China

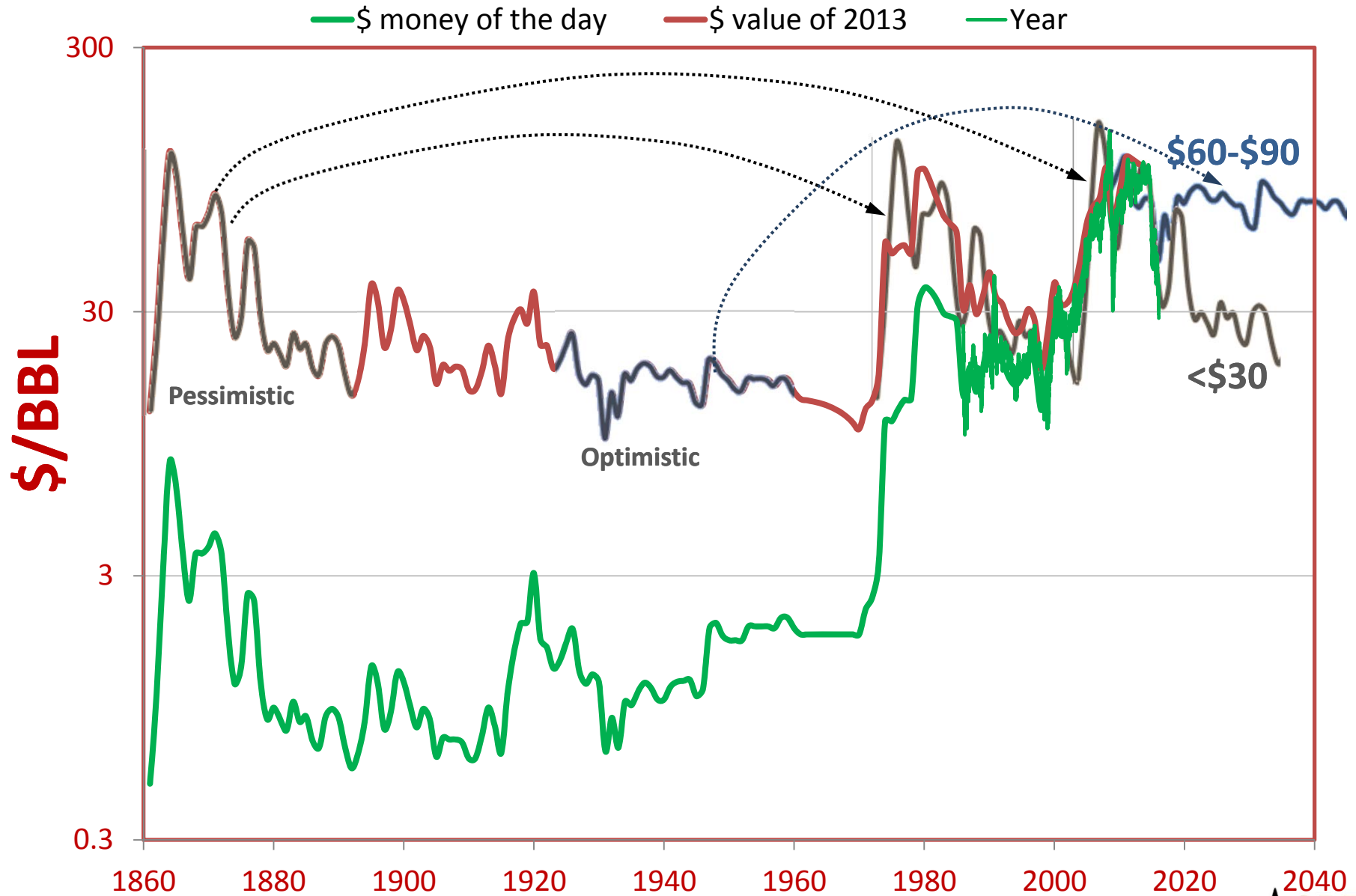
### 2. International Currency

1. Weak currencies
2. Strong currencies

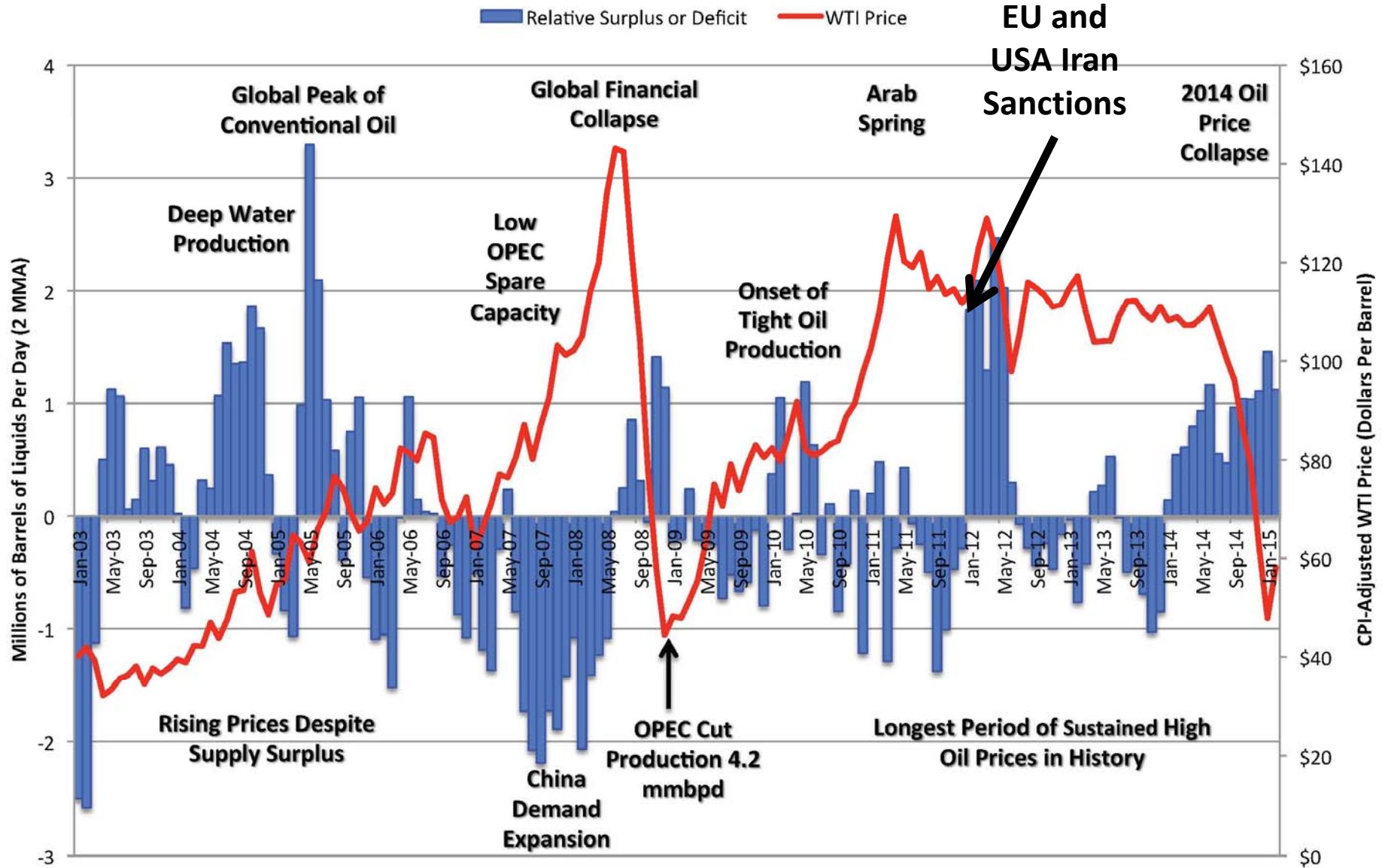
# US Oil Price History – Repeating???



# US Oil Price History – Repeating???

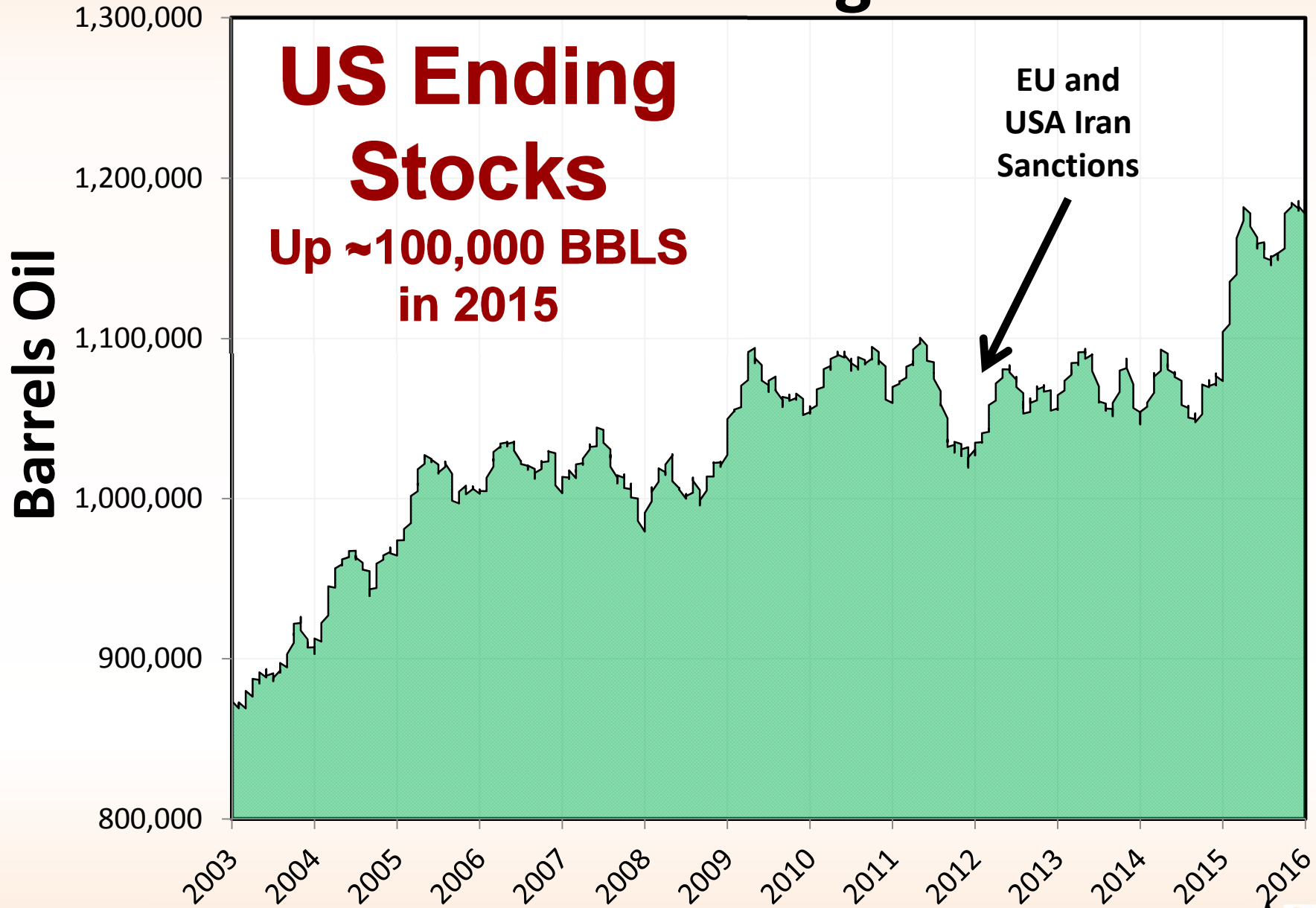


# World Liquids Relative Surplus or Deficit & WTI Price 2003-2015

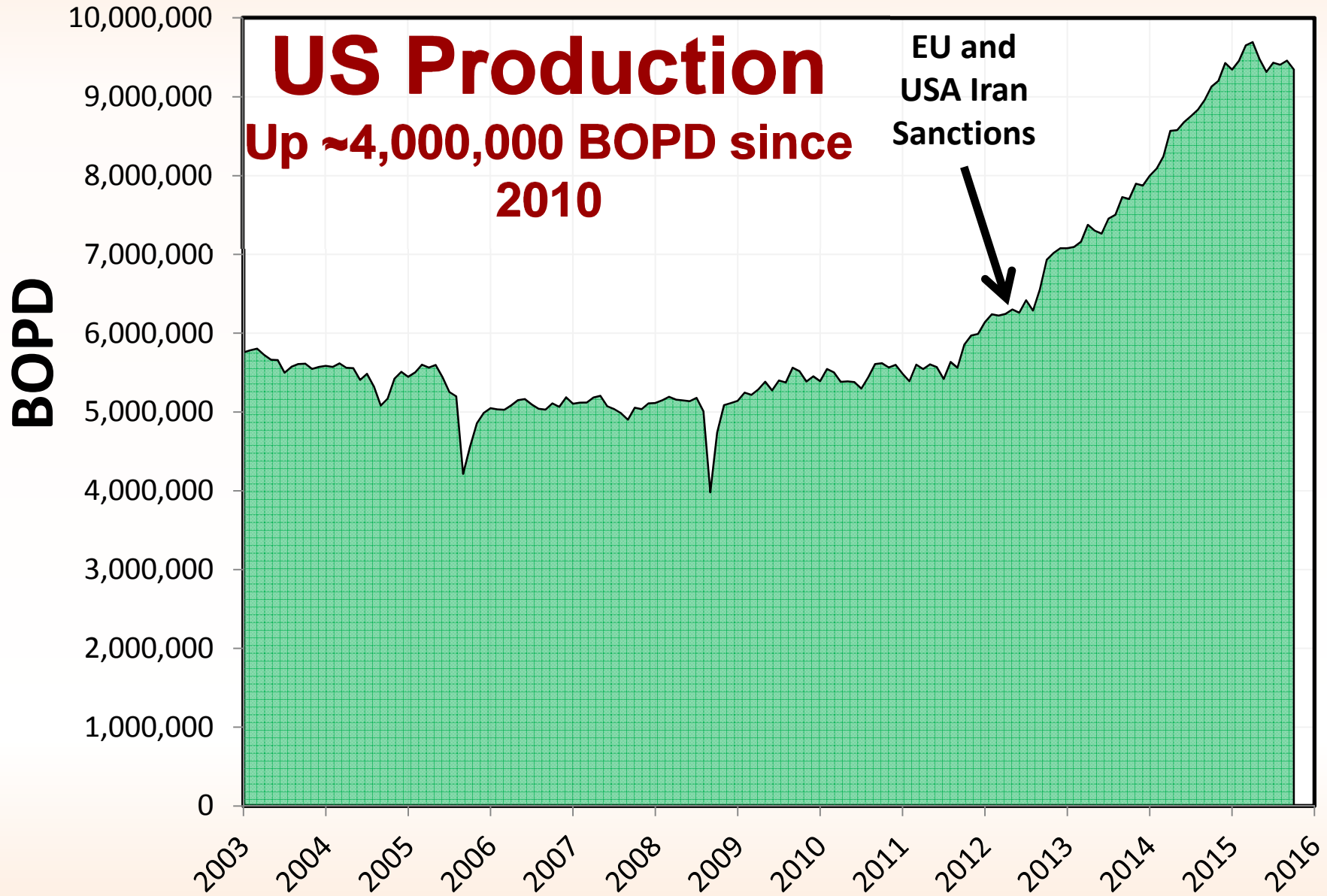


From artberman.com

# U.S. Oil Ending Stocks

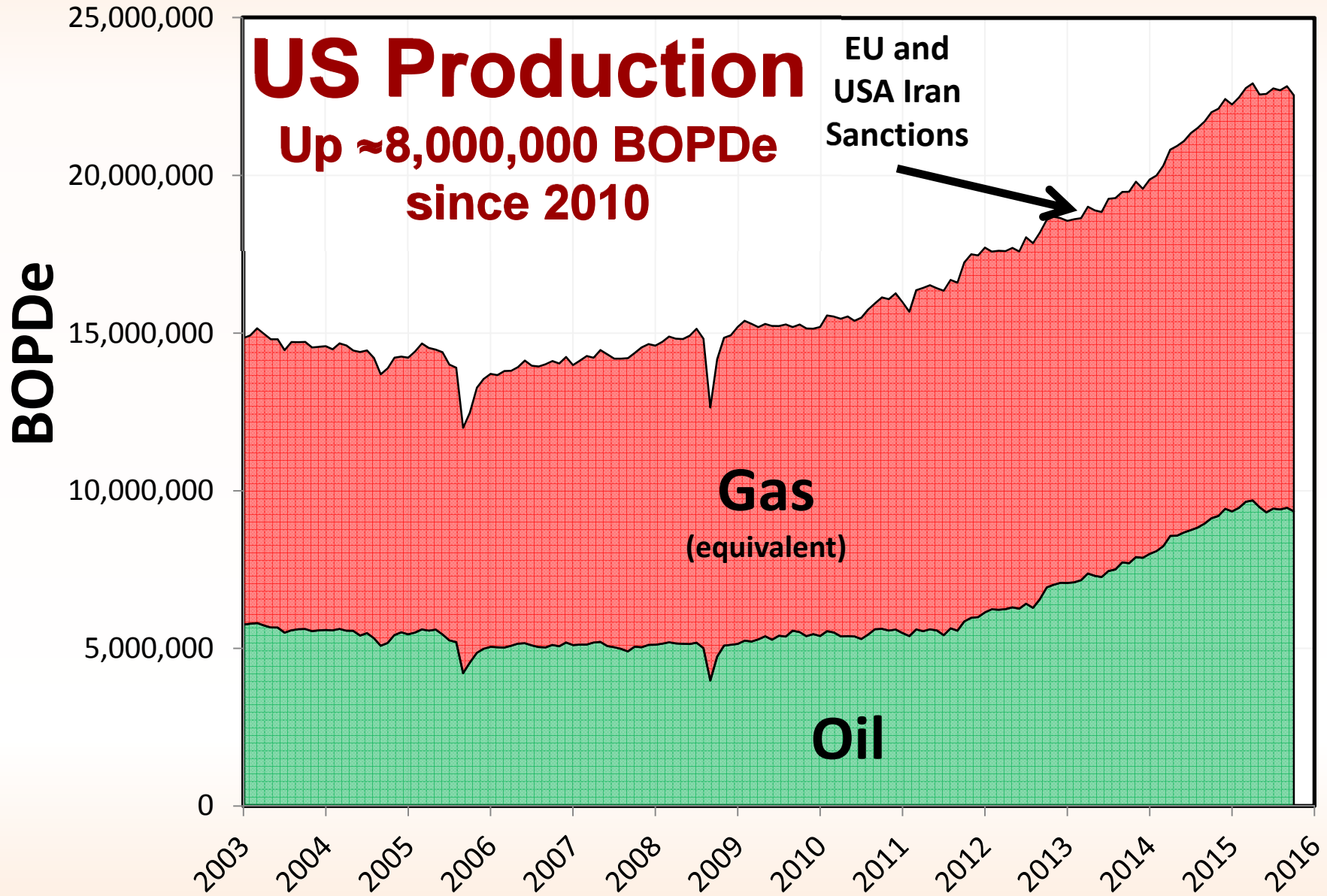


# U.S. Oil Production (Oct 2015)

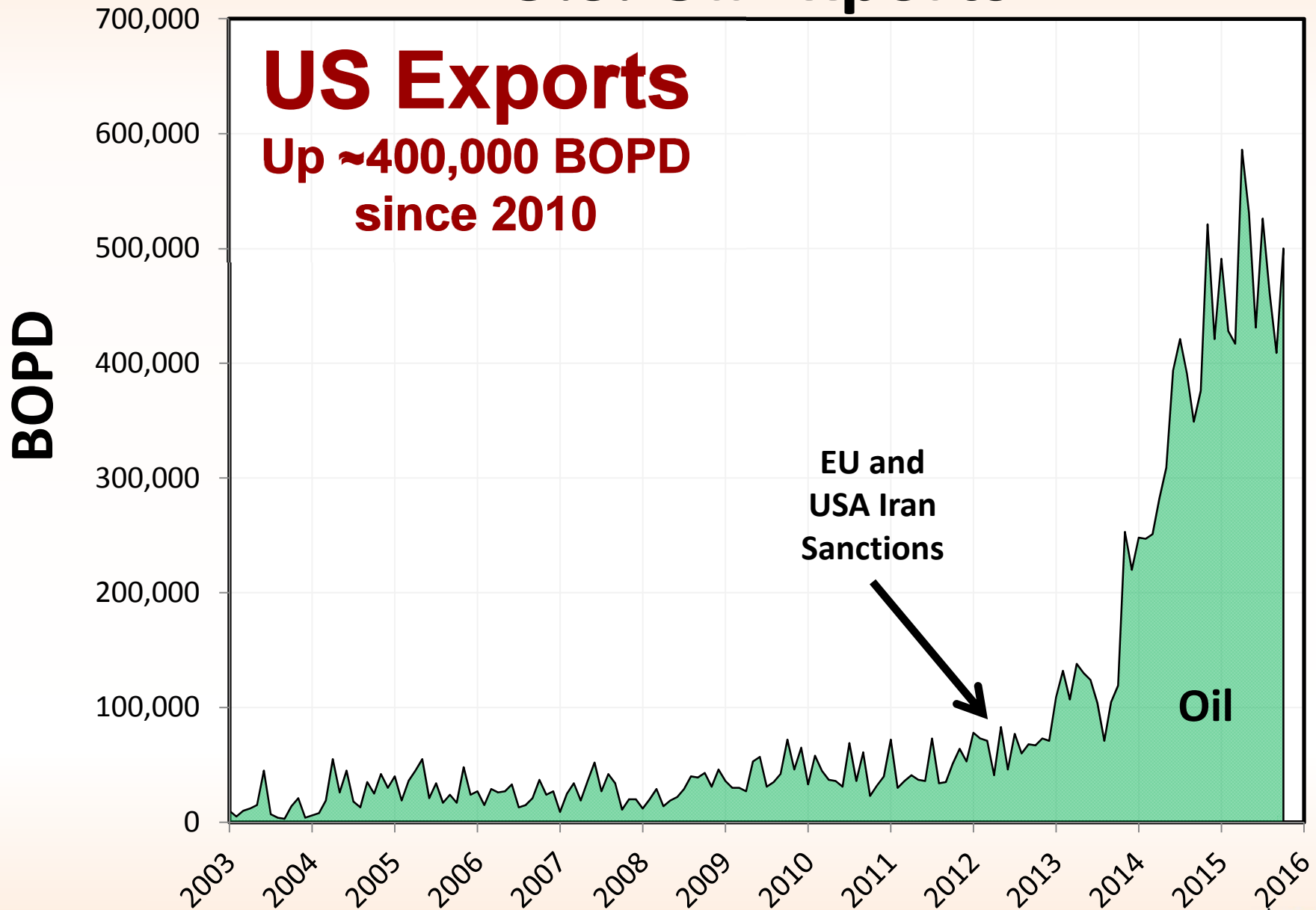




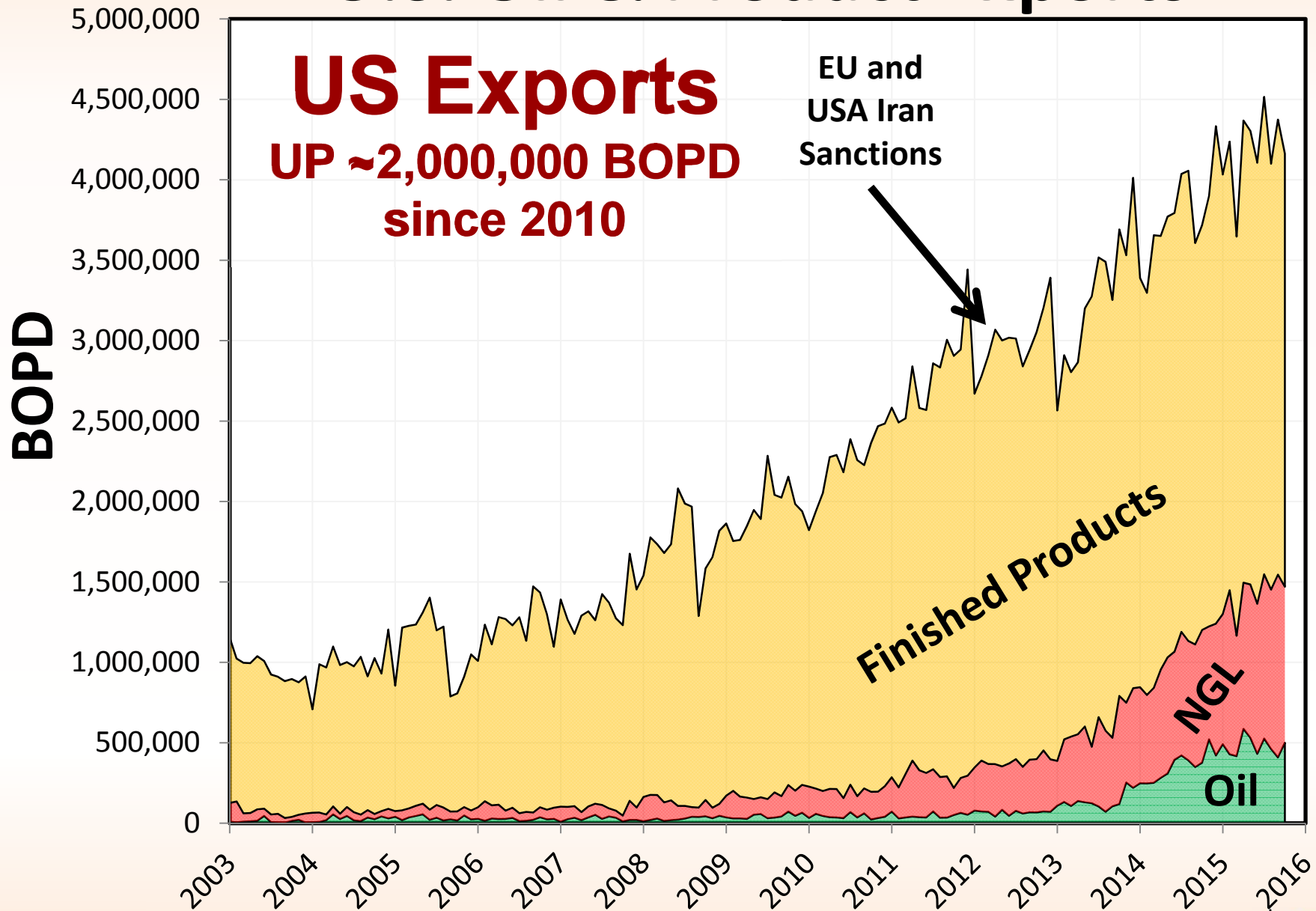
# U.S. Oil Production (Oct 2015)



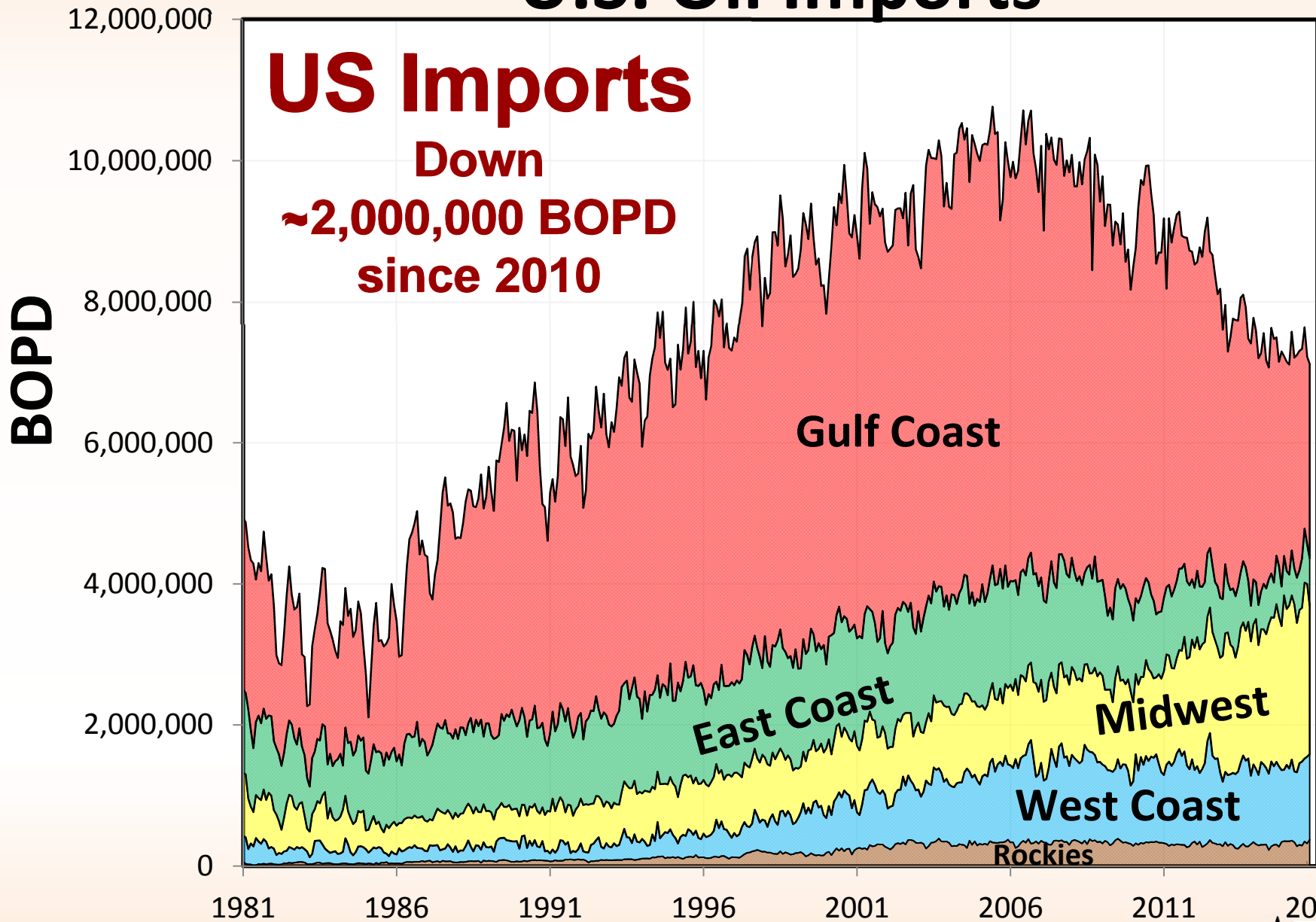
# U.S. Oil Exports



# U.S. Oil & Product Exports



# U.S. Oil Imports



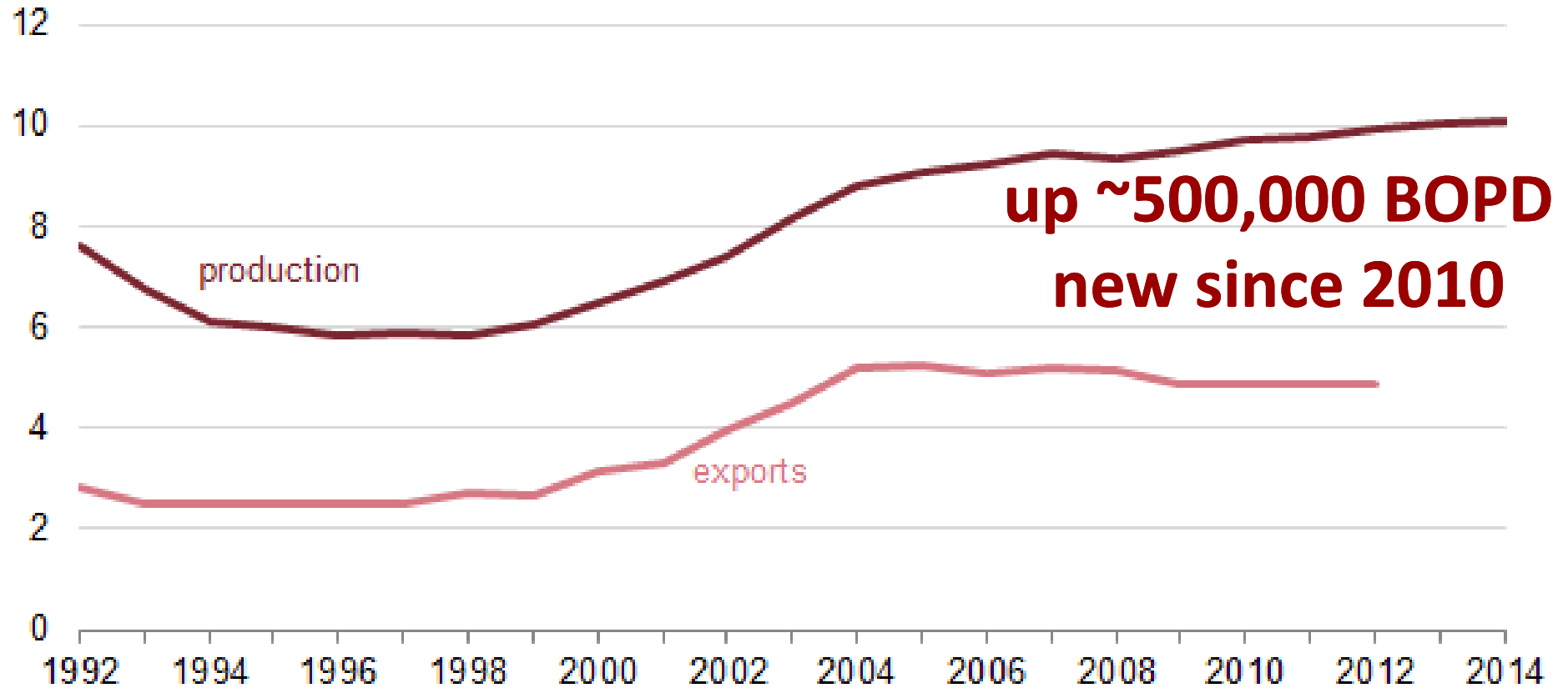
AUGUST 6, 2015

# Russia Production

up ~500,000 BOPD since 2010

Russia is world's largest producer of crude oil and lease condensate

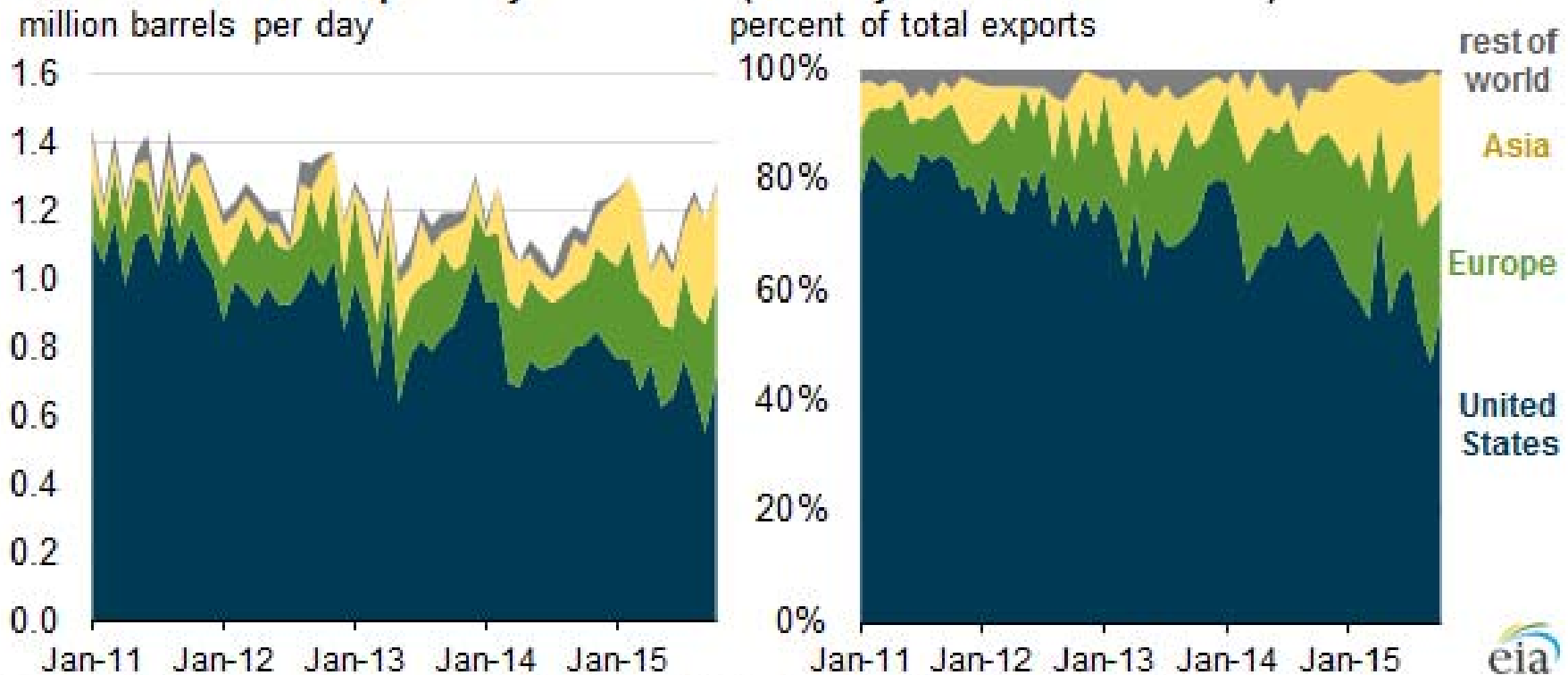
Russia crude oil (including lease condensate) production and exports  
million barrels per day



Source: U.S. Energy Information Administration, [International Energy Statistics](#)

# Mexican crude oil shipments to Europe and Asia are rising as U.S. imports fall

**Mexican crude oil exports by destination (January 2011 to October 2015)**

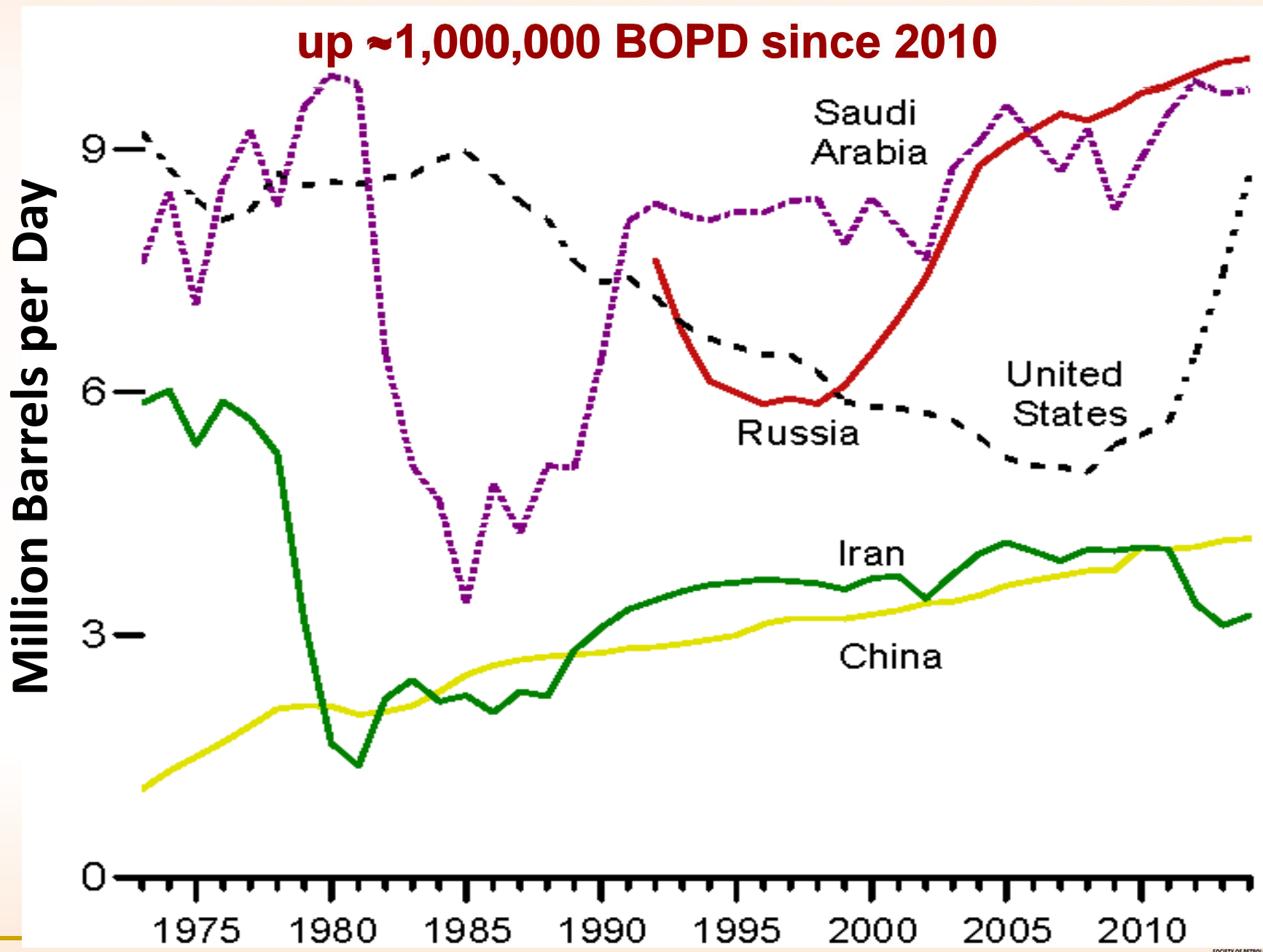


Source: U.S. Energy Information Administration, with data from Petróleos Mexicanos (Pemex)



# Saudi Arabia & China Production

up ~1,000,000 BOPD since 2010



# US \$ is Stronger than in 2010

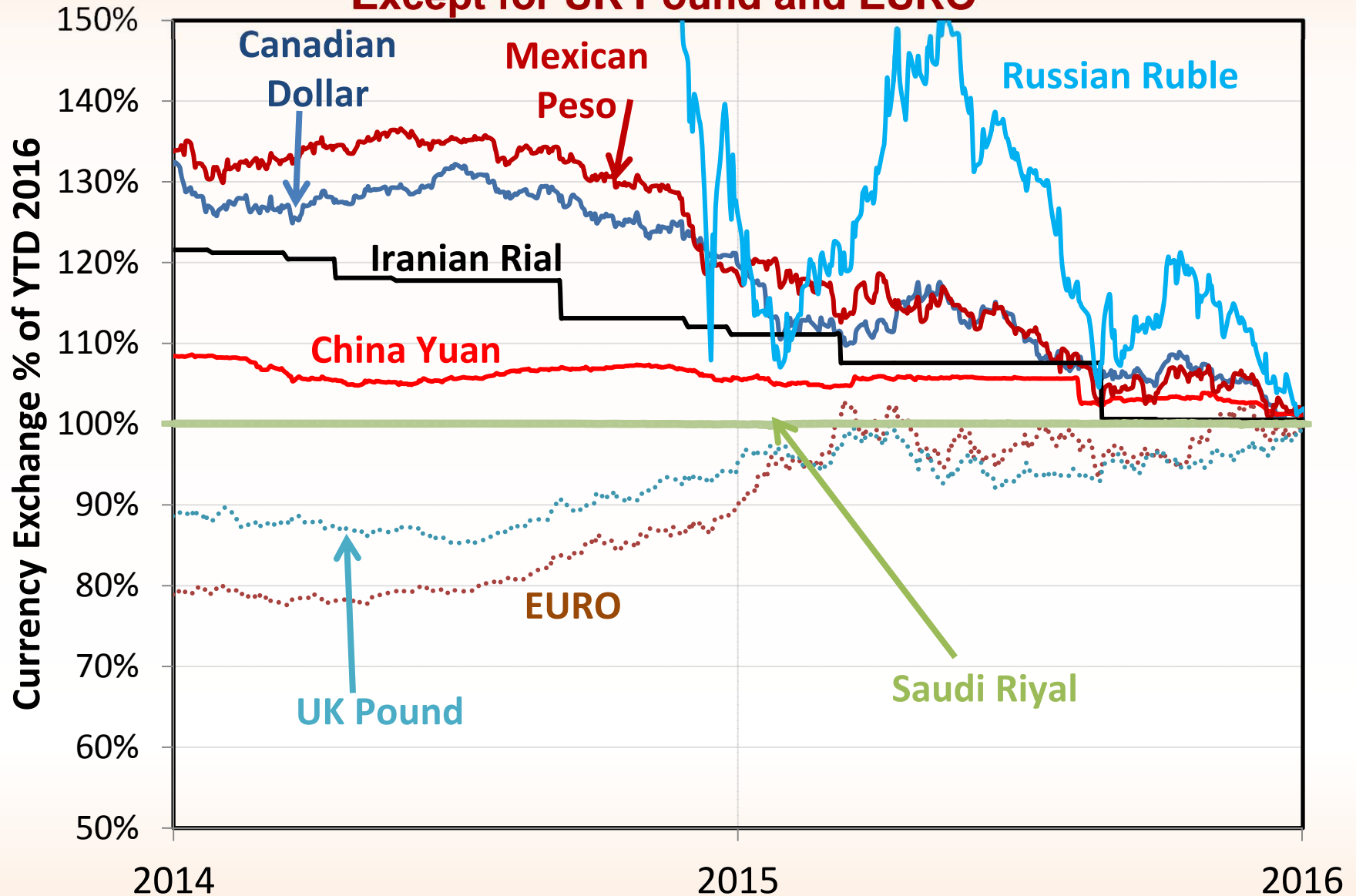
Except for UK Pound and EURO



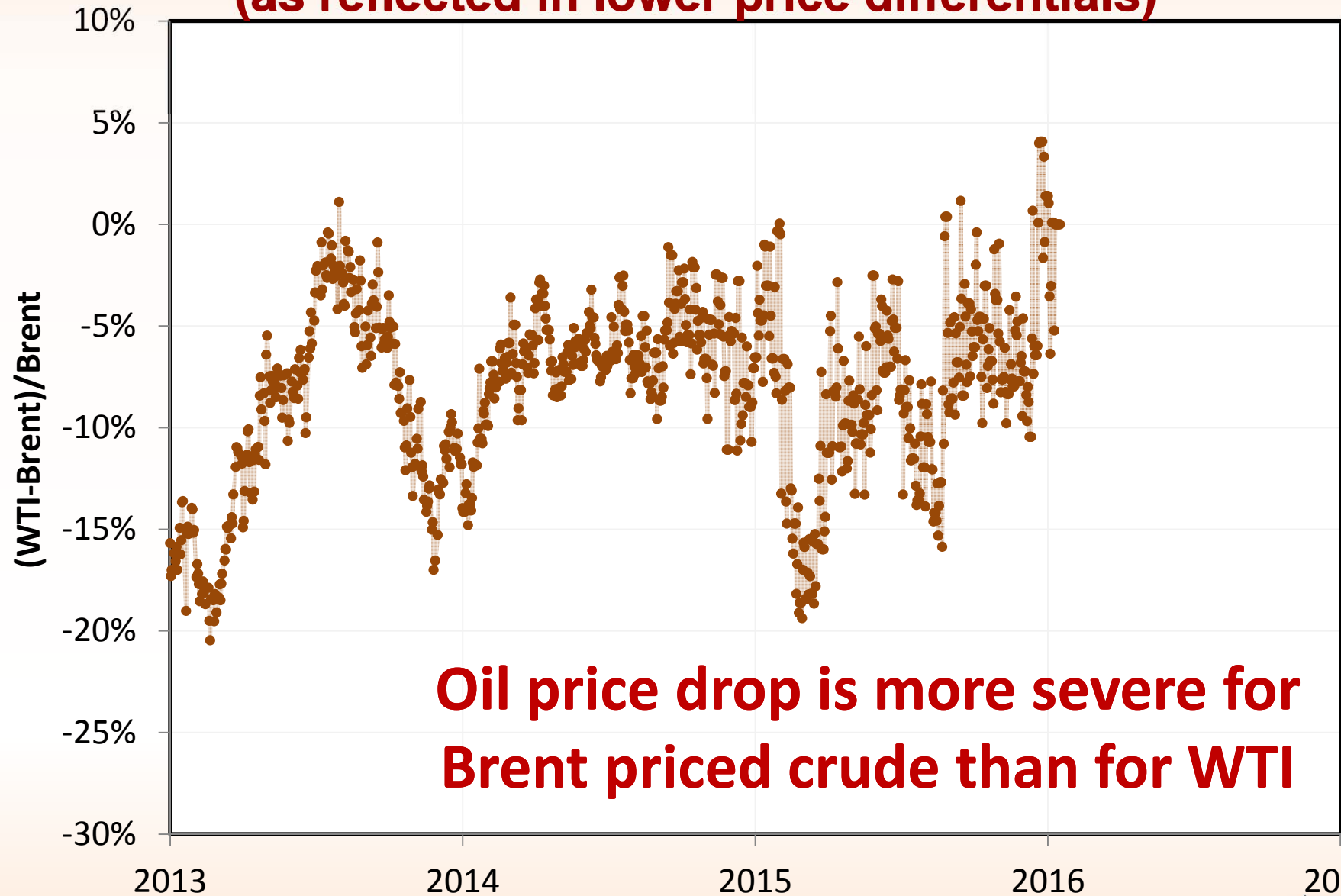


# US \$ is Stronger than in 2014

Except for UK Pound and EURO



# Brent Price is down more than WTI (as reflected in lower price differentials)



**Oil price drop is more severe for  
Brent priced crude than for WTI**

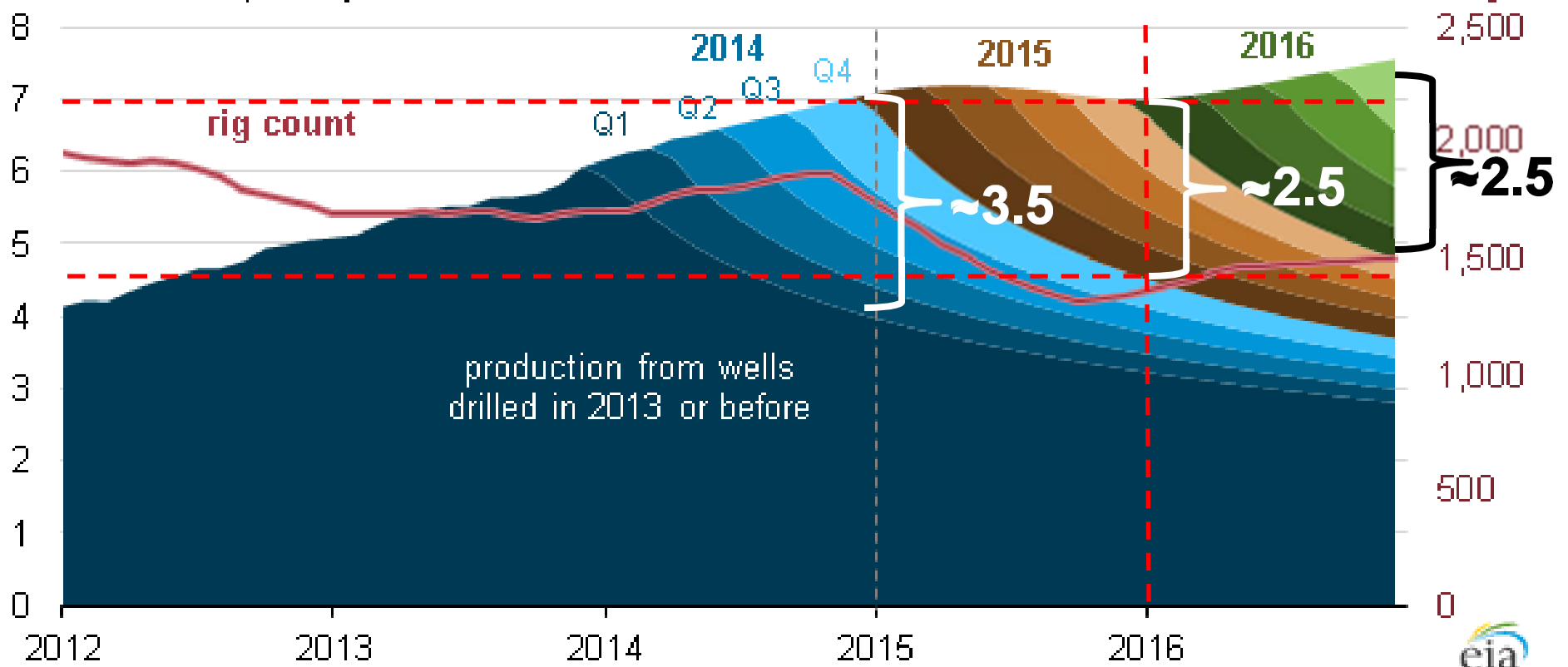
JANUARY 26, 2015

# Last year's wells ~2,500,000 BOPD

## Lower 48 oil production outlook stable despite expected near-term reduction in rig count

Monthly oil production and rig count in the Lower 48 states, 2012-16

million barrels per day



Source: U.S. Energy Information Administration, January *Short-Term Energy Outlook*

Note: Graph does not include production from Alaska and the Federal Gulf of Mexico.

# Finding Oil

**We usually find oil in new places with old ideas. Sometimes, also, we find oil in an old place with a new idea, but we seldom find much oil in an old place with an old idea.**

***Several times in the past we have thought that we were running out of oil, whereas actually we were only running out of ideas.***

**—Adapted from Parke A. Dickey**

# Conclusions

- 1. The survey reflects what respondents thought in April 2015**
- 2. Oil pricing is impacted by the Supply / Demand Balance**
- 3. International Currencies impact pricing**
- 4. US Supply will drop quickly w/o drilling**
- 5. Each of you need to complete the 35<sup>th</sup> annual survey in April 2016**

# Dallas SPEE Soothsayer Contest

## January 22, 2016 to March 4, 2016

**WTI Cushing Oil price:**

**Maximum:** \_\_\_\_\_ \$/BBL

**Average:** \_\_\_\_\_ \$/BBL

**Minimum:** \_\_\_\_\_ \$/BBL

**Henry Hub Natural Gas Price**

**Maximum:** \_\_\_\_\_ \$/MMBTU

**Average:** \_\_\_\_\_ \$/MMBTU

**Minimum:** \_\_\_\_\_ \$/MMBTU

**Name:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**Phone #:** \_\_\_\_\_

**(Winner to be announced at the March 10, 2016 Dallas Chapter Meeting)**