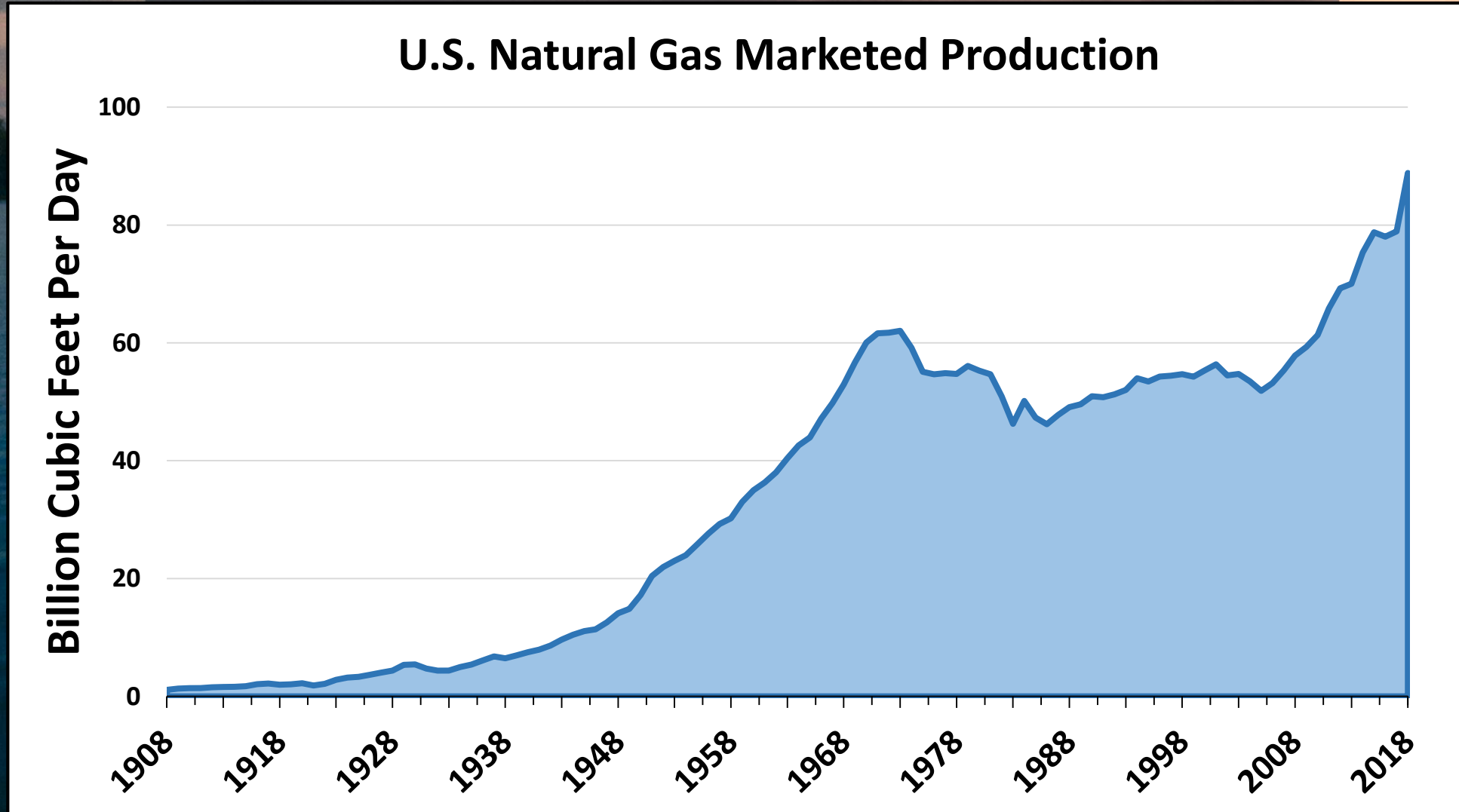




# South Eastern Ohio Oil and Gas Association

4/18/2019

# Historical U.S. Natural Gas Production

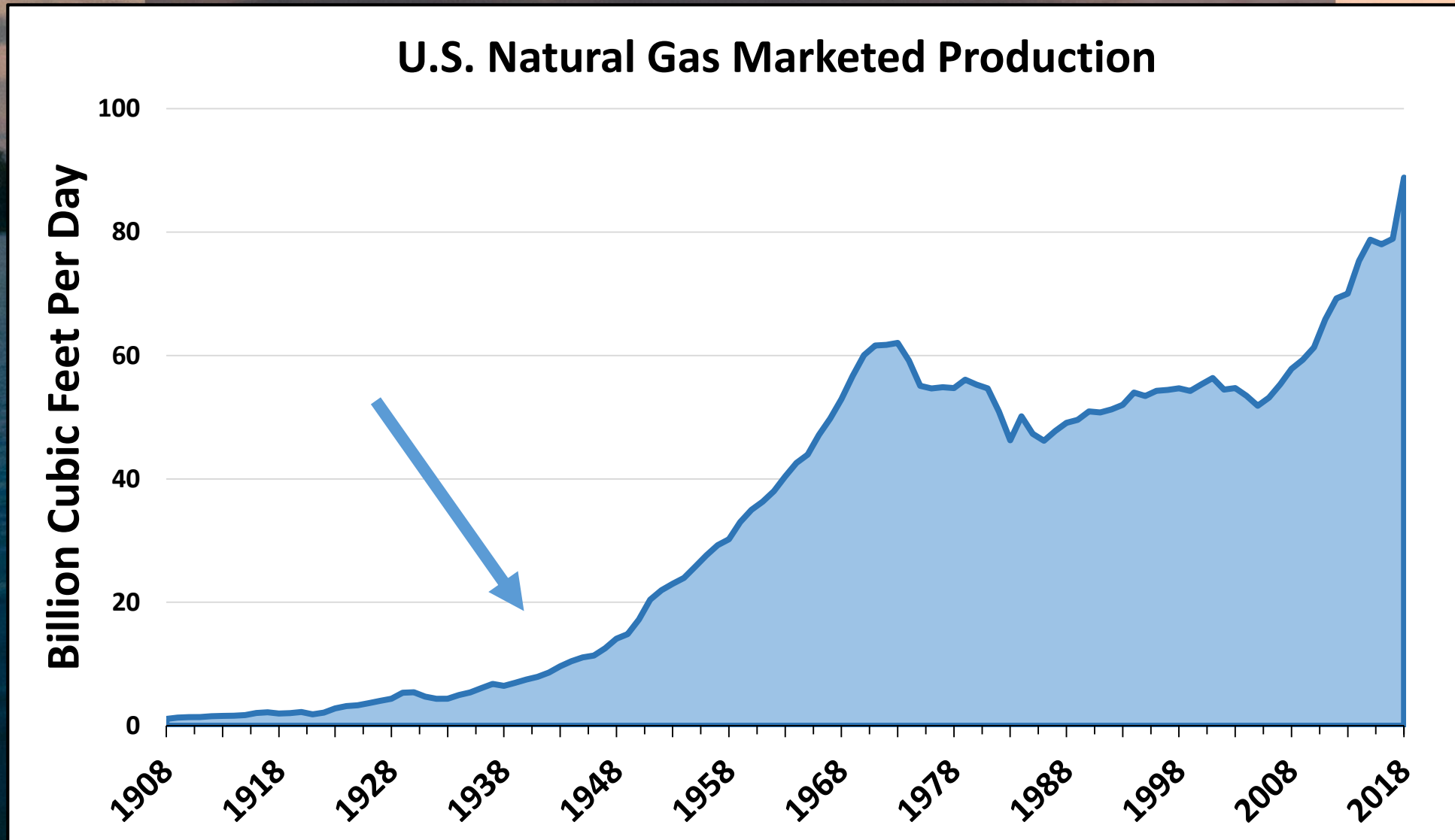


# The Age of Vertical Drilling





# Dramatic increase in Natural Gas Production – Post WWII



# The Age of Long Haul Pipelines & Hydraulic Fracturing



Construction of the First Cross Country Pipeline - During WWII

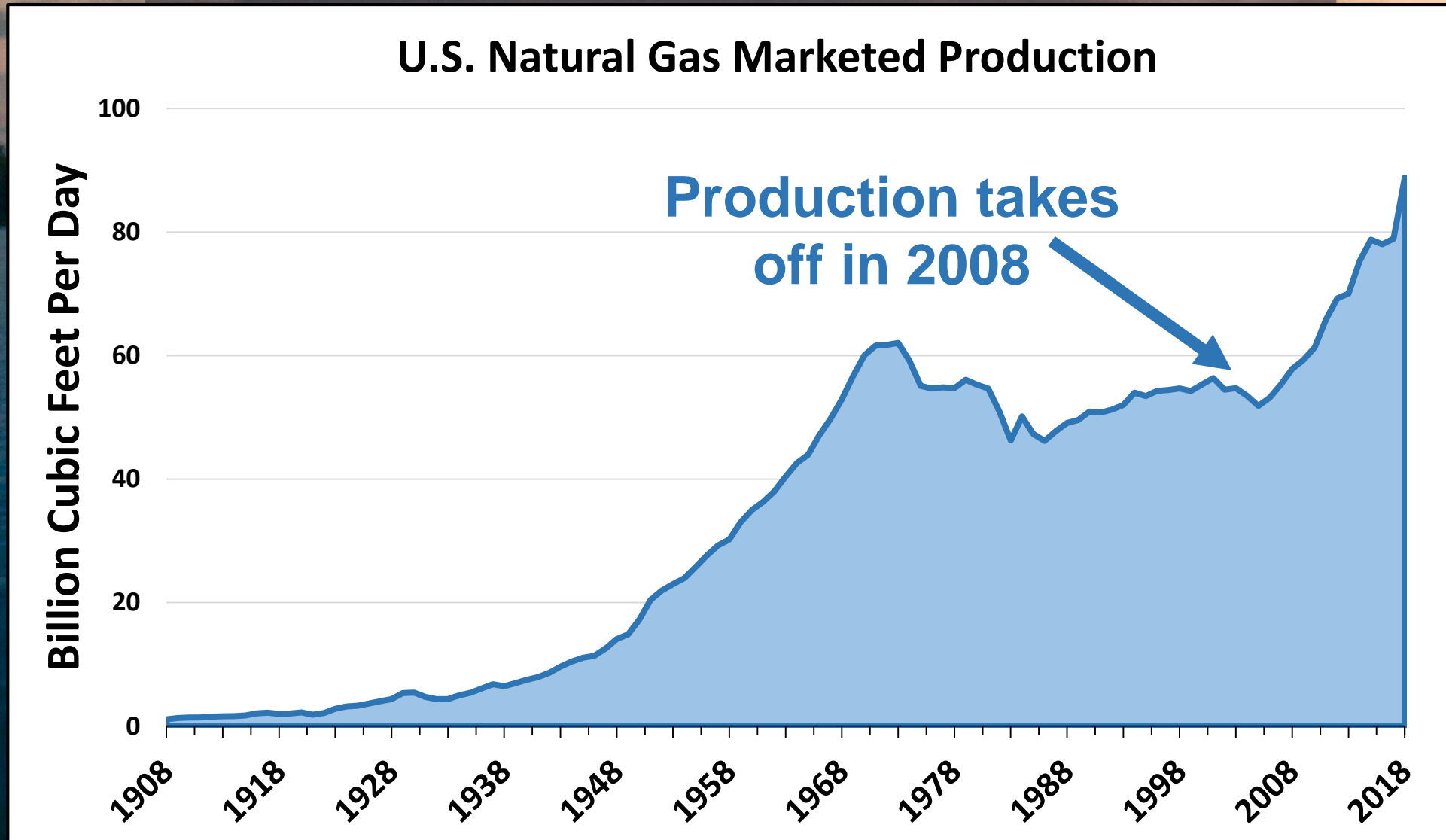


# The Age of Long Haul Pipelines & Hydraulic Fracturing



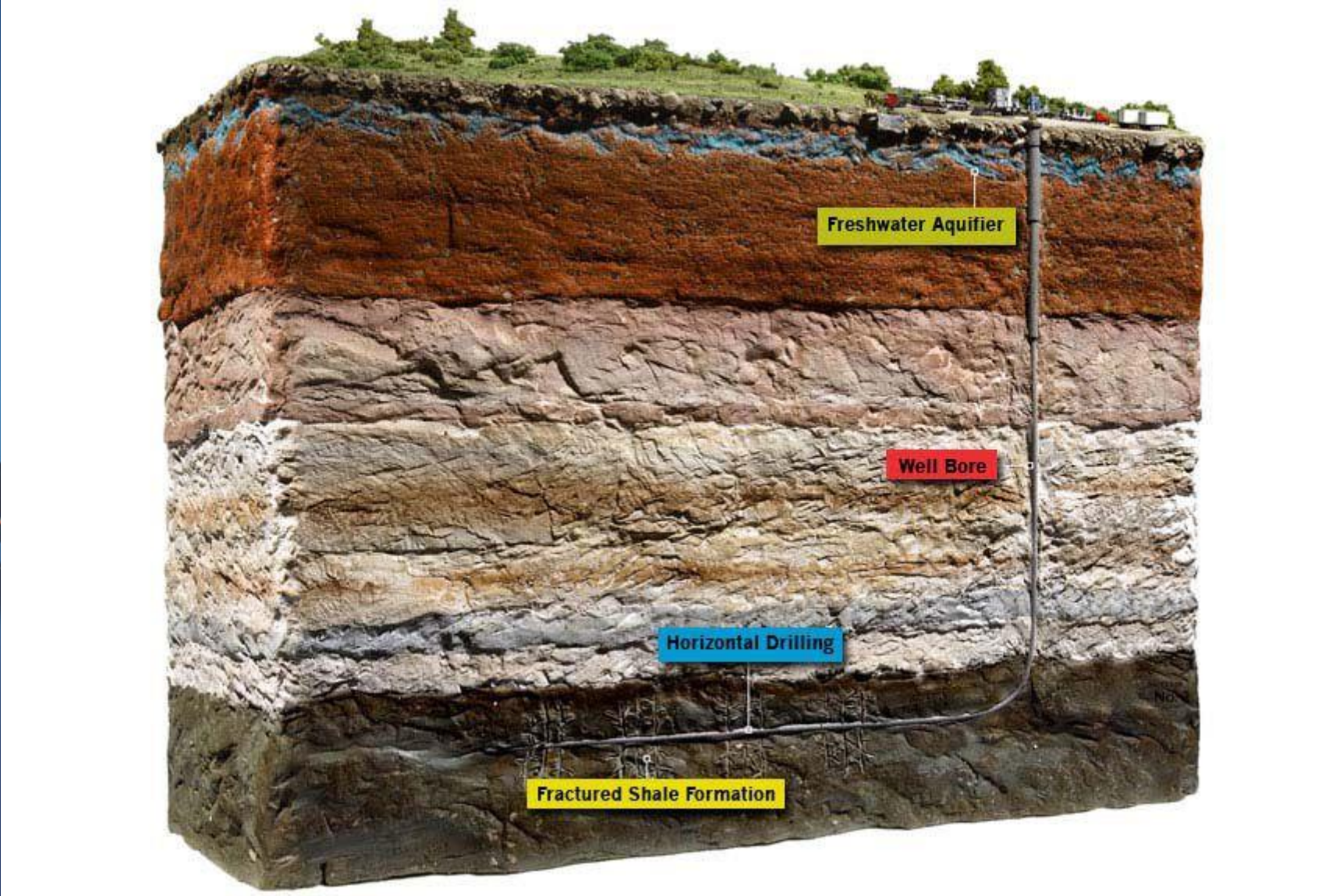
Early Hydraulic Fracturing - Late 1940's- Halliburton

# Record U.S. Natural Gas Production:





# The Age of Horizontal Drilling:







**How the industry responded  
in the past to increase production**





# Print Media: 275 Million Impressions





**PETROCHEMICAL  
PROFITABILITY =**

Build on top  
of the feedstock  
+  
Build in the  
center of customers

*Shale* **Crescent USA**<sup>™</sup>  
THE OHIO VALLEY ENERGY ADVANTAGE



**Petrochemical Profitability =**

**Build on top of the feedstock**

**+**

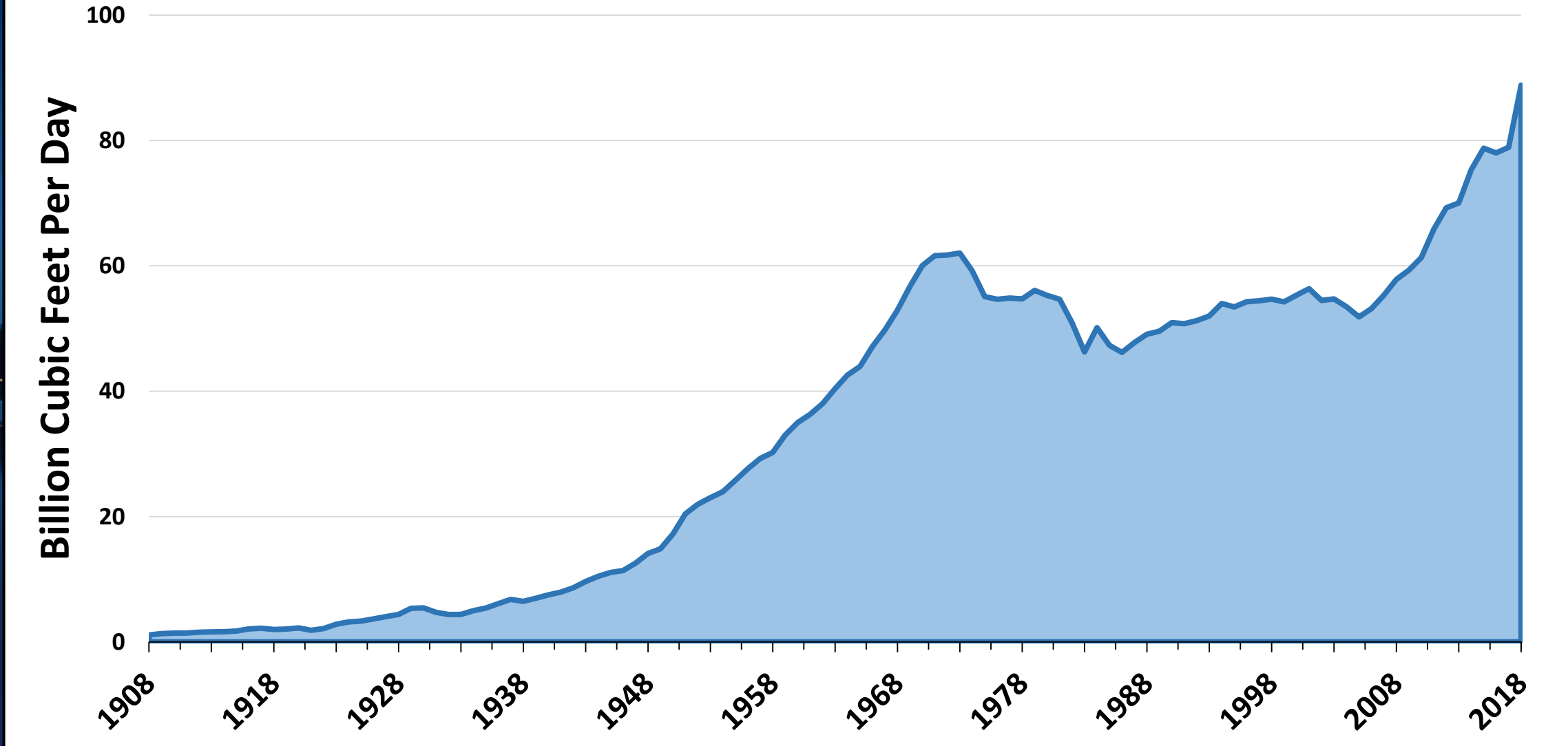
**Build in the center of customers**

# Record U.S. Marketed Natural Gas Production:

Source: EIA.gov

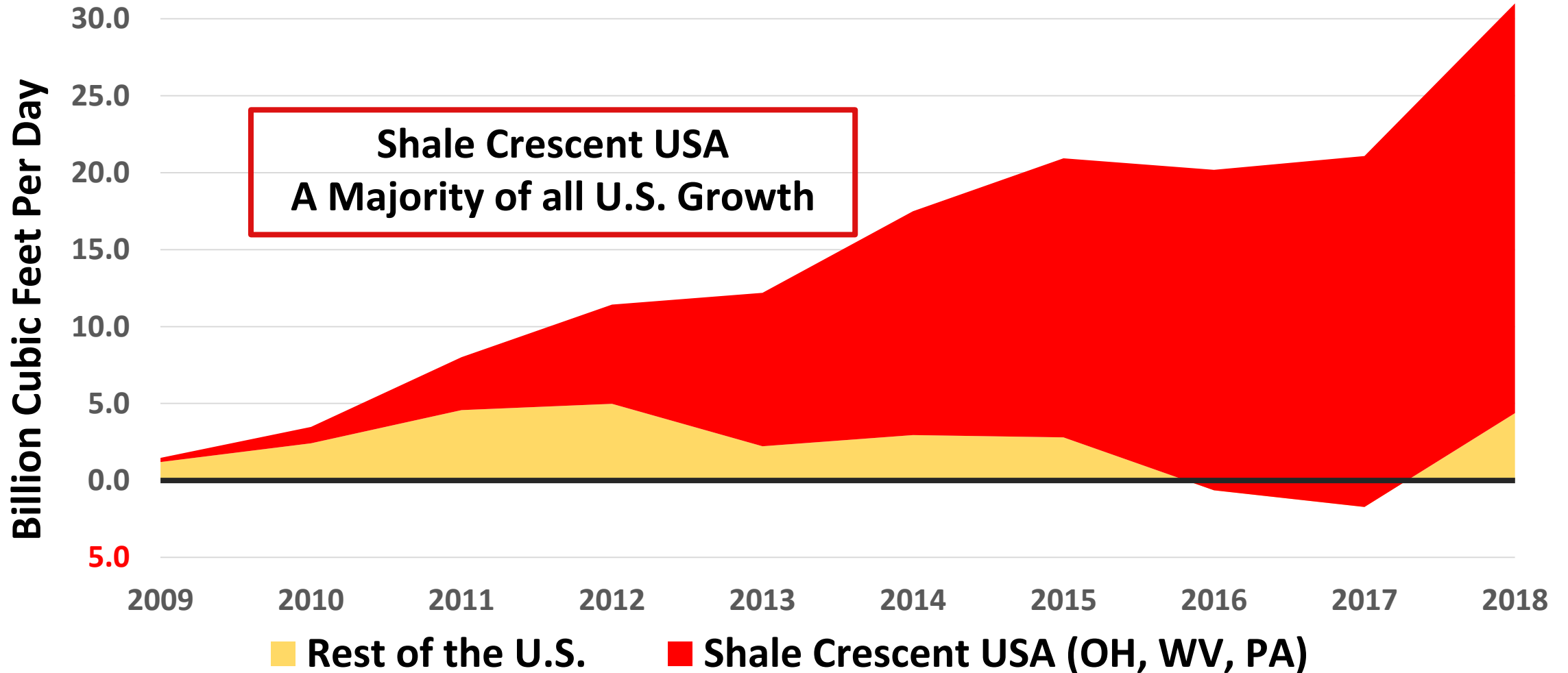
## U.S. Natural Gas Marketed Production

Shale Crescent USA  
THE OHIO VALLEY ENERGY ADVANTAGE

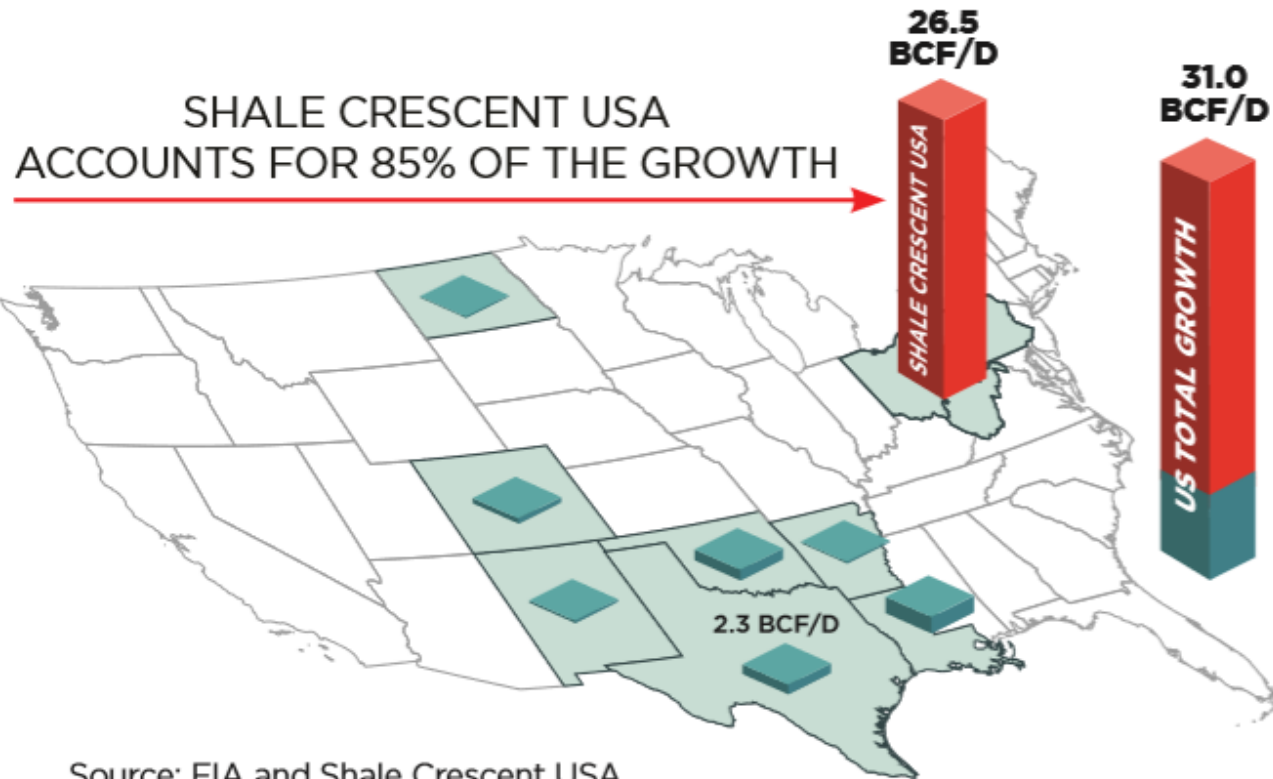




# Growth in Marketed Natural Gas Production 2009 - 2018



# GROWTH IN MARKETED NATURAL GAS PRODUCTION 2008-2018



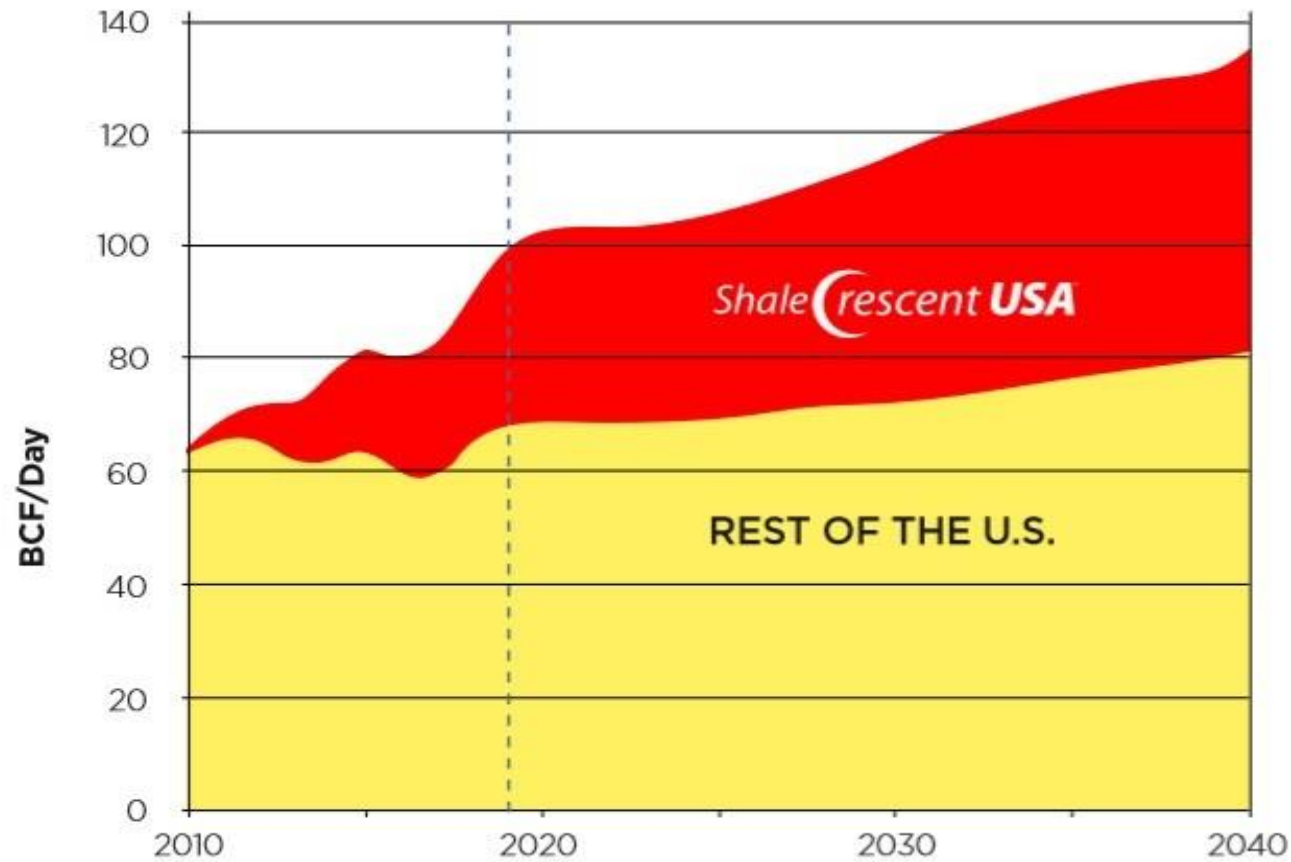
## Shale Crescent USA:

- #1 U.S. Natural Gas Producing Basin
- #1 U.S. Natural Gas Producer
- #1 U.S. NGL Producer
- Produces more Natural Gas than Texas

Petrochemical Profitability = Build on top of the feedstock + Build in the center of customers



## NATURAL GAS PRODUCTION



Source: IHS Markit

## PROJECTED U.S. NATURAL GAS GROWTH

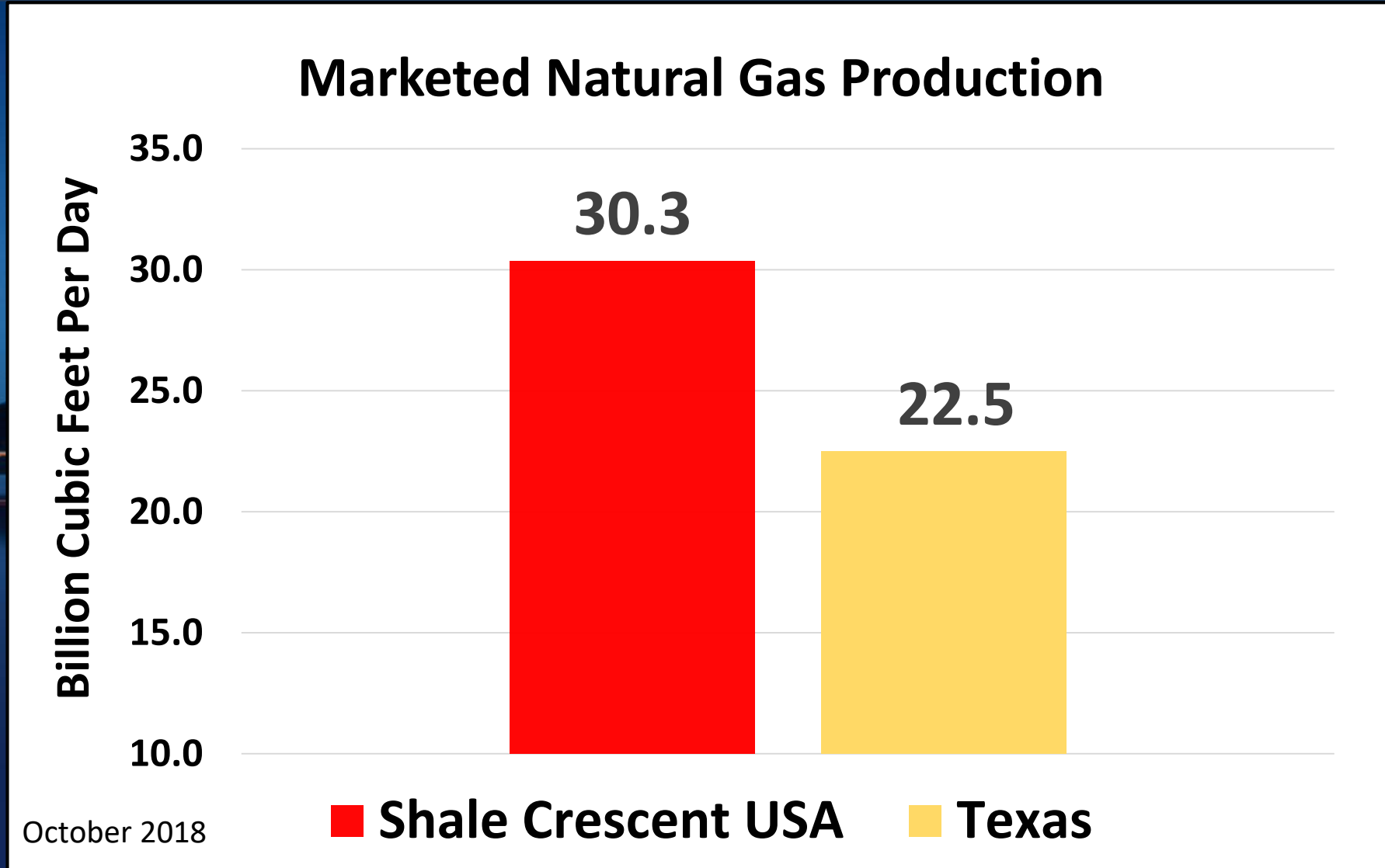
### Shale Crescent USA:

- Currently accounts for 32% of total U.S. Natural Gas Production
- Will account for 45% of total U.S. Natural Gas production by 2040
- If Shale Crescent USA were a country, it would be the third largest Natural Gas producing country in the world

Petrochemical Profitability = Build on top of the feedstock + Build in the center of customers

# Shale Crescent USA

## Has Surpassed Texas in Natural Gas Production



# Top Natural Gas Producers in the World

- 1st  USA
- 2nd  Russia
- 3rd  Shale Crescent USA

- 4th  Iran
- 5th  Qatar
- 6th  Canada
- 7th  China
- 8th  Norway
- 9th  Saudi Arabia
- 10th  Algeria



**Petrochemical Profitability =**

**Build on top of the feedstock**

**+**

**Build in the center of customers**



## MARKET PROXIMITY

- 50% of the U.S. Population is within a day's drive
- 70% of North American Polyethylene demand is within a day's drive\*
- 77% of North American Polypropylene demand is within a day's drive\*

\*Source: IHS Markit

Petrochemical Profitability = Build on top of the feedstock + Build in the center of customers

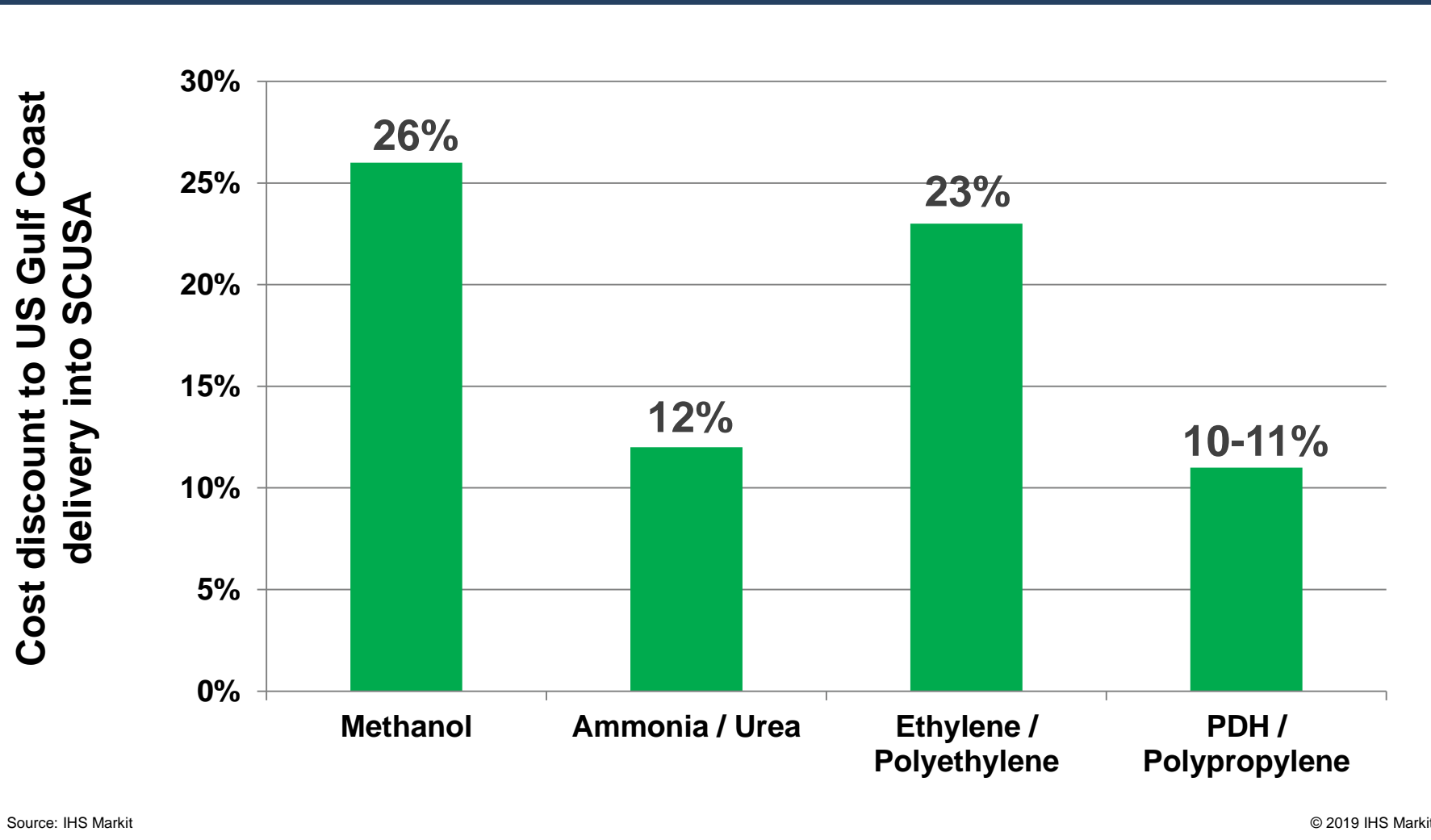
# Petrochemical Profitability =

Build on top of the feedstock  
+  
Build in the center of customers



# Shale Crescent USA

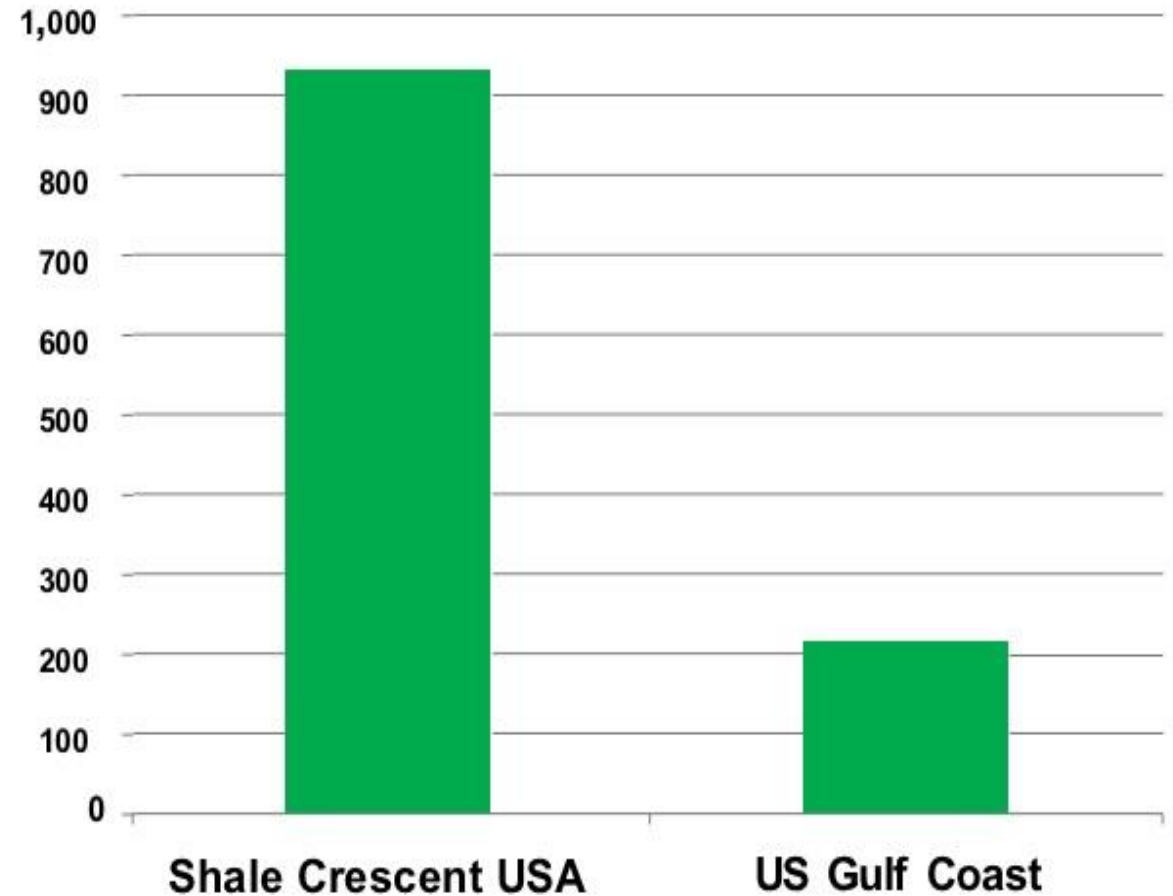
## Delivered Petrochemical Cost Advantage Over U.S. Gulf Coast



# Polyethylene Facility: NPV15

Shale Crescent USA  
facility is  
4x Greater  
than facility on  
U.S. Gulf Coast.

Net present value in 2020, Shale Crescent USA versus the US Gulf Coast (applying a 15% discount rate)



Source: IHS Markit

Plant location

© 2017: IHS Markit

Petrochemical Profitability =

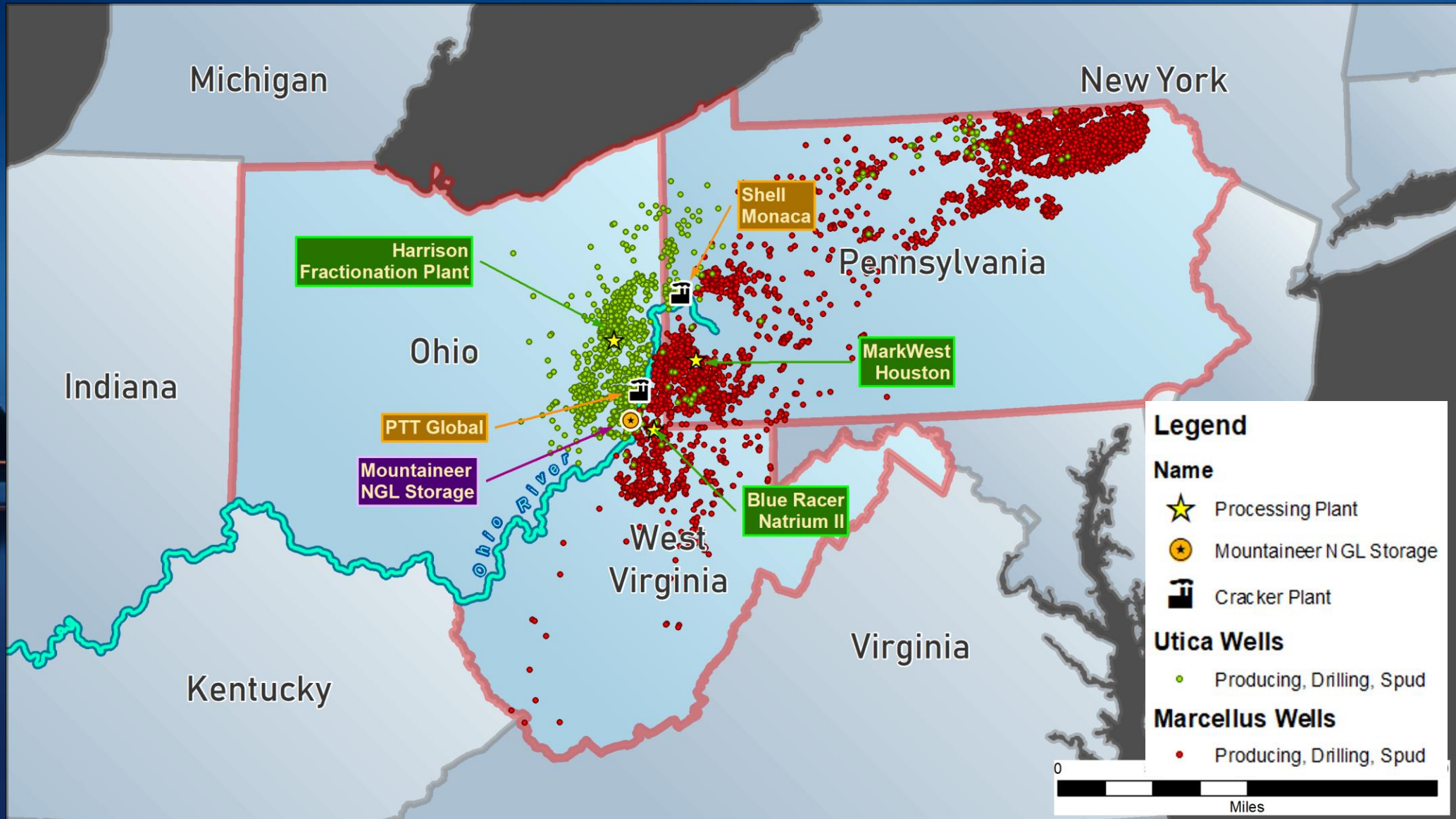
Build on top of the feedstock

+

Build in the center of customers



# Location Advantage:

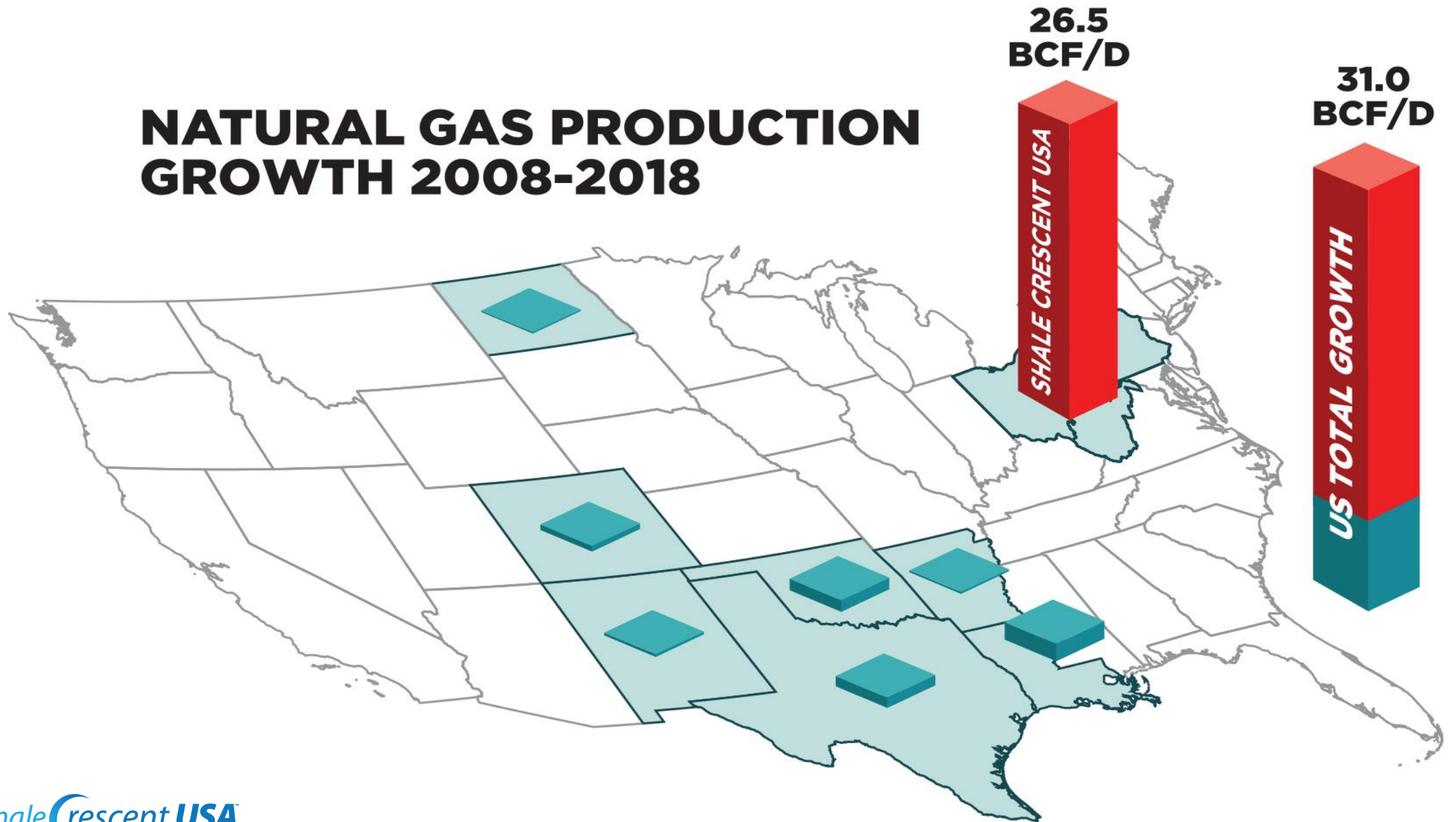


# Shipping Advantage:



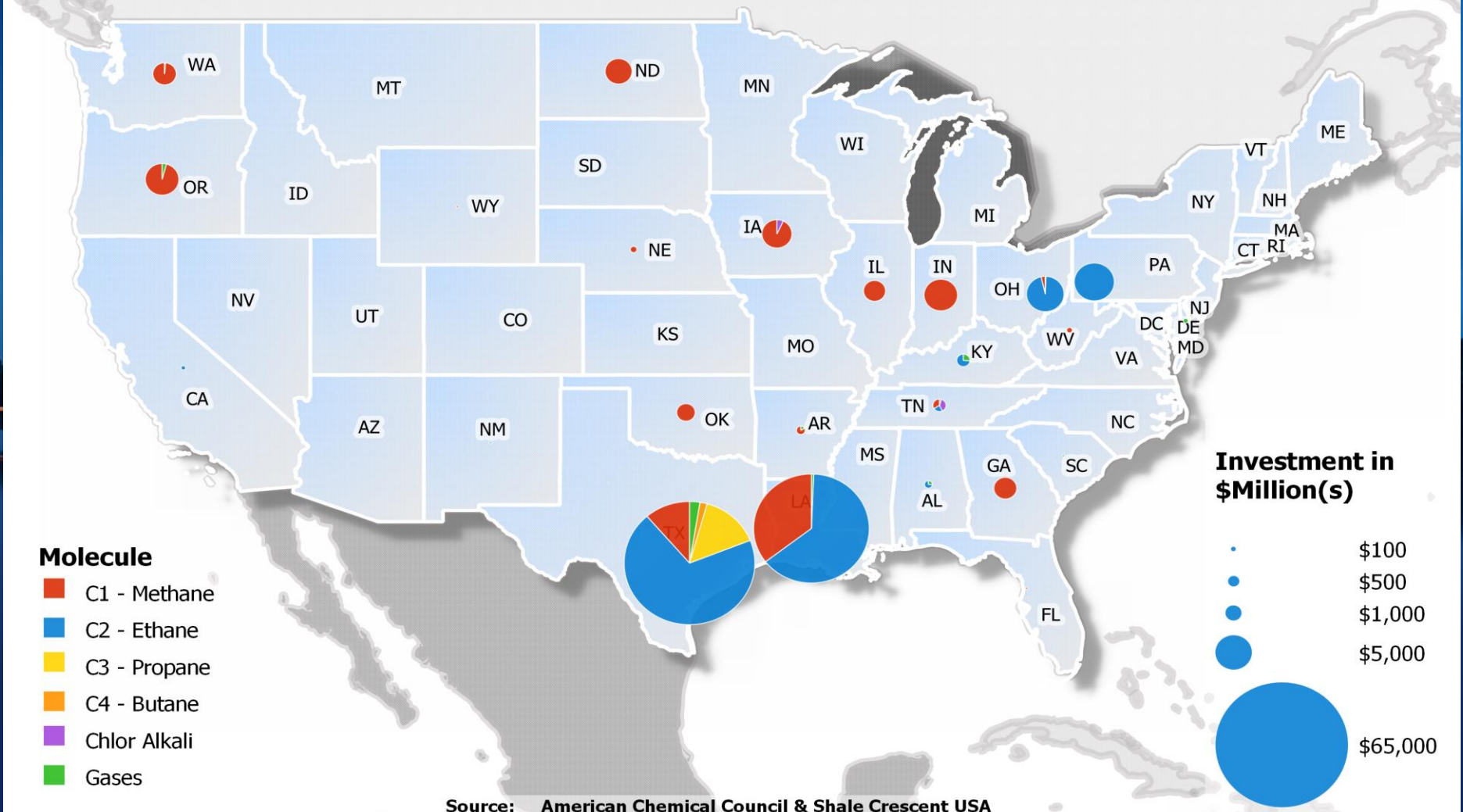


# NATURAL GAS PRODUCTION GROWTH 2008-2018





# Chemical Investments & Announcements by State 2010 to 2018



Source: American Chemical Council & Shale Crescent USA



# 2018 & 2019 World Petrochemical Conference:



# Thank You

**Mark Schwendeman:** Chairman

**Jerry James:** Vice Chairman and Co-Founder

**Wally Kandel:** Board Member and Co-Founder

**Greg Kozera:** Director of Marketing and Sales

**Nathan Lord:** Business Manager

[www.shalecrescentusa.com](http://www.shalecrescentusa.com)

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