



2014 Energy Market Update

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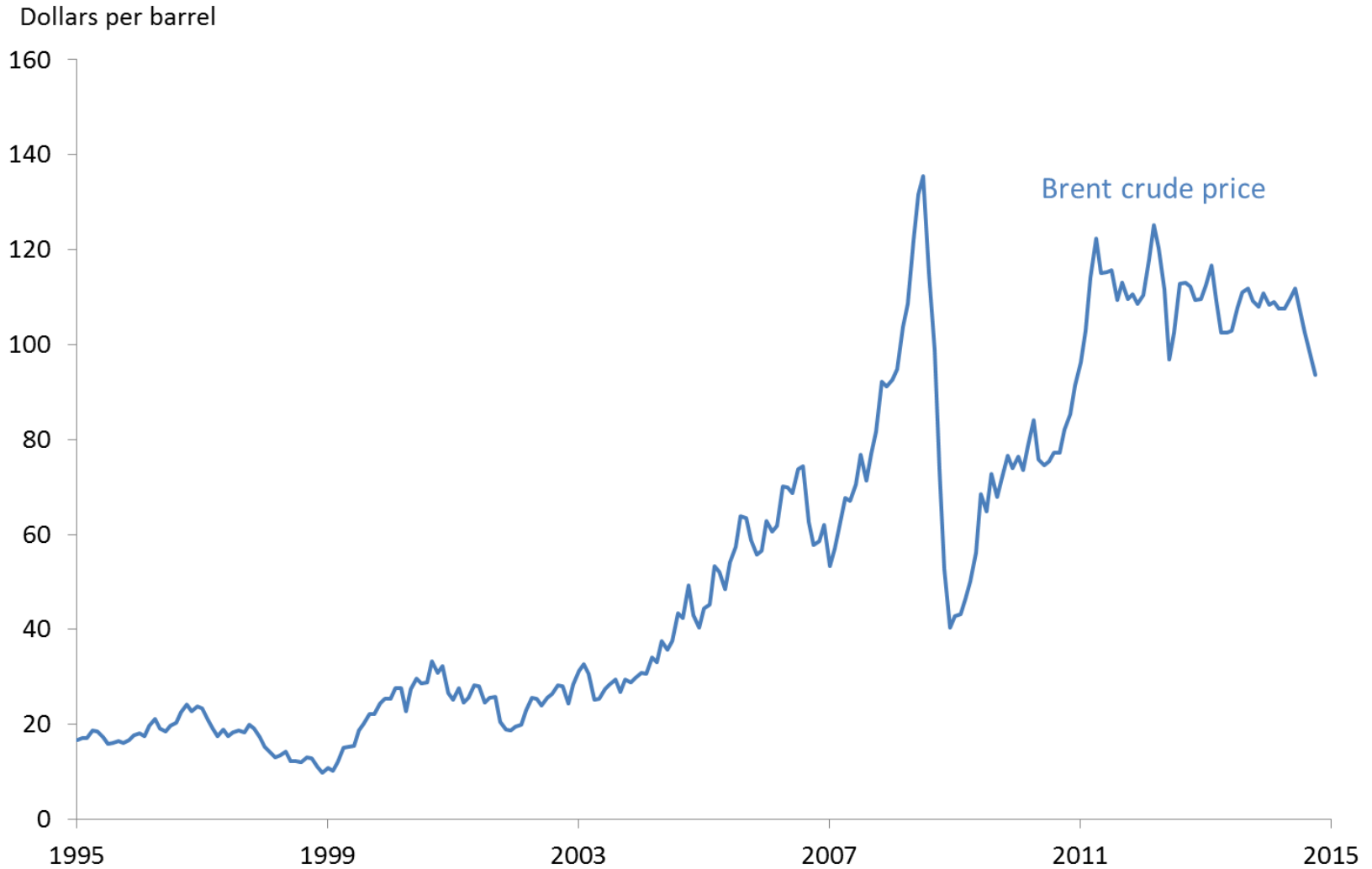
October 29, 2014

Outline

- Oil market developments
 - Growing importance of developing world since 2000
 - What's happened with supply?
- Shale boom in the 11th Federal Reserve District
 - Effects on oil and gas production
 - Implications for regional economy



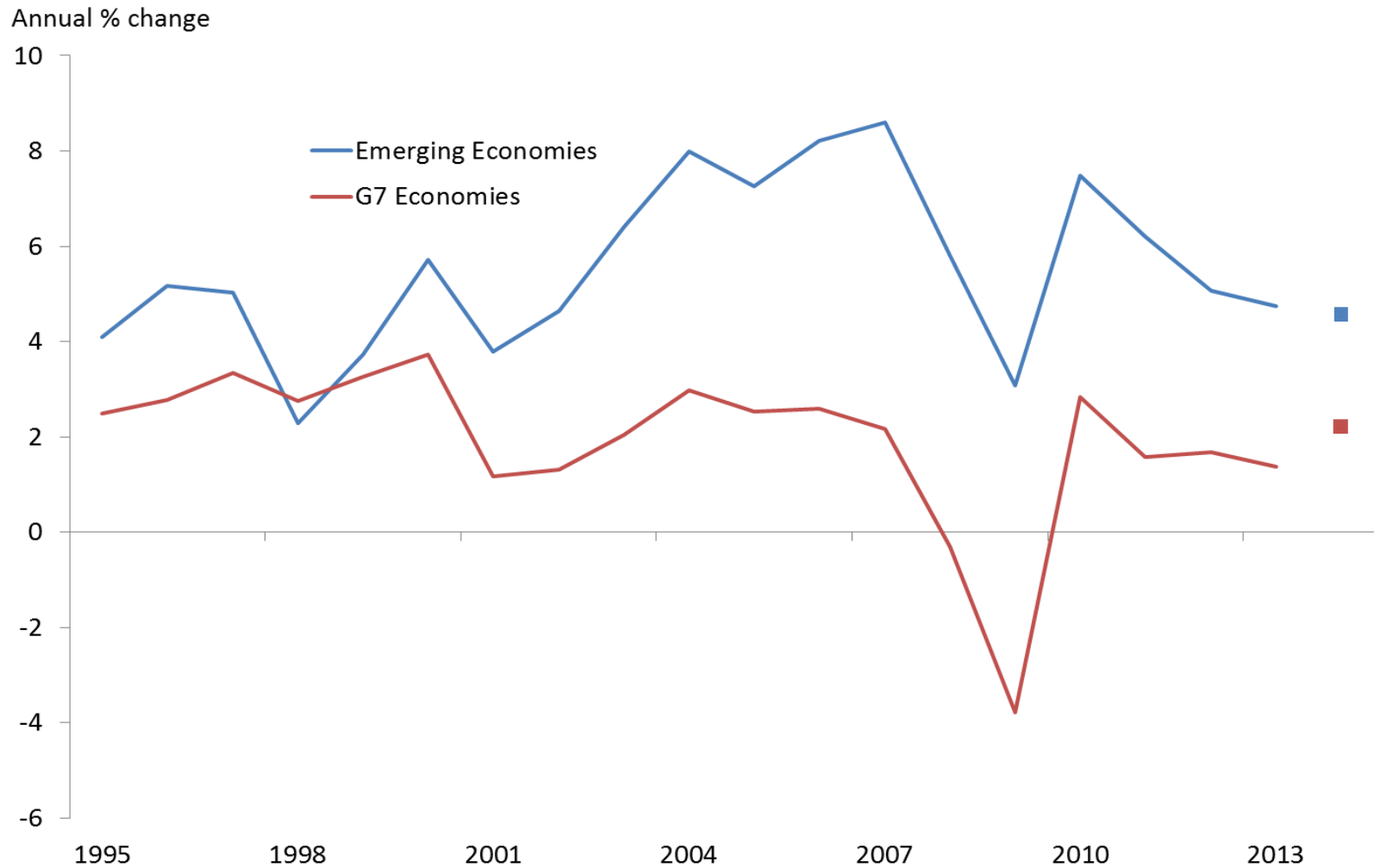
Oil prices up significantly since the 90s



Source: Wall Street Journal



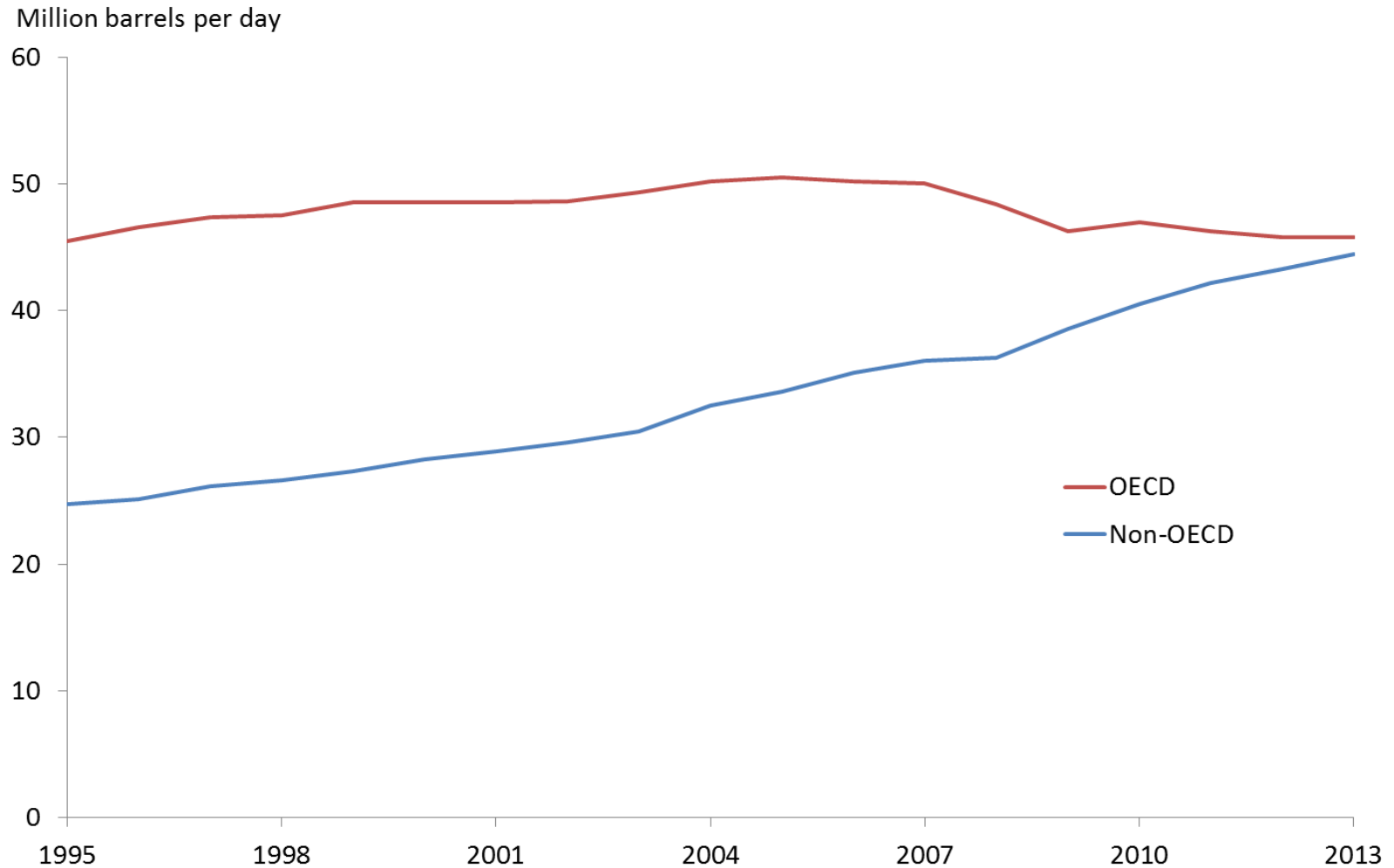
Emerging markets grow at a rapid clip



Source: International Monetary Fund



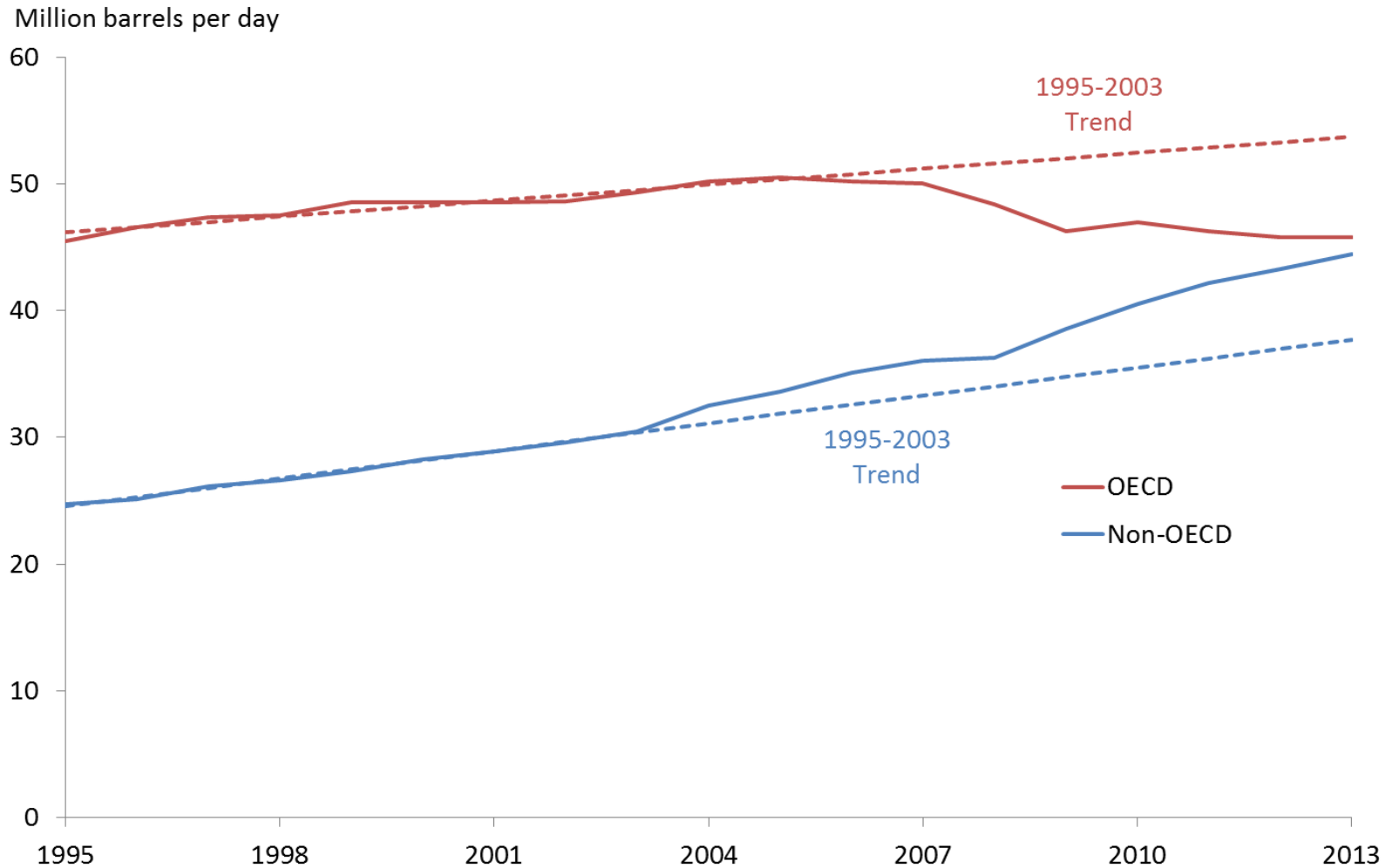
Non-OECD countries using more oil



Source: Energy Information Administration



Non-OECD growth picked up after 2003

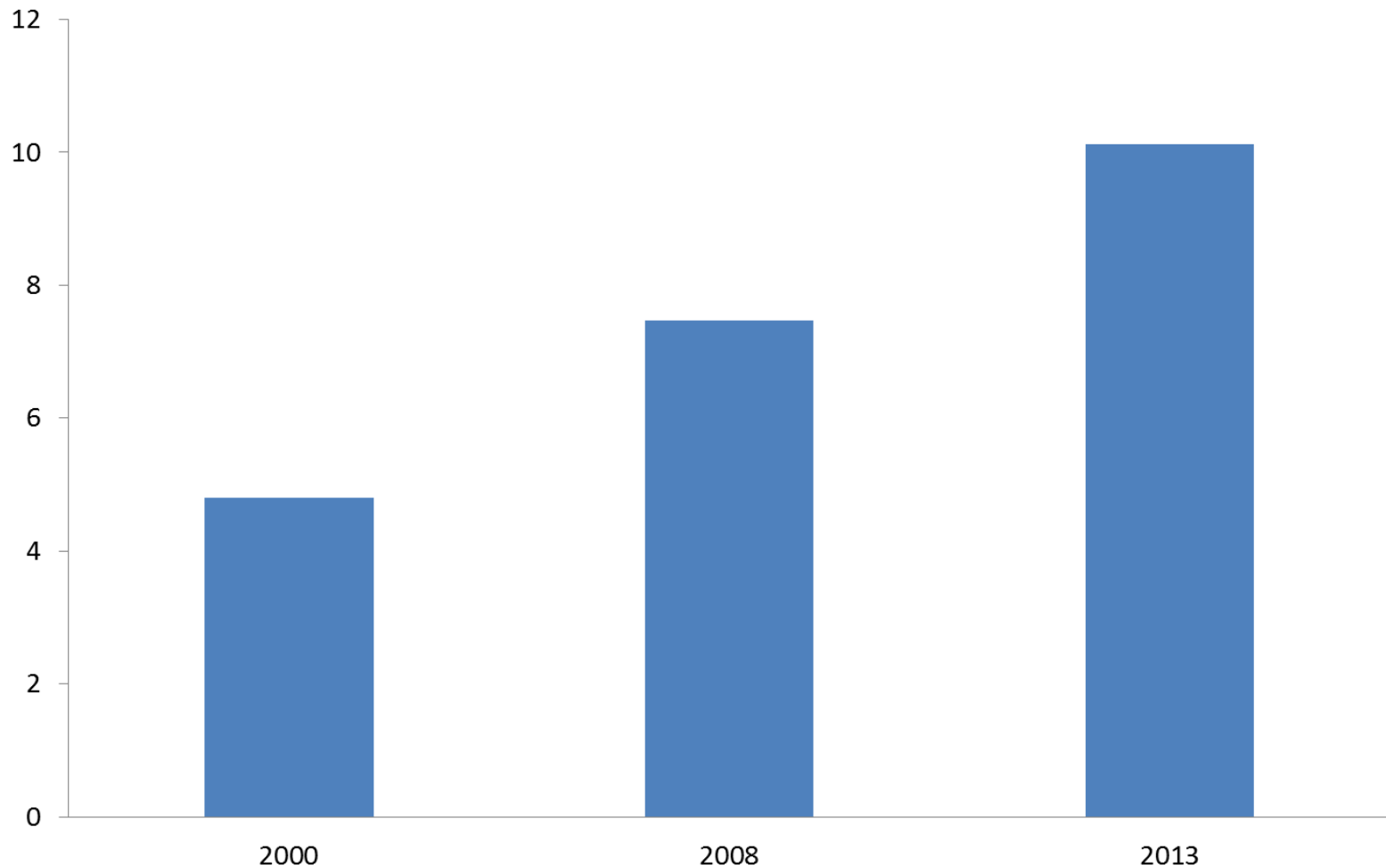


Source: Energy Information Administration



China now massive consumer of oil

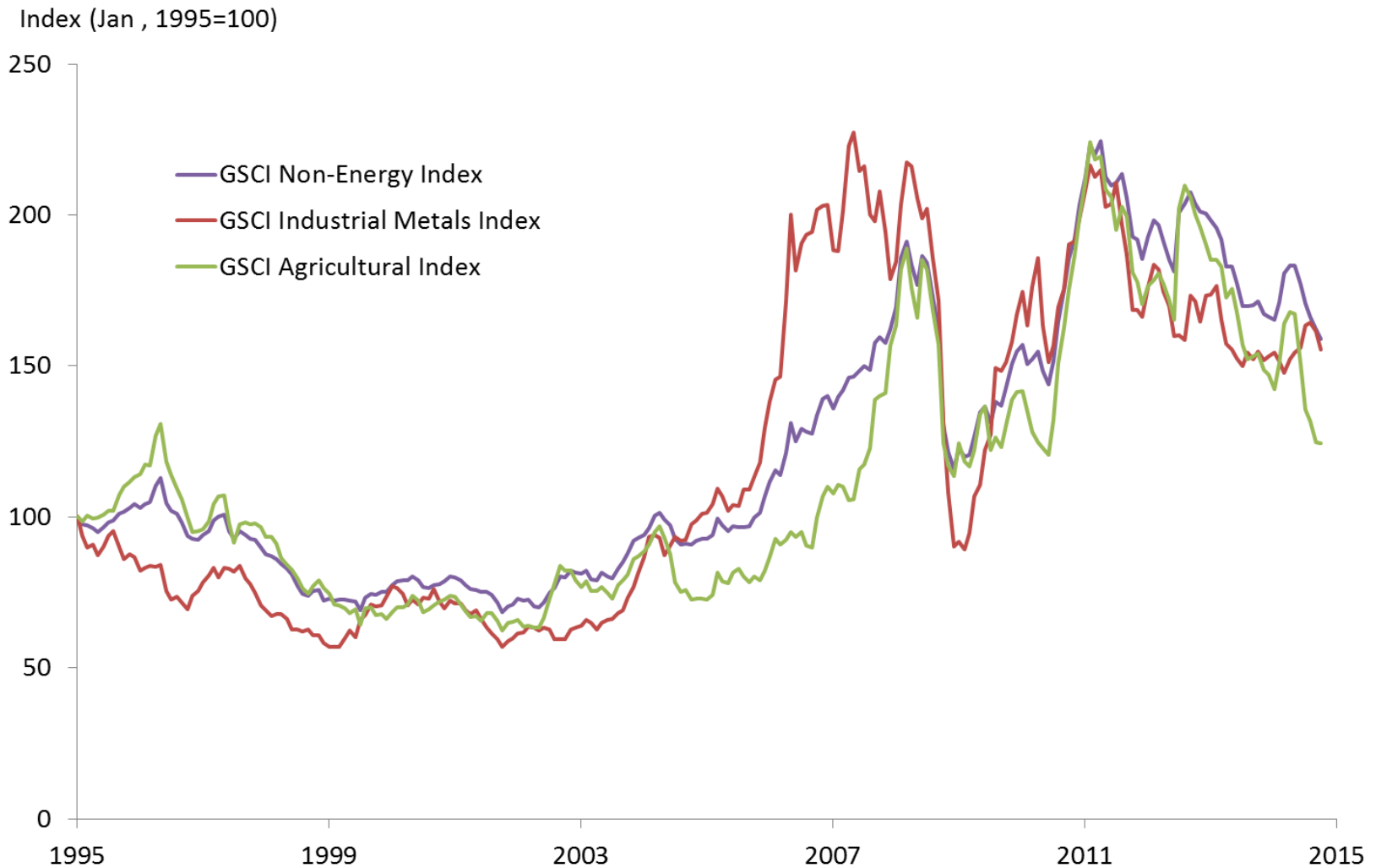
Million barrels per day



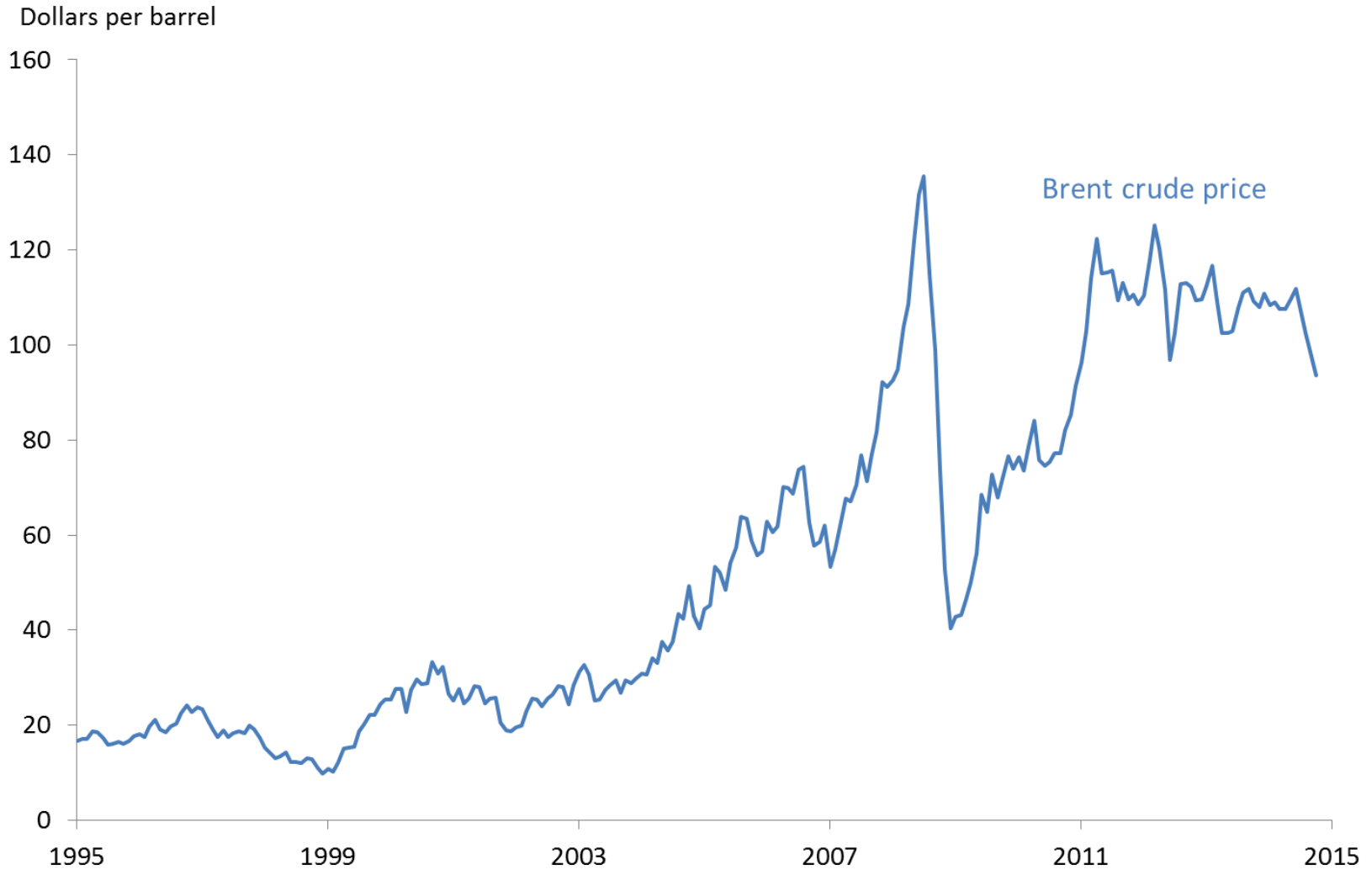
Source: Energy Information Administration



Growth affected many commodity prices



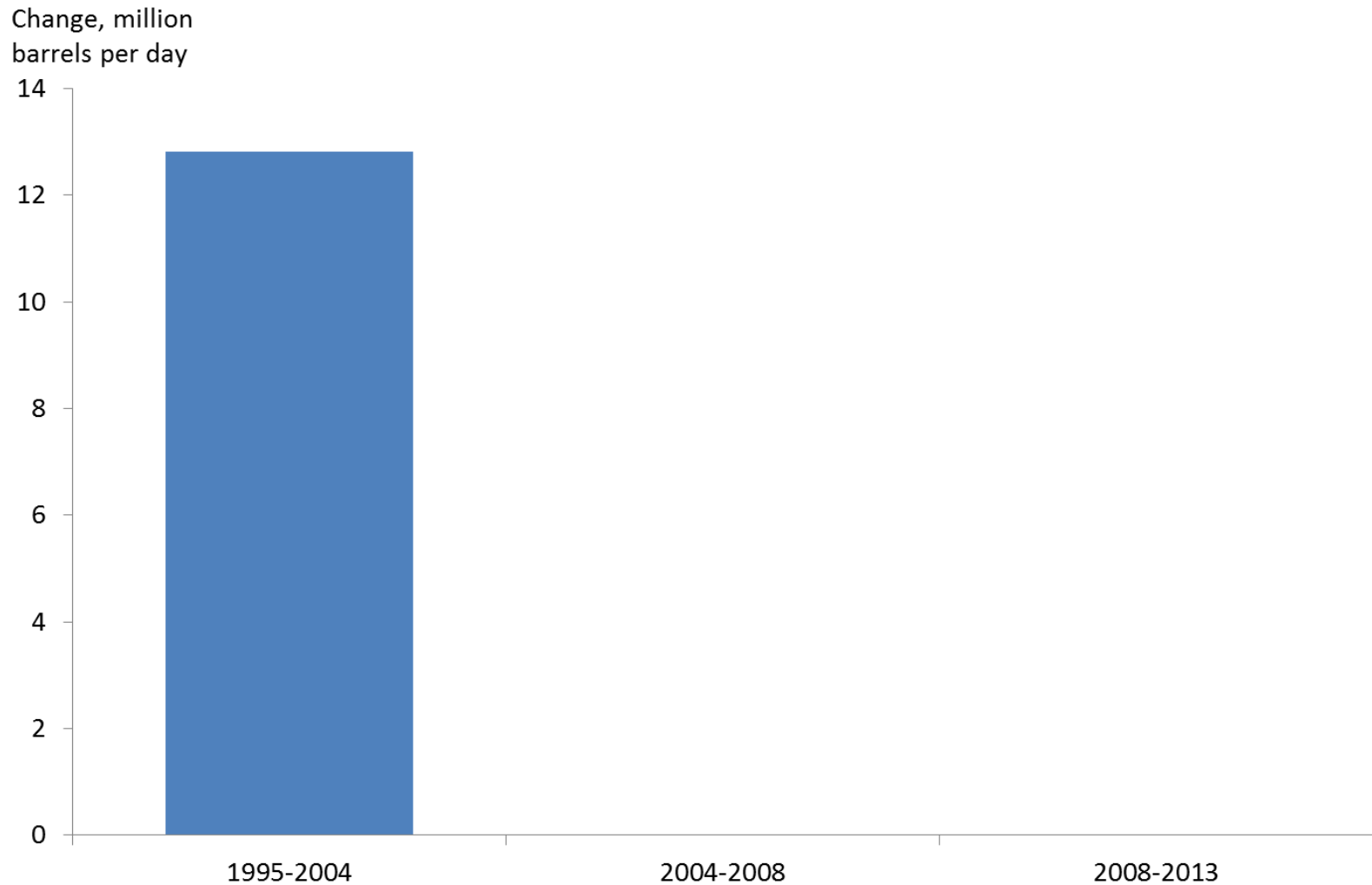
Oil prices started increasing after 2003



Source: Wall Street Journal



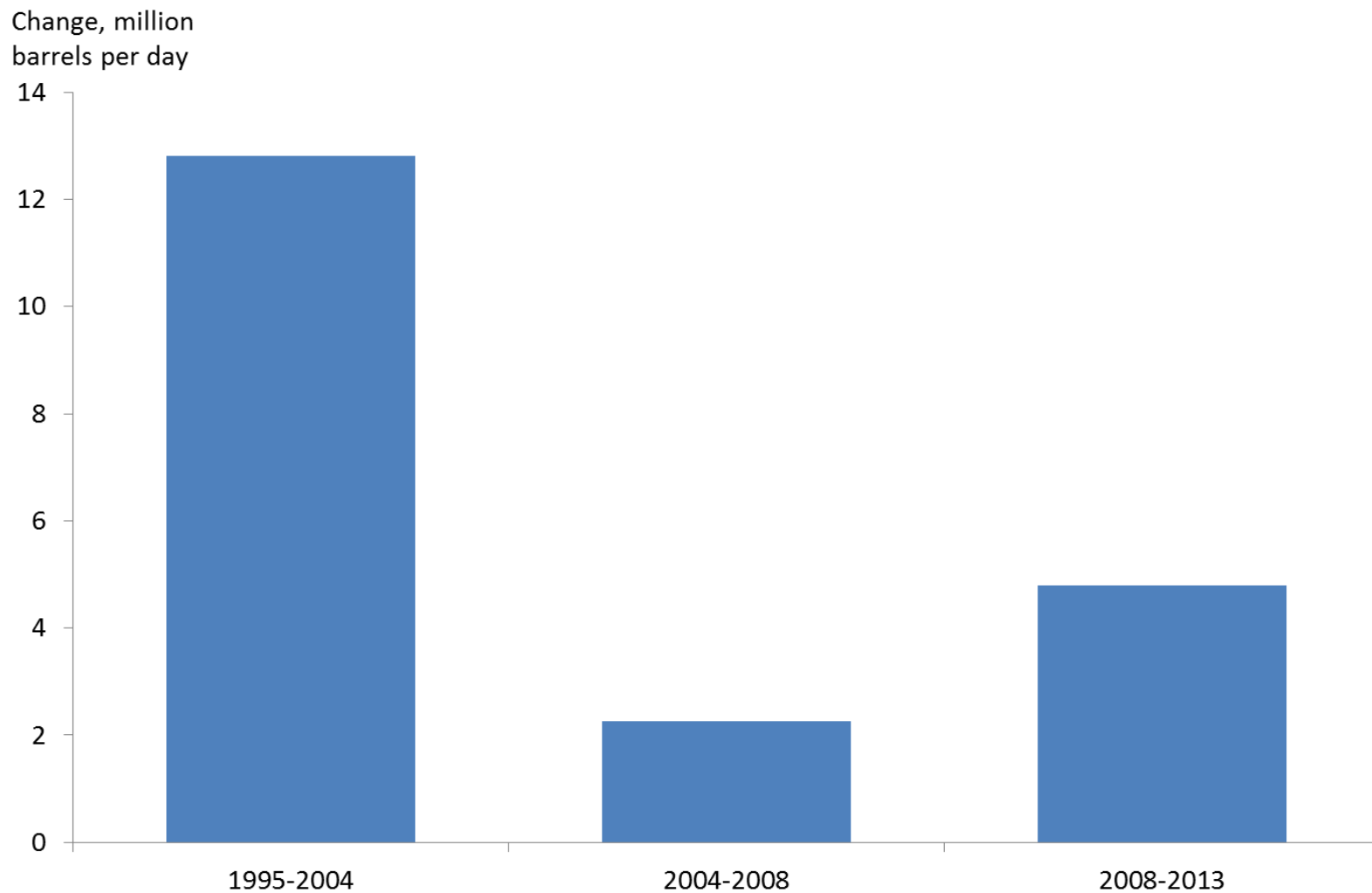
Robust supply growth up to 2004



Source: Energy Information Administration



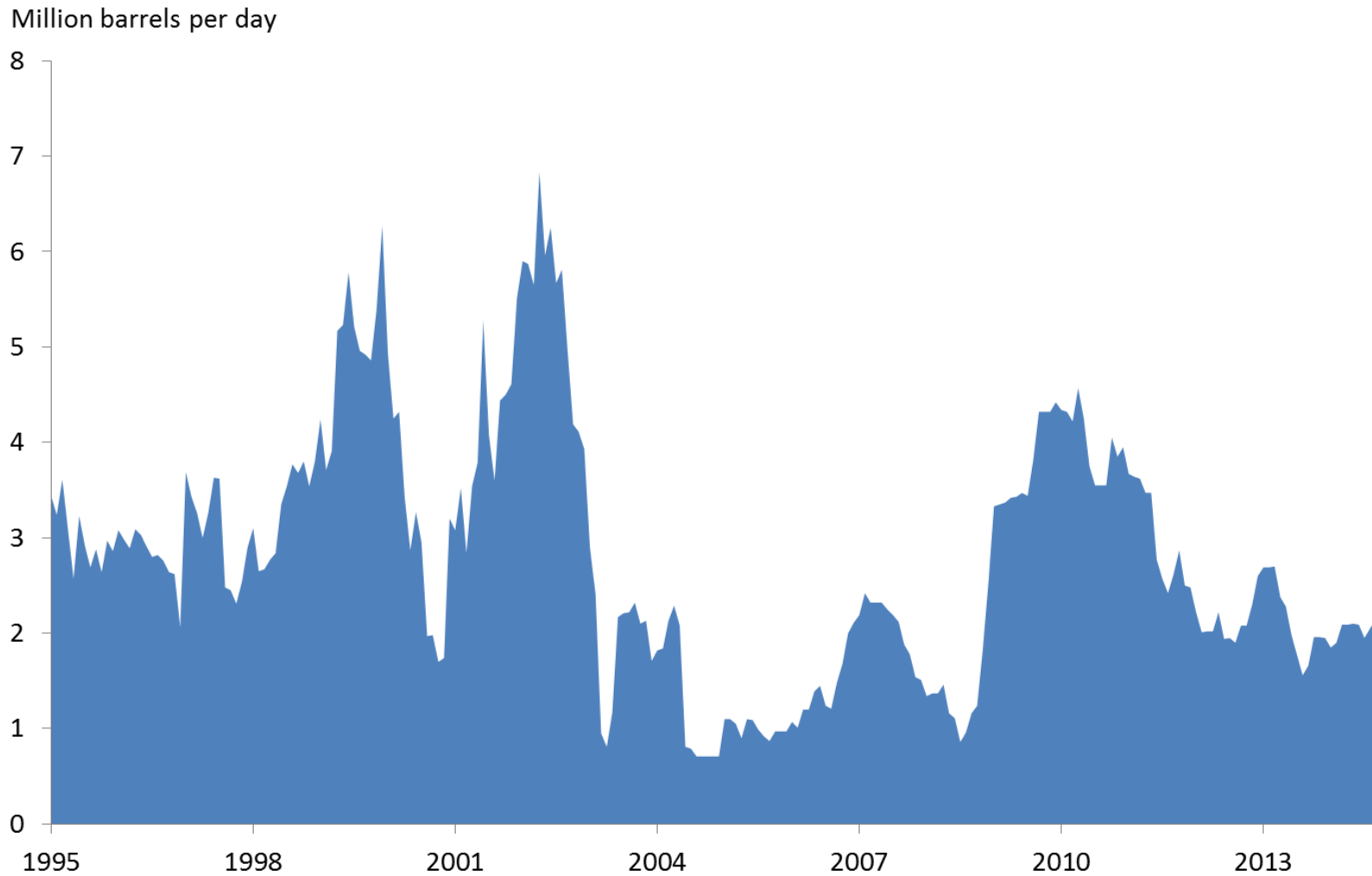
Not so much after 2004...



Source: Energy Information Administration



While spare capacity has been low



Source: Energy Information Administration



Market conditions before 2004

- Global demand growing at fairly constant pace
- Supply growth generally in line with demand growth
- Ample spare capacity
- Relatively low and fairly stable prices



Market conditions in mid-2000s

- Boom in demand from non-OECD countries
- Low supply growth
- Low spare capacity
- Tight oil market = higher prices



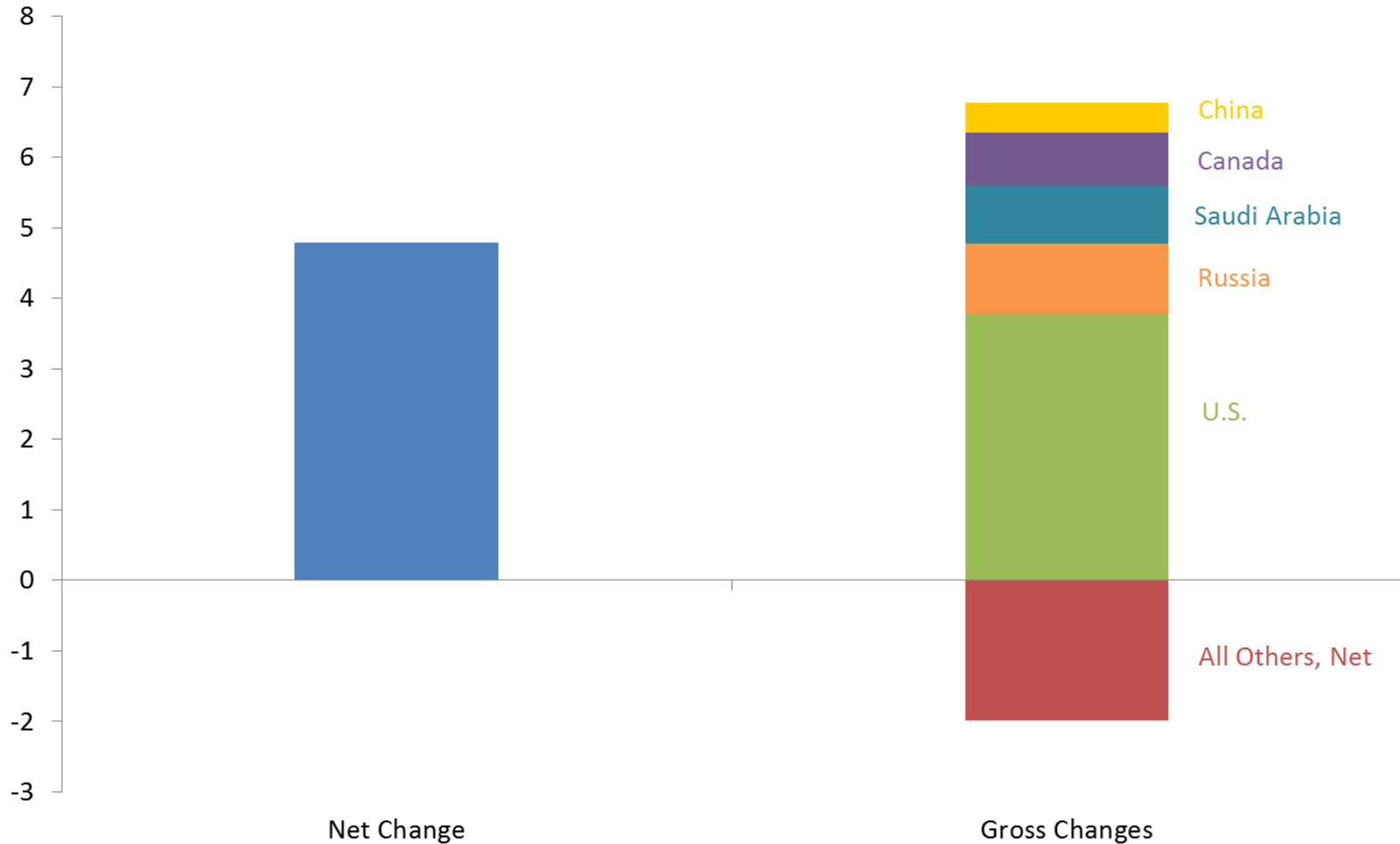
Since the Great Recession

- World oil prices have moved between \$90 to \$125
- Non-OECD consumption still growing
- OECD consumption trending downwards
- Supply just keeping pace with net growth in demand



U.S. major source of new supply

2008-2013 Change,
million barrels per day



Source: Energy Information Administration

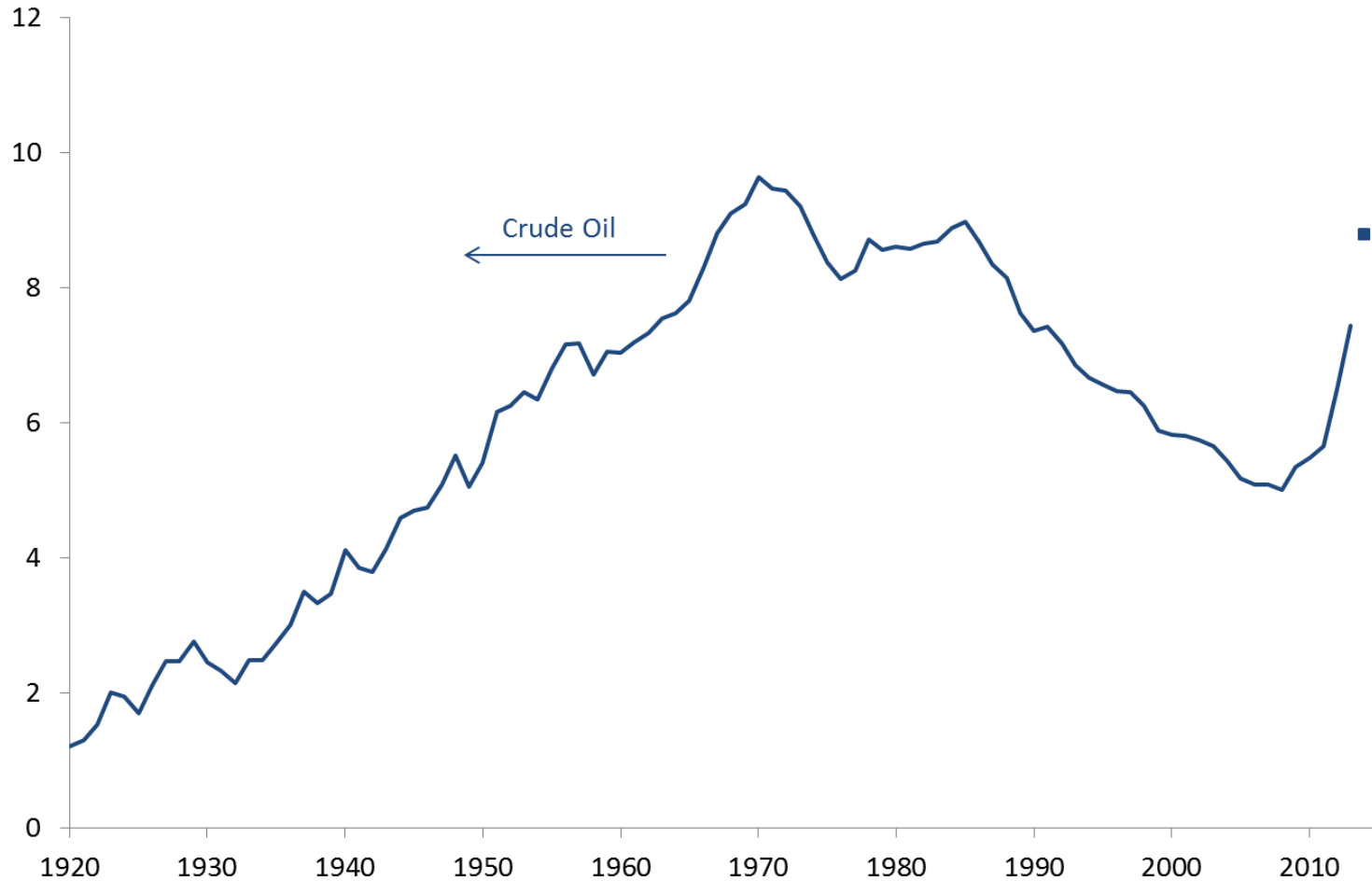


The background of the slide features a large, faint, light-gray watermark of the Federal Reserve Seal. The seal is circular, with an eagle at the top, a shield with vertical stripes in the center, and a laurel wreath at the bottom.

Shale Boom in the 11th Federal Reserve District

U.S. oil production bucks the trend

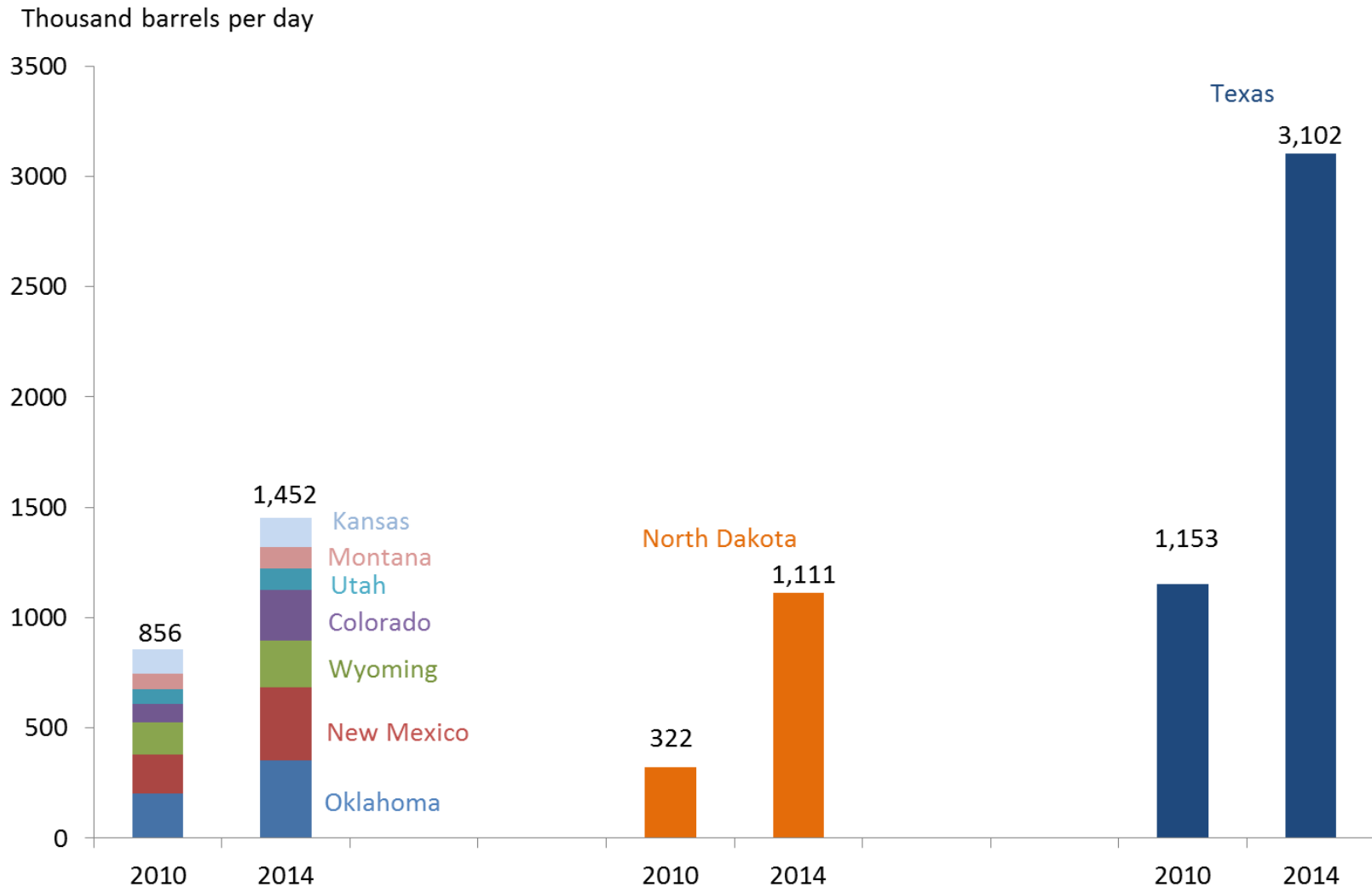
Million barrels per day



Source: Energy Information Administration



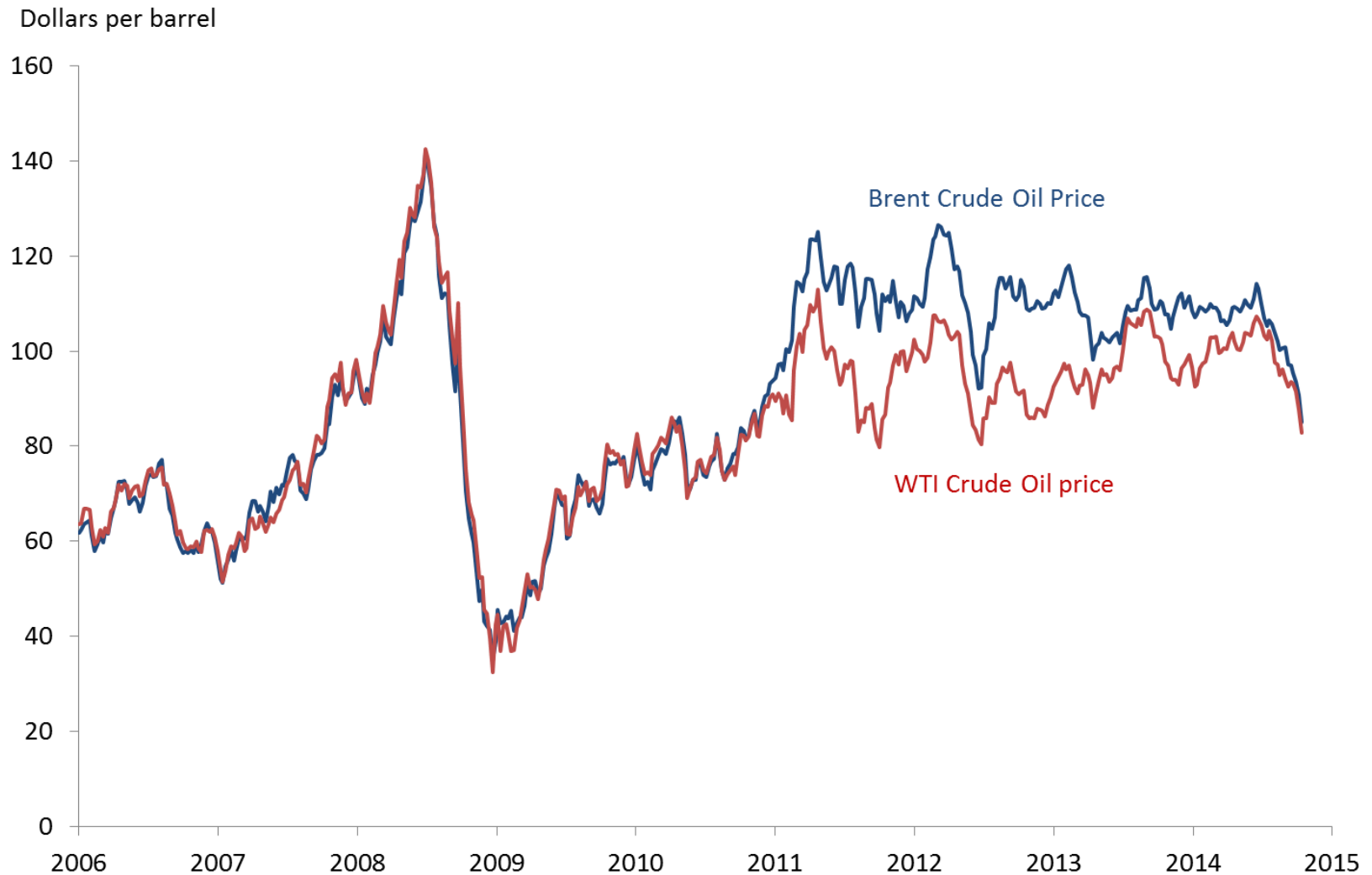
Growth strong in shale-producing states



Source: Energy Information Administration.



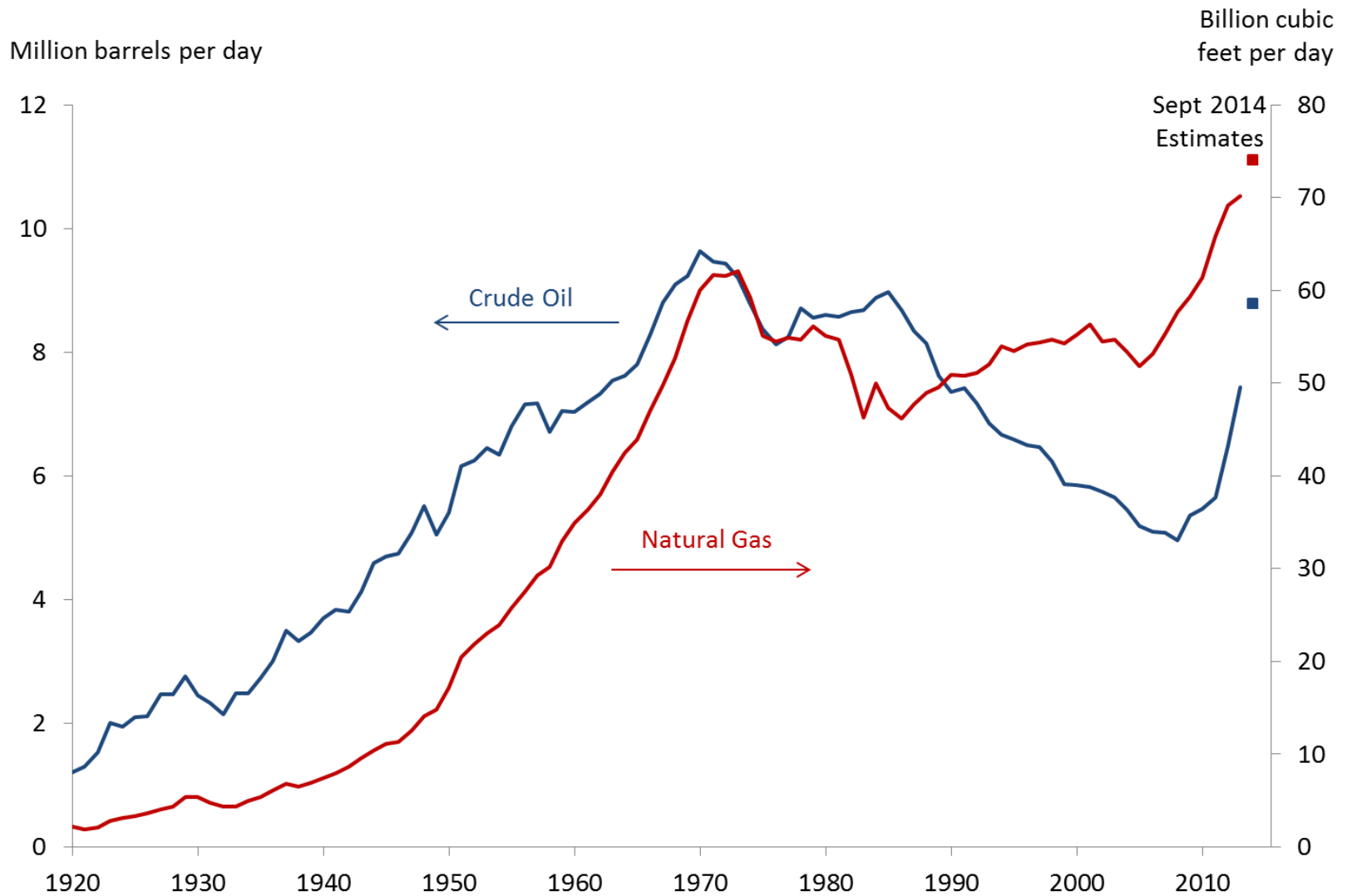
U.S. oil sells at discount



Source: Energy Information Administration, Wall Street Journal



U.S. natural gas production up, too

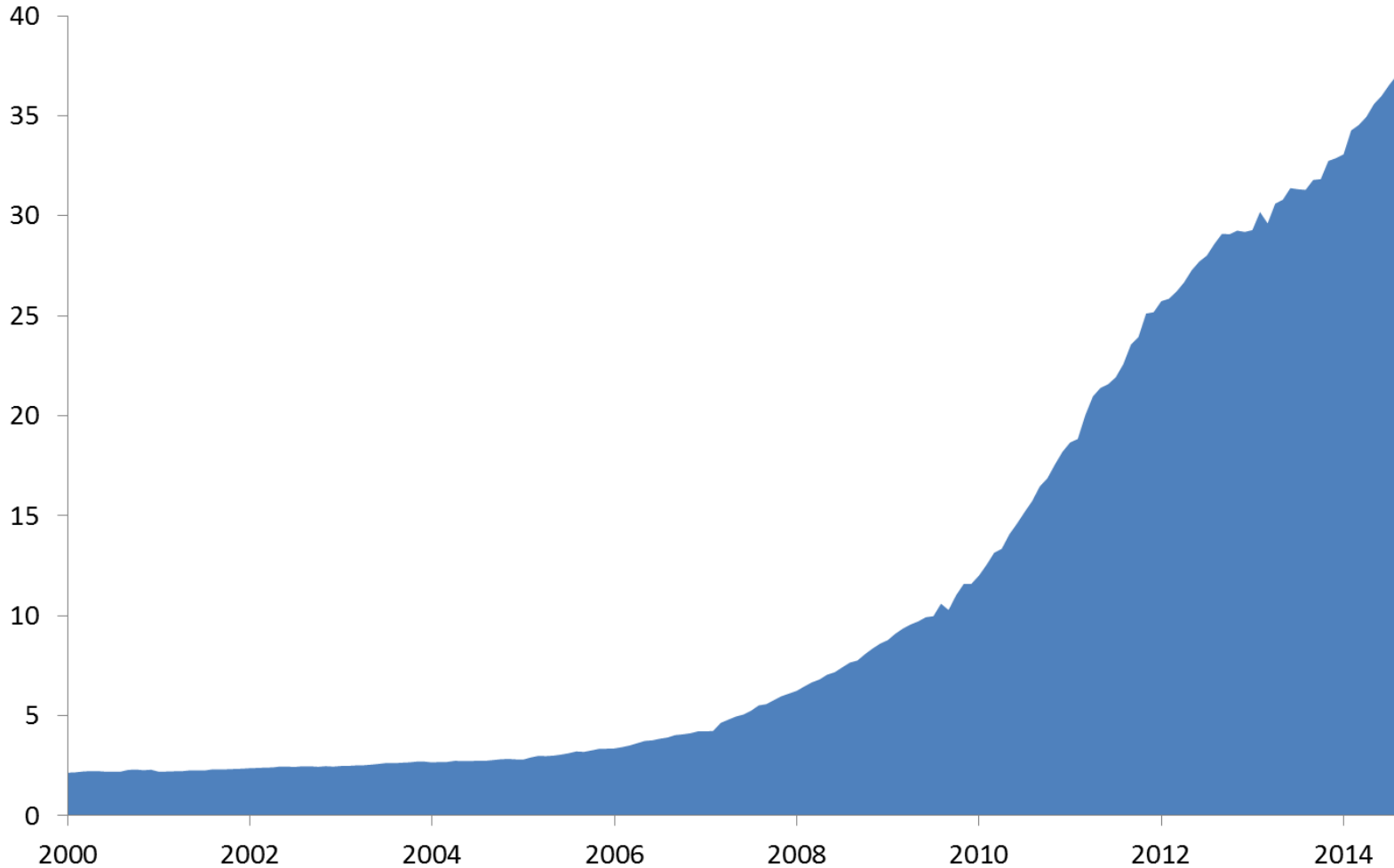


Source: Energy Information Administration



Shale gas leads the way up

Billion cubic feet per day

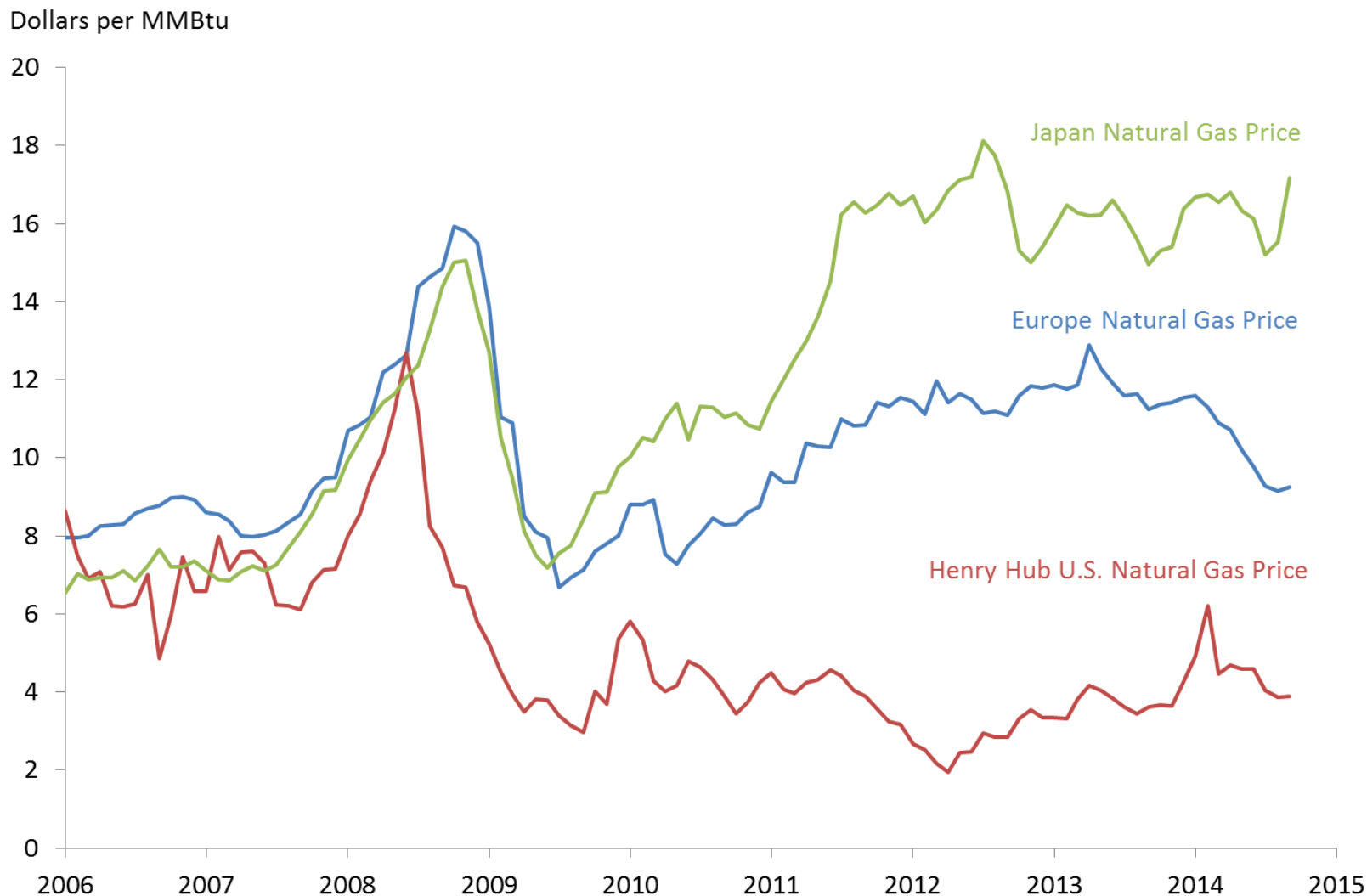


Source: Energy Information Administration

Federal Reserve Bank of Dallas



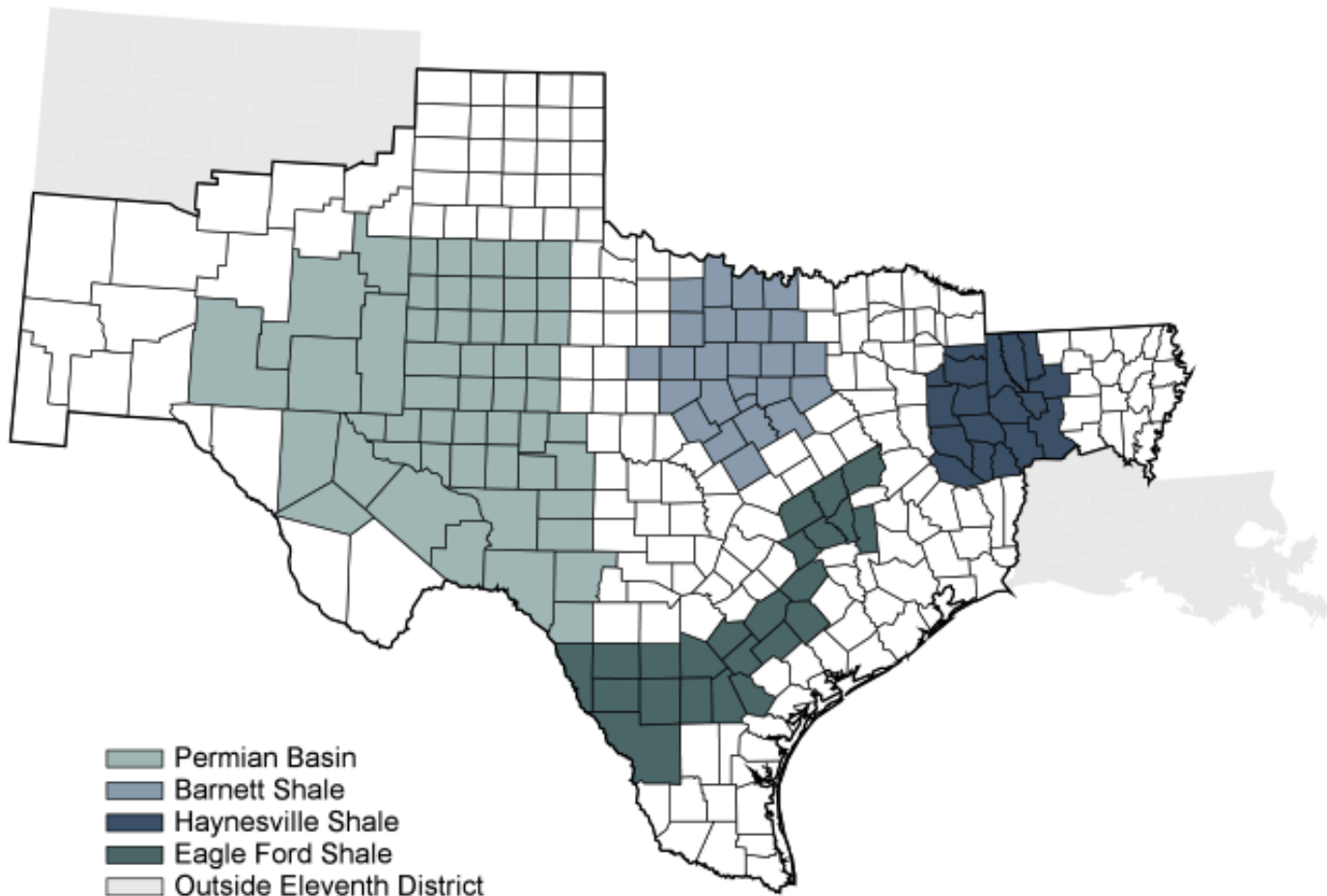
U.S. gas prices plummet



Source: World Bank



Energy in the 11th District



<http://www.dallasfed.org/research/econdata/energy.cfm>

Shale boom timeline in 11th District

Different starting times:

- Barnett – 2002
- Haynesville – 2008
- Eagle Ford – Around 2010
- Permian Basin – Around 2010



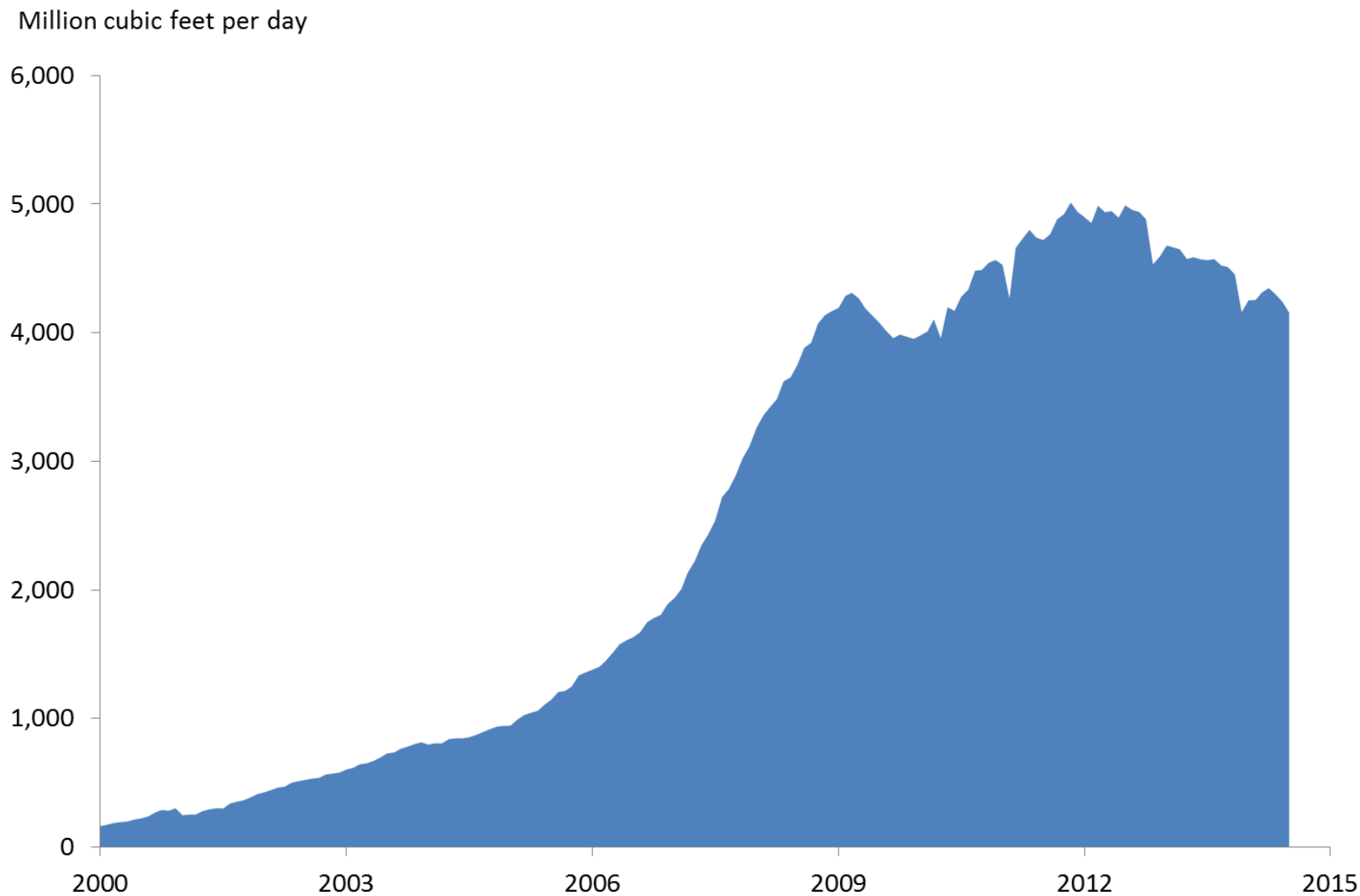
Each basin is unique

Geological characteristics vary and affect:

1. Amount of gas vs. oil
2. Presence of NGLs
3. Efficiency / overall costs of drilling



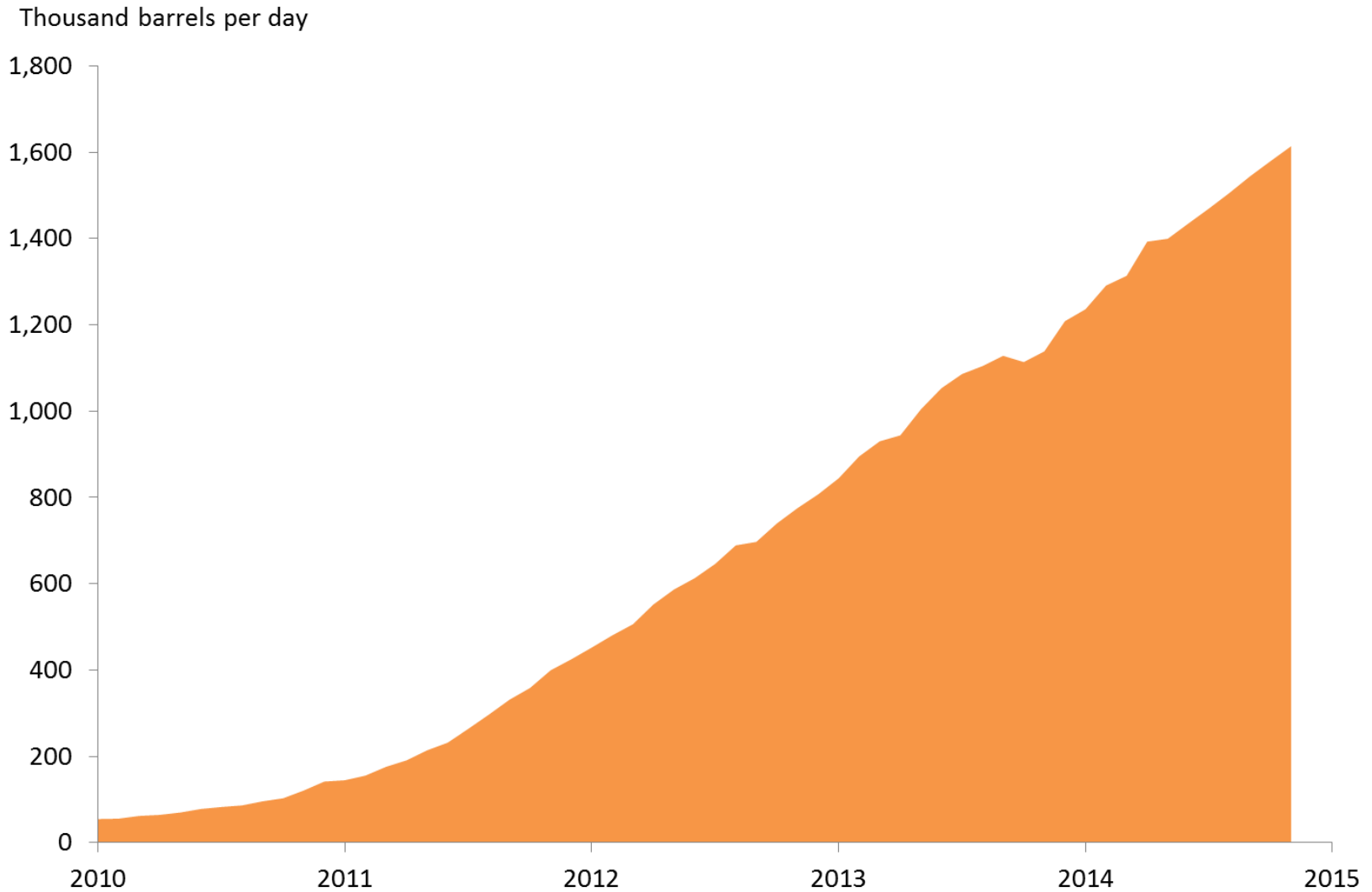
Barnett gas production



Source: Energy Information Administration



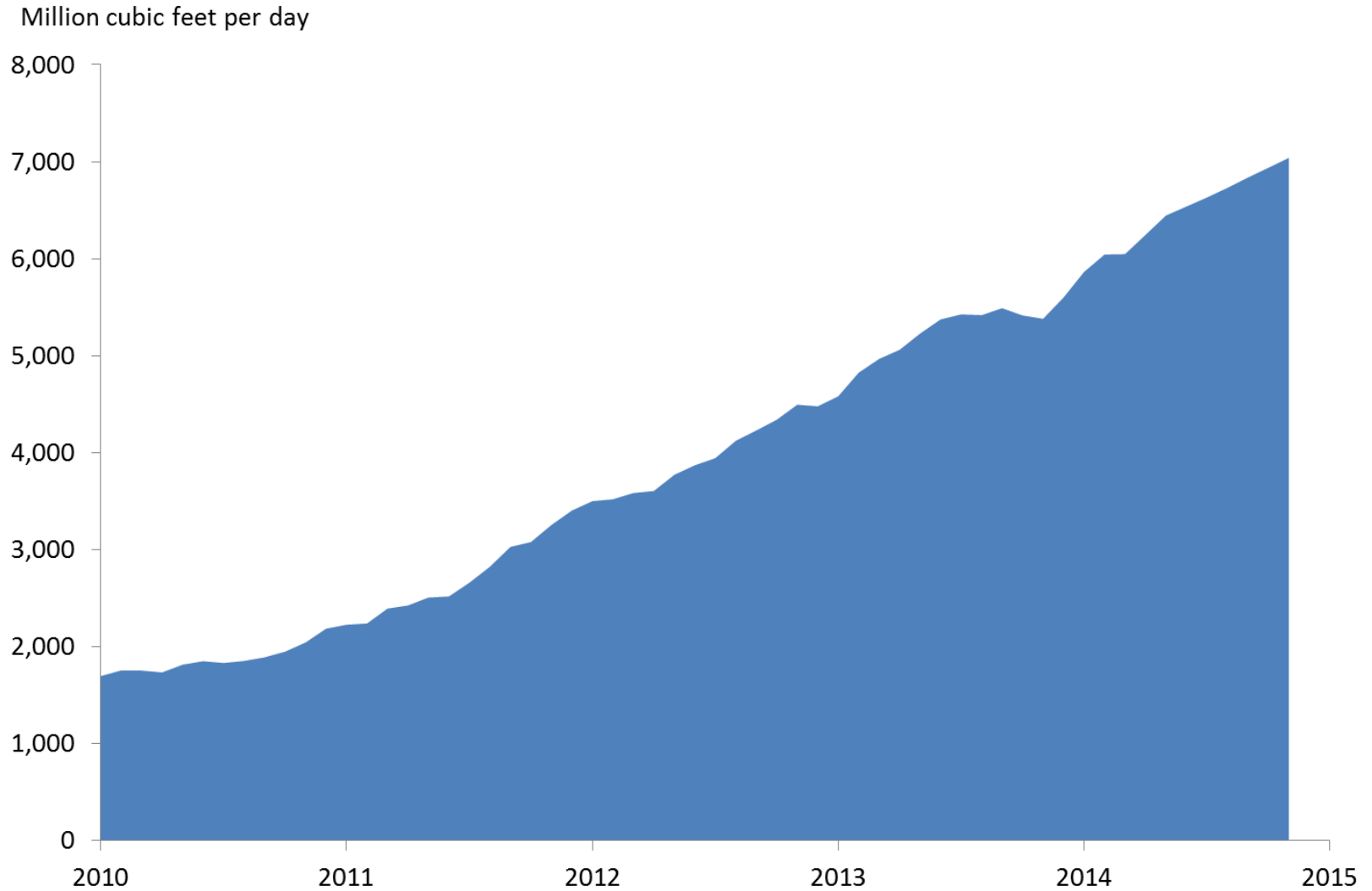
Eagle Ford oil production



Source: Energy Information Administration



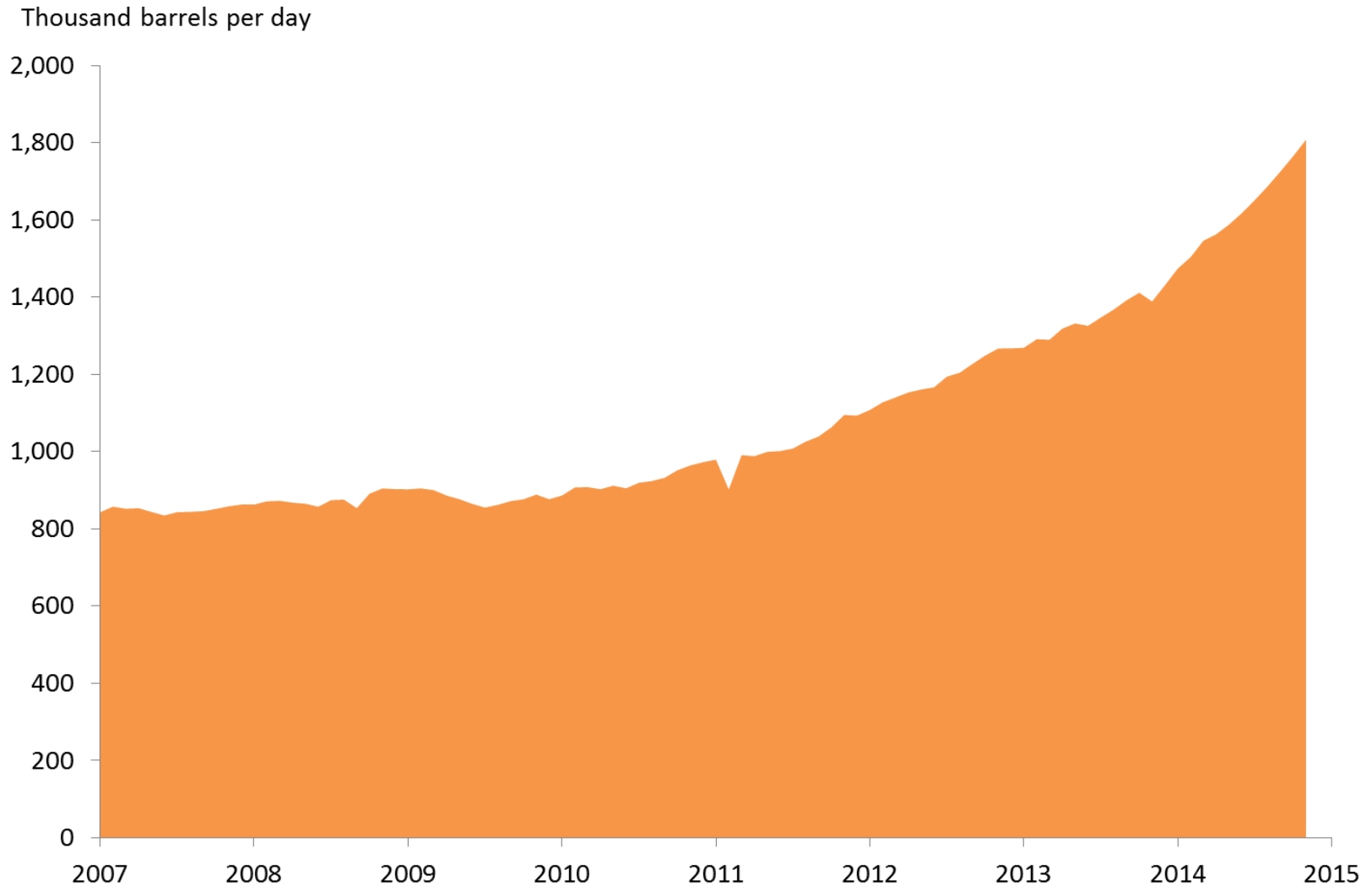
Eagle Ford gas production



Source: Energy Information Administration



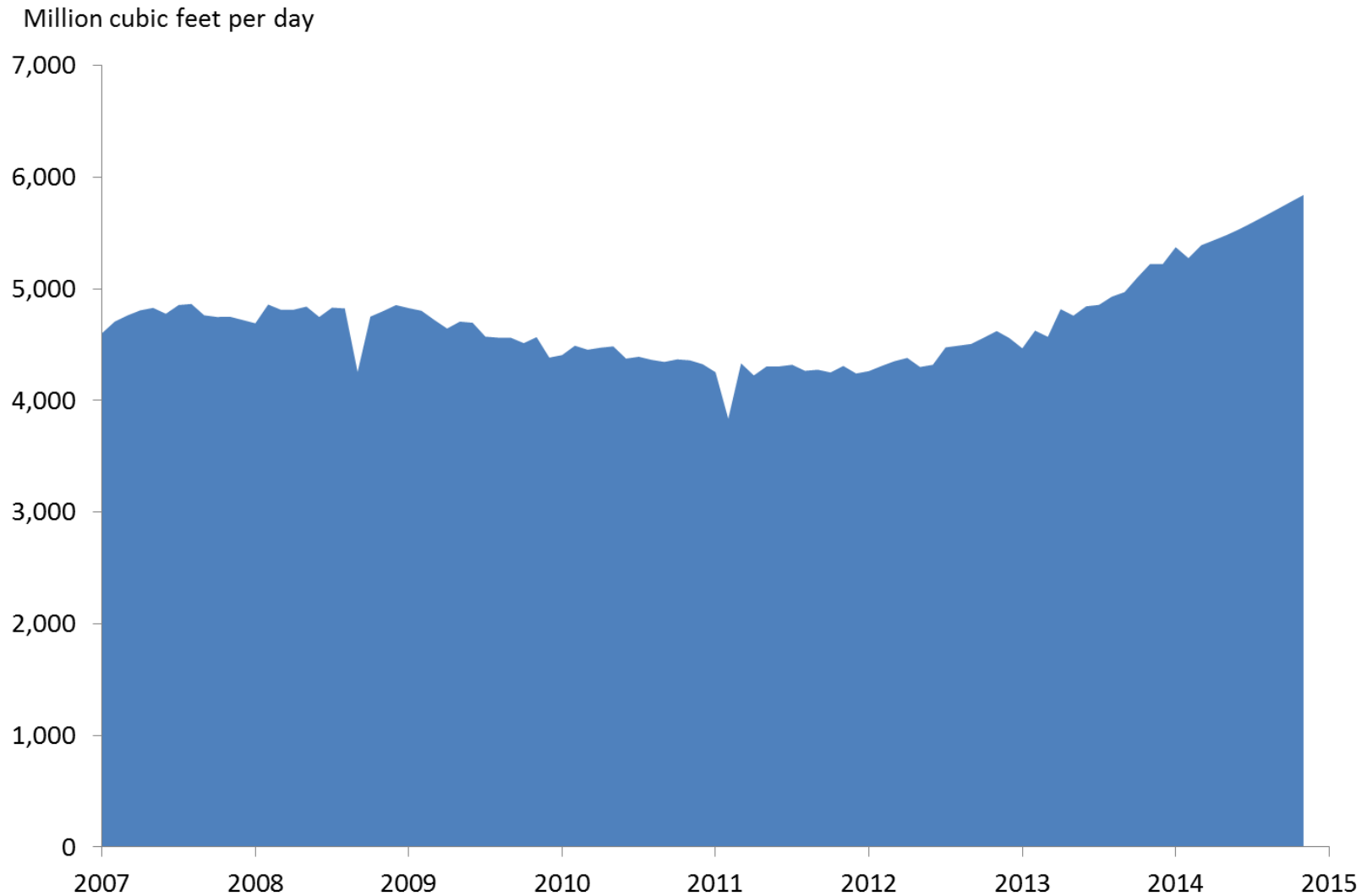
New technology revitalizes Permian



Source: Energy Information Administration



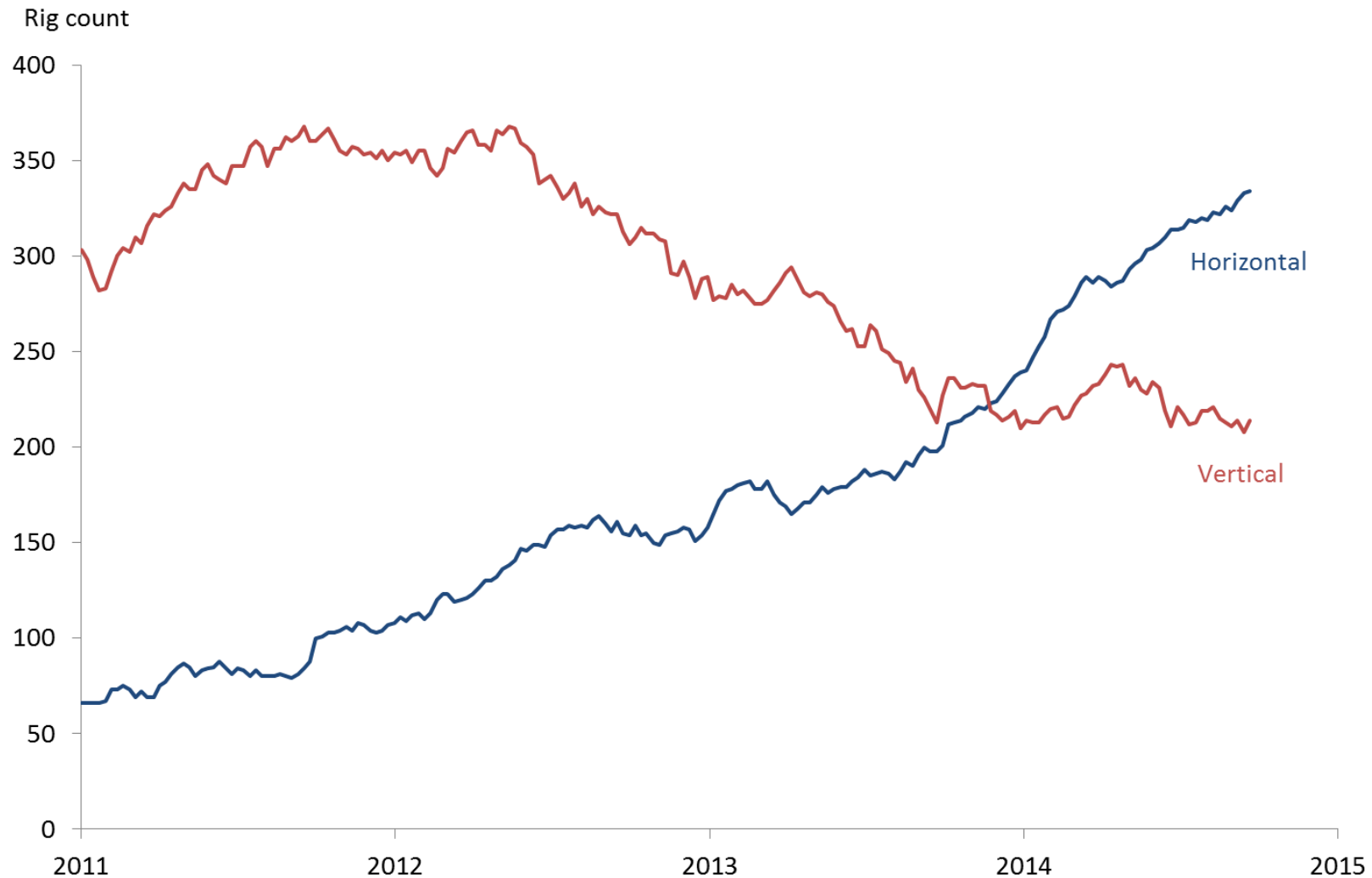
Permian gas production growing, too



Source: Energy Information Administration



Horizontal drilling growing in the Permian



Source: Baker Hughes.



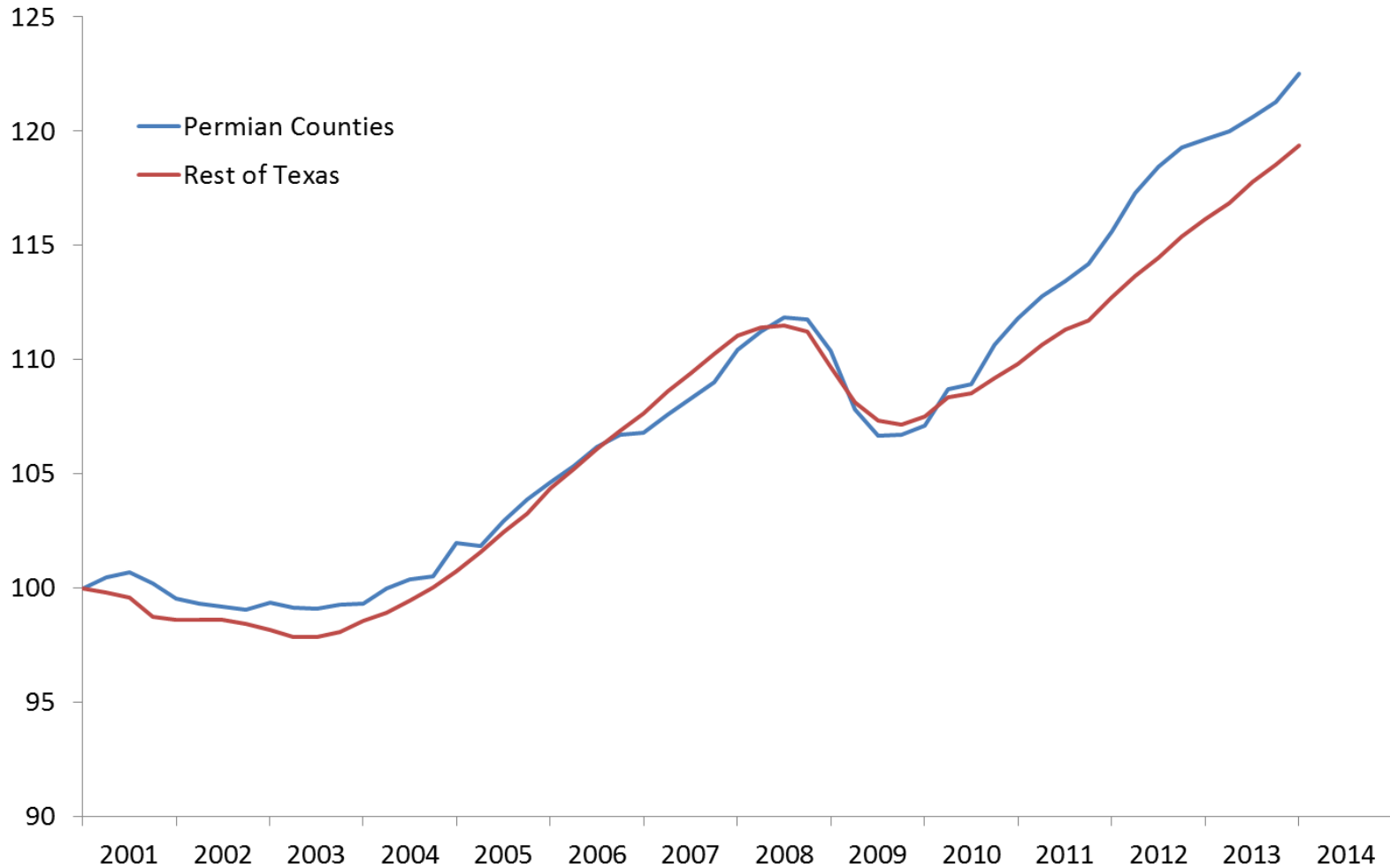
Regional effects of boom

- Oil and gas of growing importance to Texas
 - Currently 13.1 % of state GDP
- Oil and gas extraction and oil-field support jobs
 - Have high multipliers
- Local areas:
 - lease and royalty payments,
 - infrastructure construction and
 - increased retail spending
- Local and state governments: greater taxes



Permian Basin (TX) employment

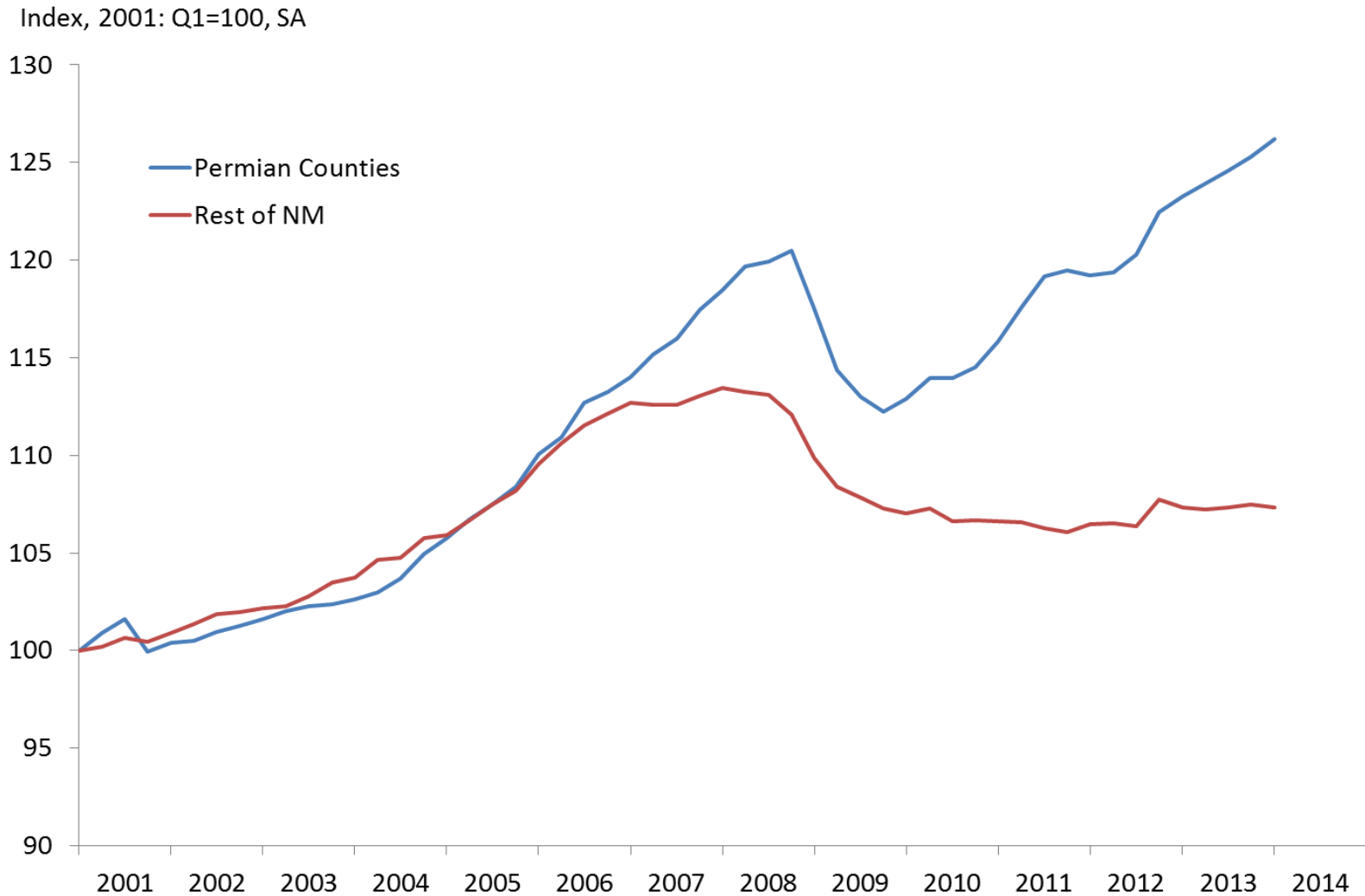
Index, 2001: Q1=100, SA



Source: Bureau of Labor Statistics



Permian Basin (NM) employment

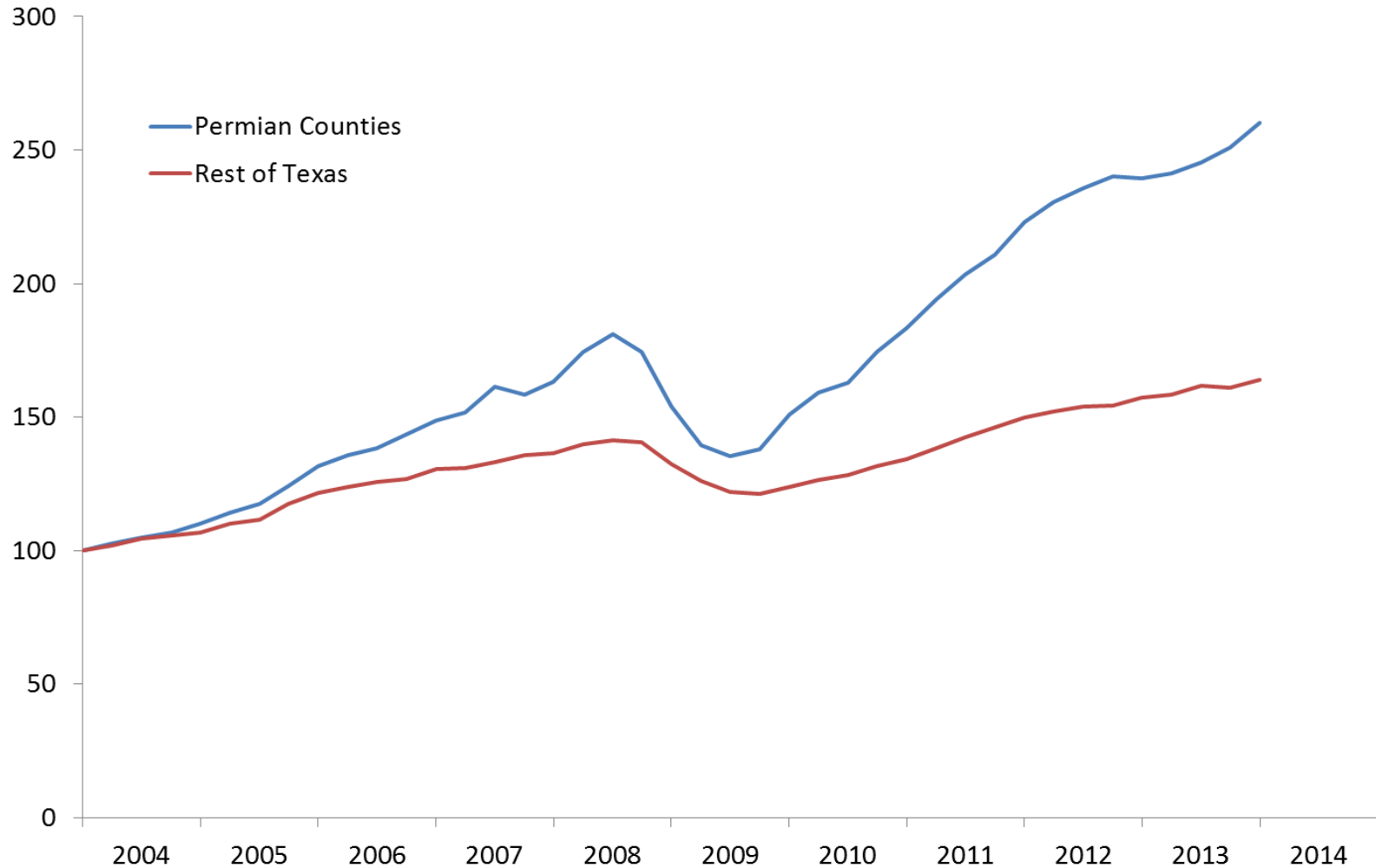


Source: Bureau of Labor Statistics



Permian Basin (TX) retail sales growth

Index, 2004: Q1=100, SA

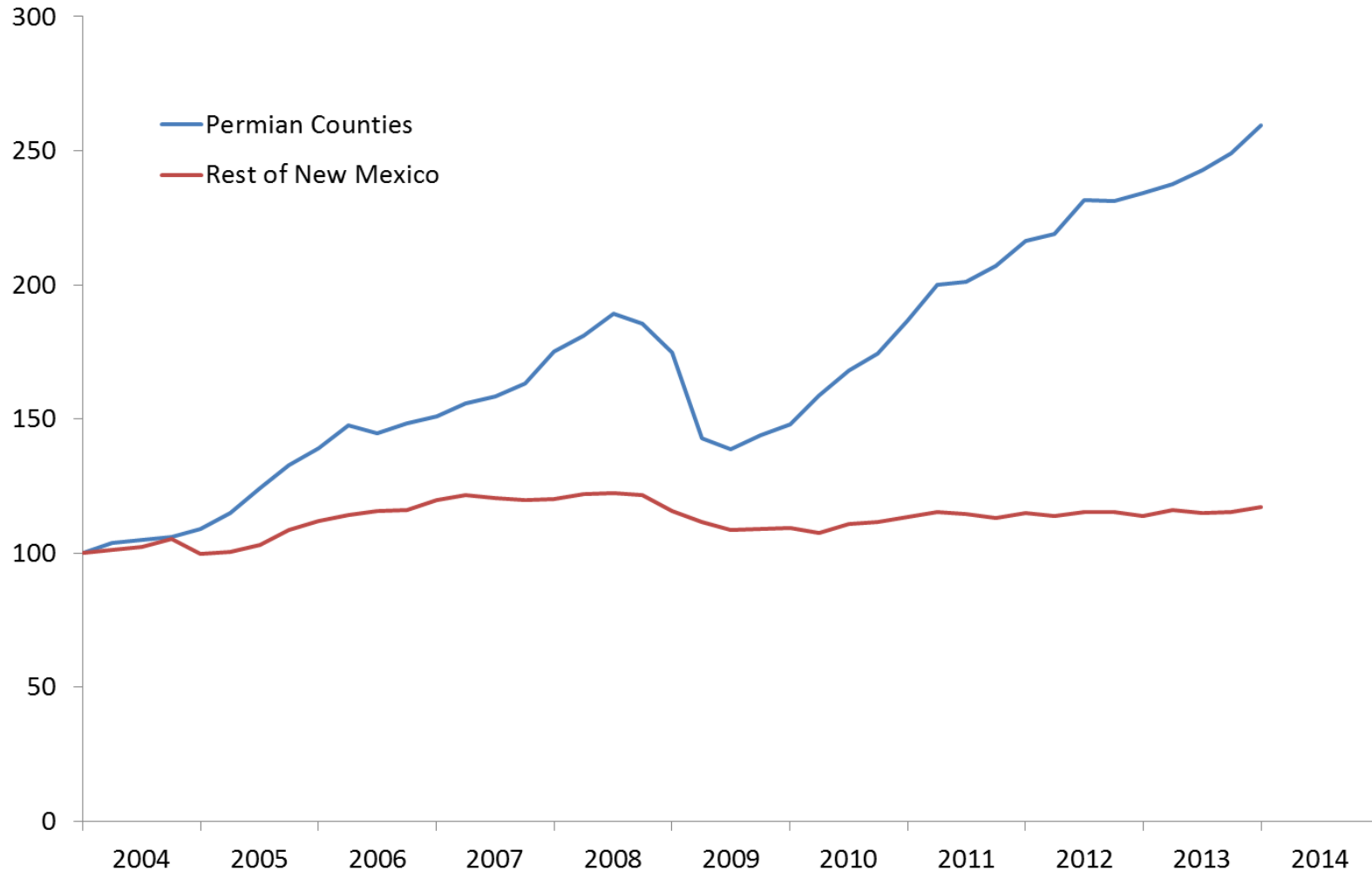


Source: Texas Office of the Comptroller



Permian Basin (NM) retail sales growth

Index, 2004: Q1=100, SA



Source: New Mexico Taxation and Revenue Office



Severance taxes fill state coffers

- 2013 oil and gas tax revenues in TX
 - \$4.5 billion
 - 9.4 % of total state tax revenues
 - 45% increase from a year ago
- Oil severance taxes: \$3.0 billion
- Natural Gas severance taxes: \$1.5 billion



Shale boom benefits downstream sector

- Sizable downstream sector in Texas
 - 29% of U.S. refinery capacity
 - 60% of U.S. petrochemical production
- Shale boom has provided cheap inputs for both refining and petrochemicals



Lots of investment on the Gulf

- Cheap gas has made LNG exports economic
 - Cheniere Energy will start exporting in 2015
 - Sempra Energy and Freeport soon to follow
- Many petrochemical expansions announced
 - Dow Chemical
 - ExxonMobil

Shale boom summary

- Shale boom has been good to the region
- Oil and gas production at high levels
- Major downstream investments
- Boosted regional economic activity

