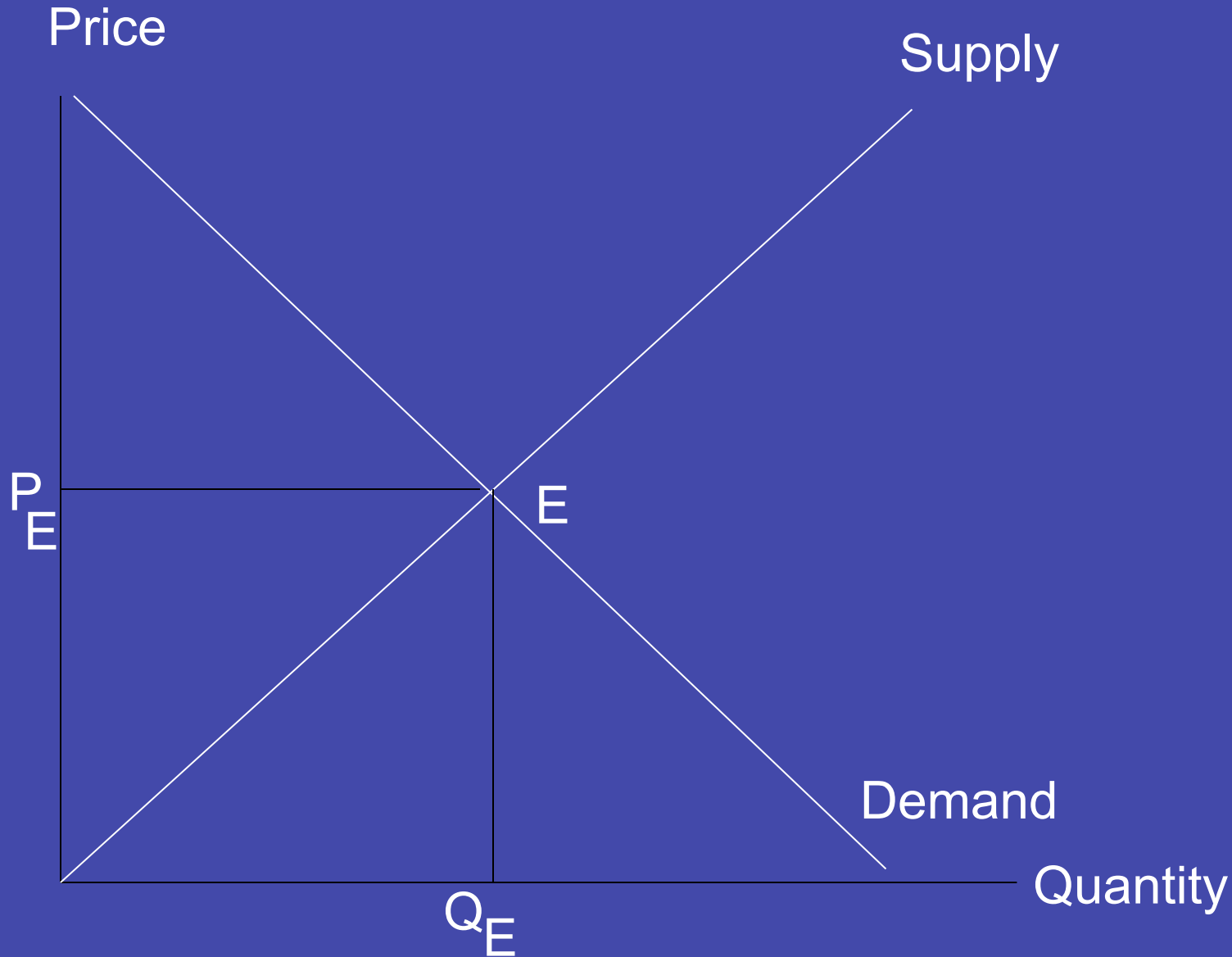
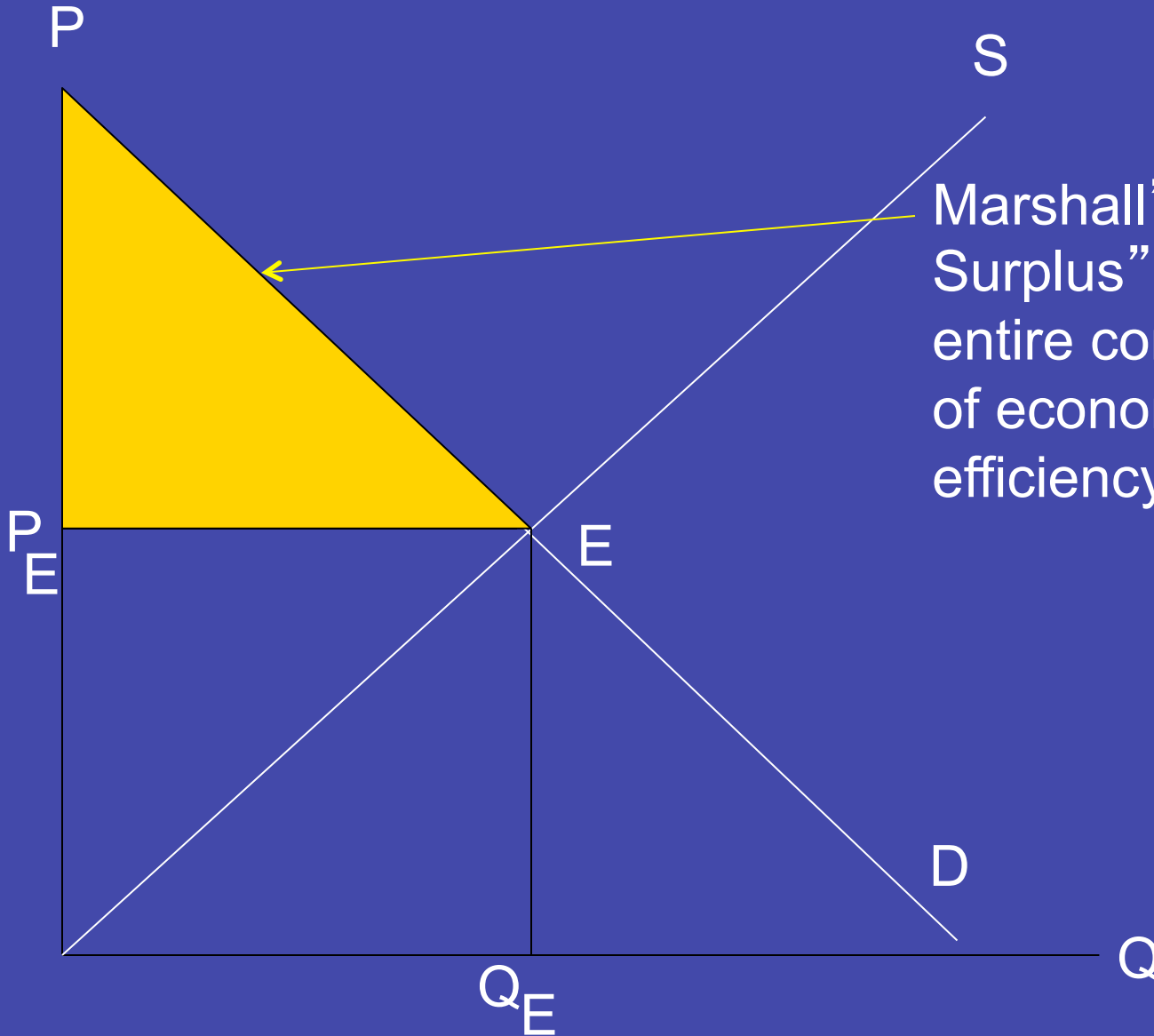




Monopoly

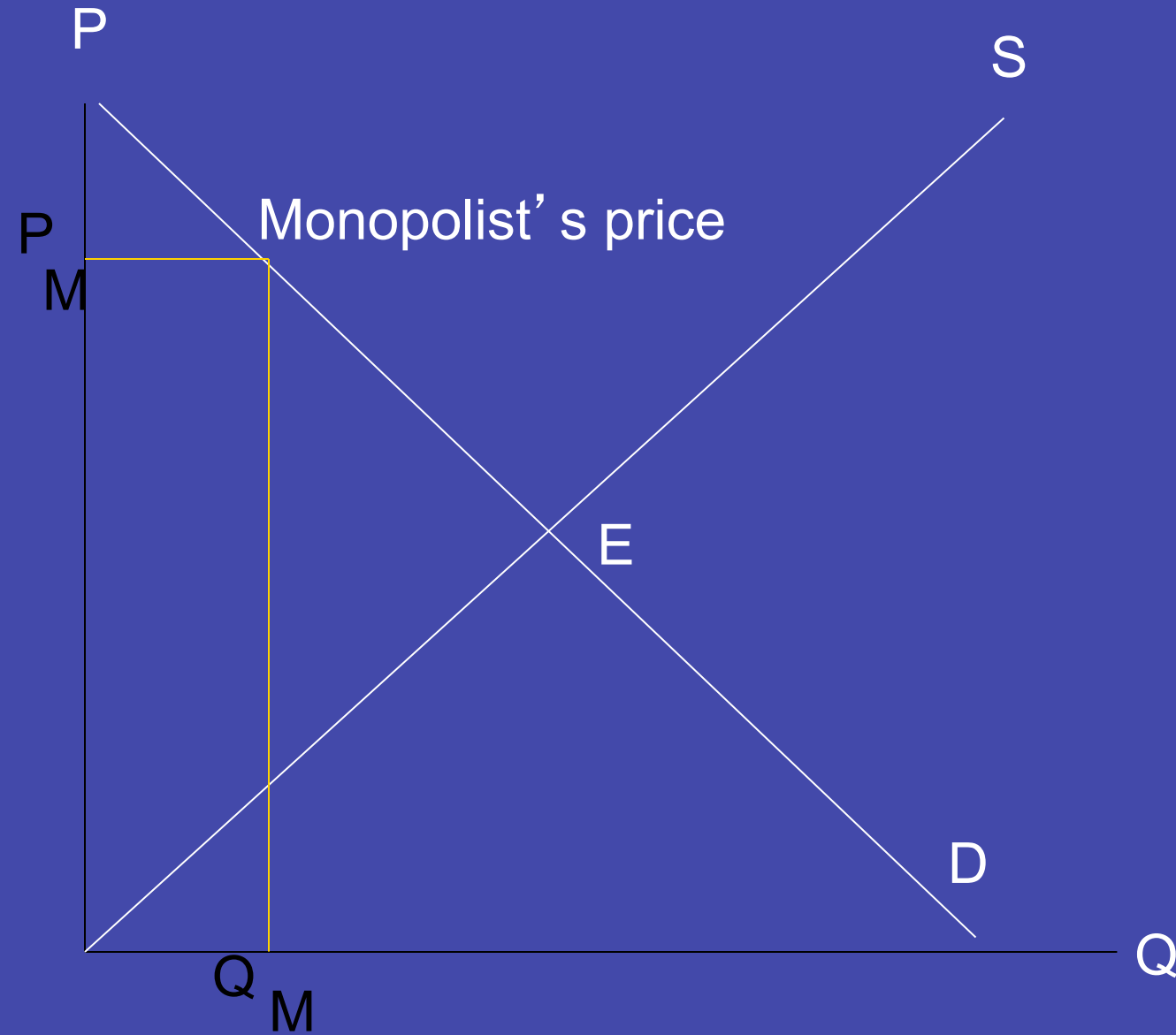


Monopoly

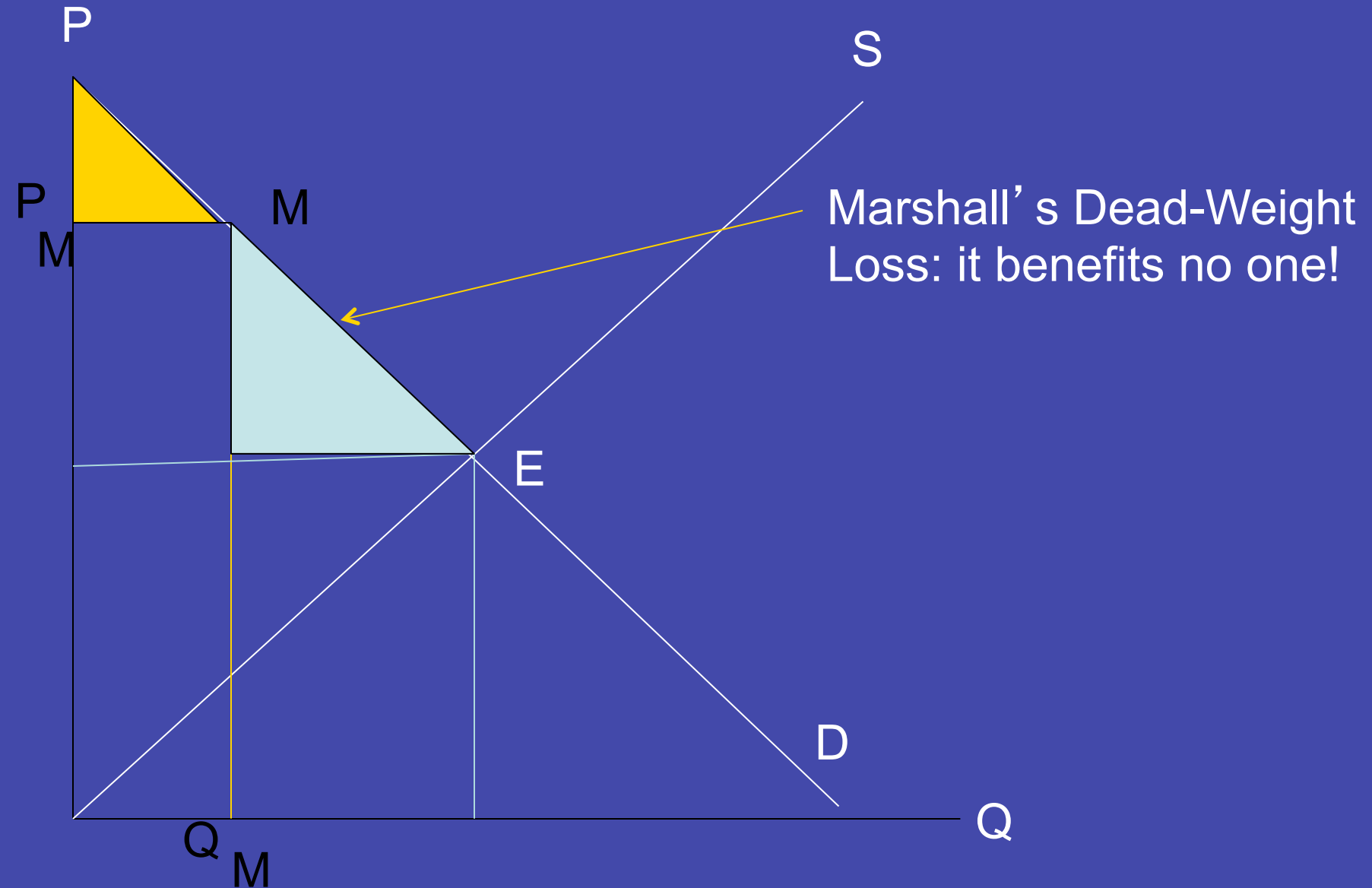


Marshall's "Consumer Surplus" - a benefit to the entire community, a measure of economic efficiency.

Monopoly



Monopoly

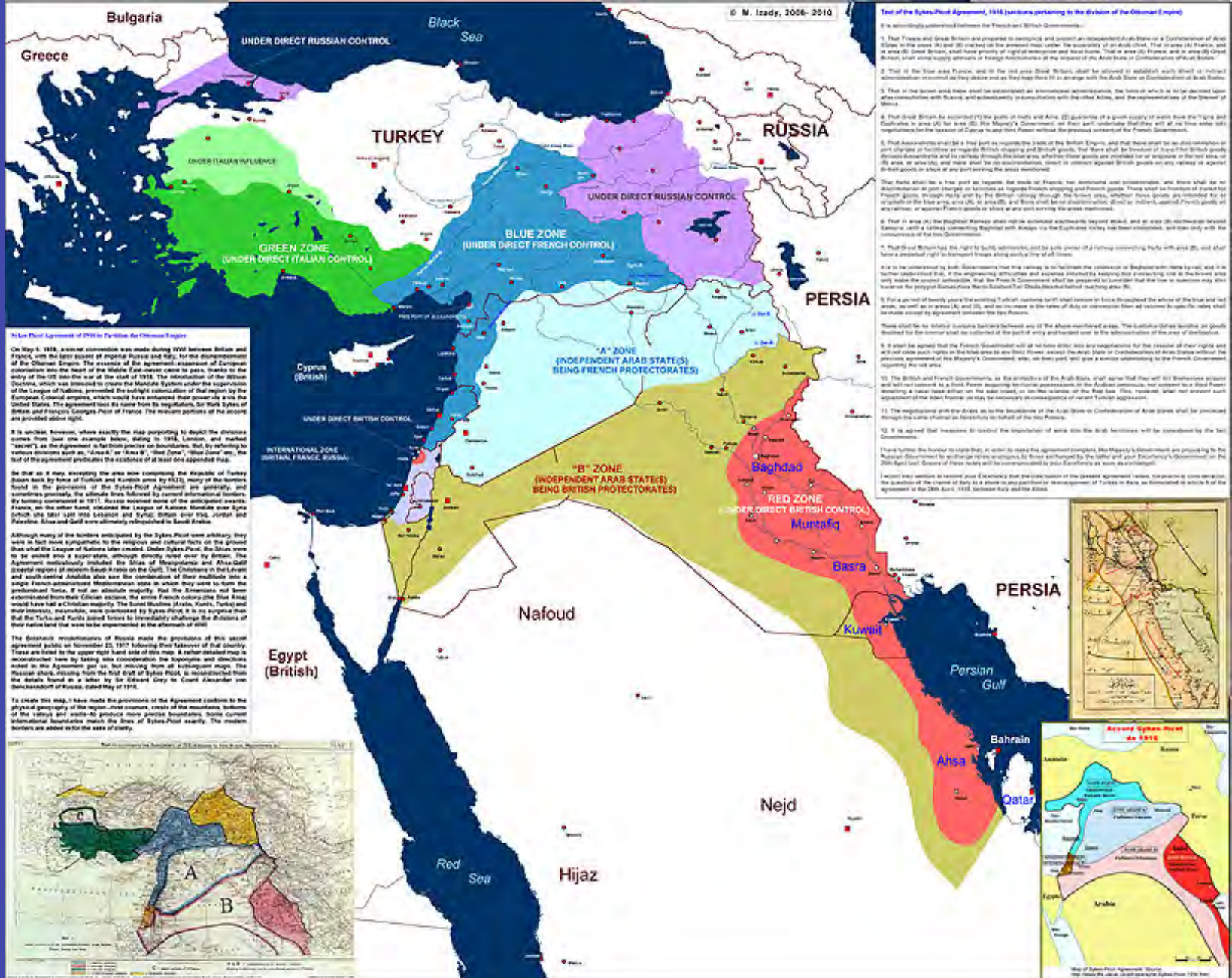


Brief Distraction: Ottoman Empire

The Ottoman Empire, 1481—1683.



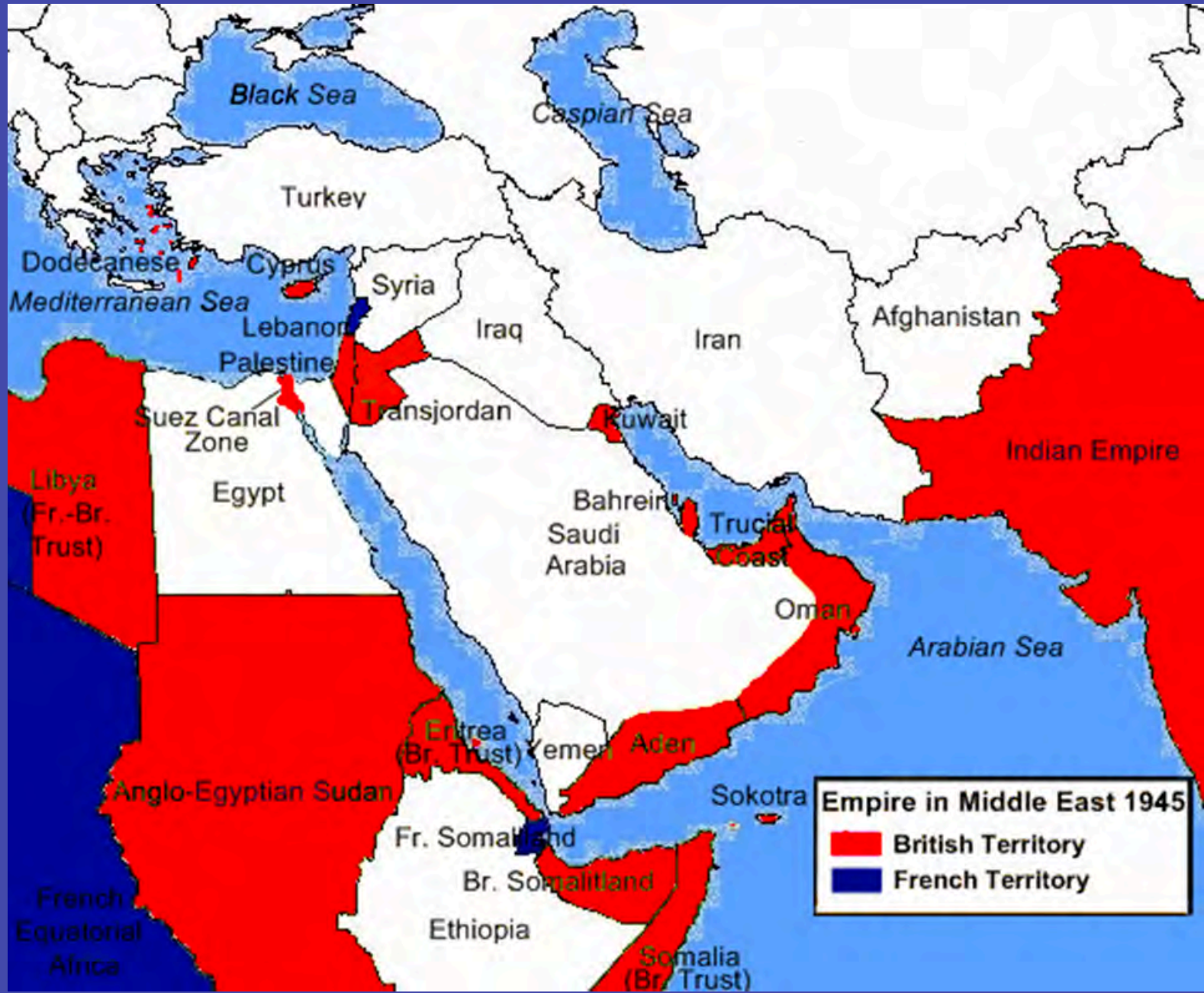
1919: Sikes-Picot



1939



1945



Feb 2011: End of Distraction

Northern Africa and the Middle East



The Organization of Petroleum Exporting Countries

Saudi Arabia, Venezuela, Iran,
Iraq, Kuwait, Qatar, UAE, Nigeria
Colombia, (Indonesia), (Angola),
(Ecuador)

But first a digression . . .



Born in New York, family moved To Cleveland in 1853.

First job as bookkeeper in 1855, became grain merchant for same Company in 1857.

Oil discovered in 1859 in Titusville, Pennsylvania.

1863: Rockefeller, Maurice Clark, and Samuel Andrews founded Andrews, Clark and Co, a Cleveland OH refining company.

John D Rockefeller (1839-1937)



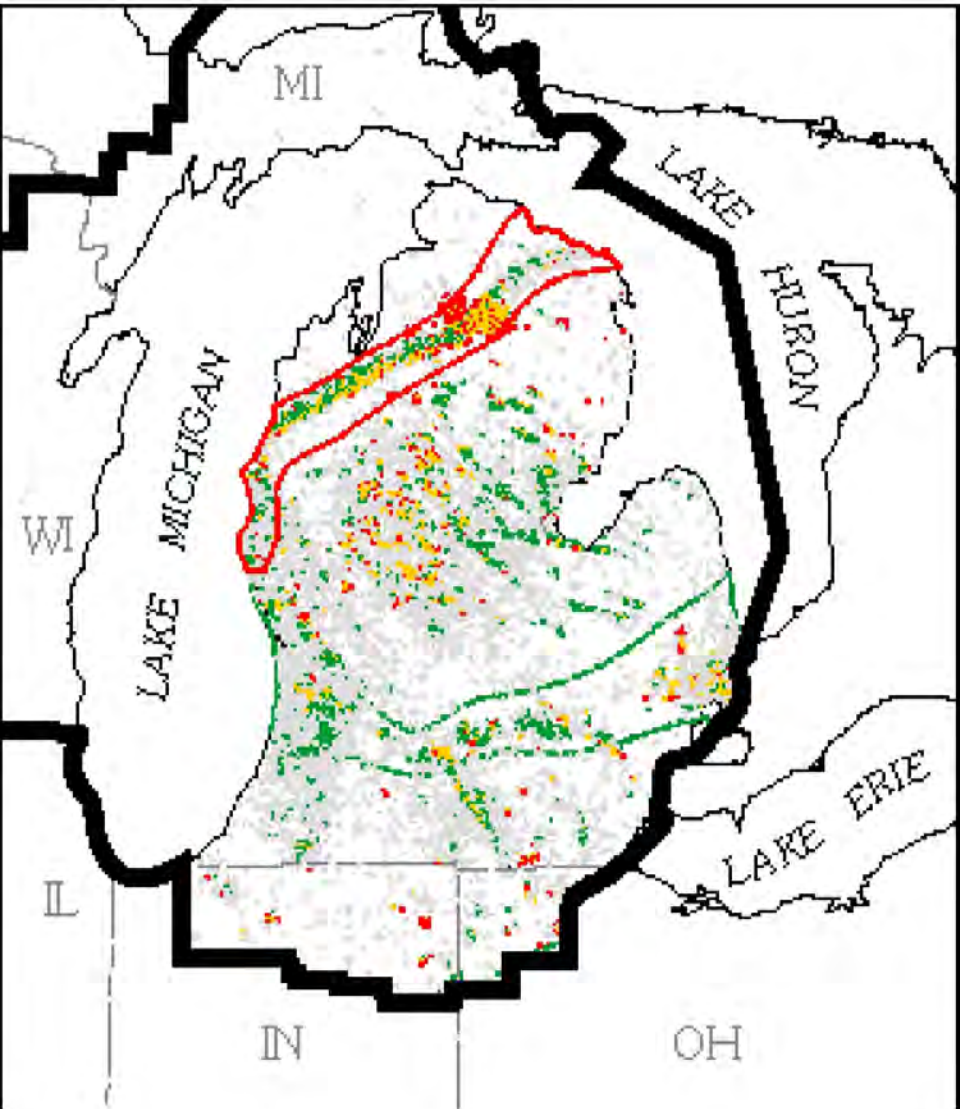
Henry Flagler 1830-1913

Raised in Hopewell NY
Moved to Bellevue OH at 16
Worked in uncle's grain store.

Founded Flagler and York Salt
Company in 1862. Company
bankrupt in 1865 following end
of Civil war.

Returned to family business
as a grain merchant in 1866.

Met a fellow grain merchant
employed by family business:
John D Rockefeller, who was
also a partner in a small
company . . .



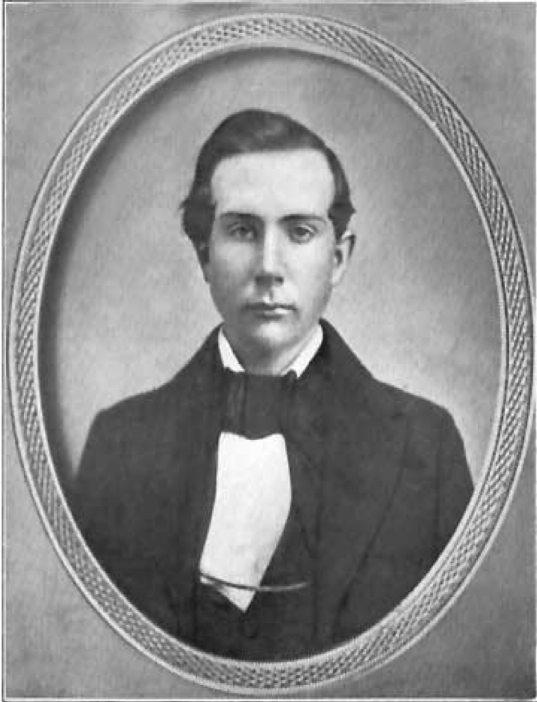
Pop Quiz:

What's so great about Cleveland?

Answer:

Proximity to the first major petroleum province:
The Michigan Basin.

Also the source of salt sold by Flagler and York Salt Company.



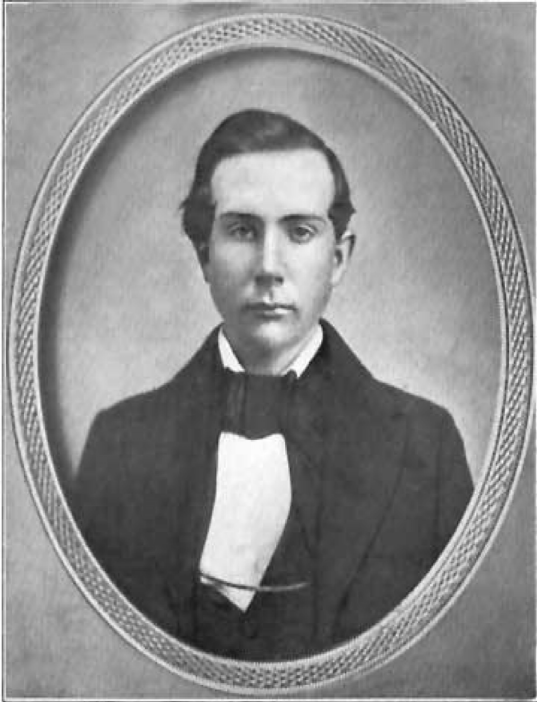
In 1865 Rockefeller and Andrews bought the refinery from their partners for \$72,000.

In 1870 Rockefeller organized Standard Oil with William Rockefeller, Andrews, S V Harkness, and Henry Flagler with capital of one million dollars. By 1872 Standard purchased almost all of the refineries in Cleveland and two New York refineries.



In 1882 all of Standard's properties were Merged to form the Standard Oil Trust, with Capital of 70 million dollars.

In 1882 Flagler left Standard's daily operations but remained on the Board of Directors. He devoted his remaining days Developing Florida's east coast.



In 1892 an Ohio court dissolved the Trust, creating several smaller companies. These companies reorganized in New Jersey the following year as Standard Oil Company (New Jersey). Soon this company owned Up to 75% of the US oil business.





Rockefeller left daily activities of the company in 1896, remaining Chairman of the Board. His later years were devoted to philanthropy: University of Chicago (1889), Rockefeller Institute (1901), Rockefeller Foundation (1913).

In 1911 the US Supreme Court ordered the dissolution of Standard Oil, creating 38 individual firms, including the “Seven Sisters”.

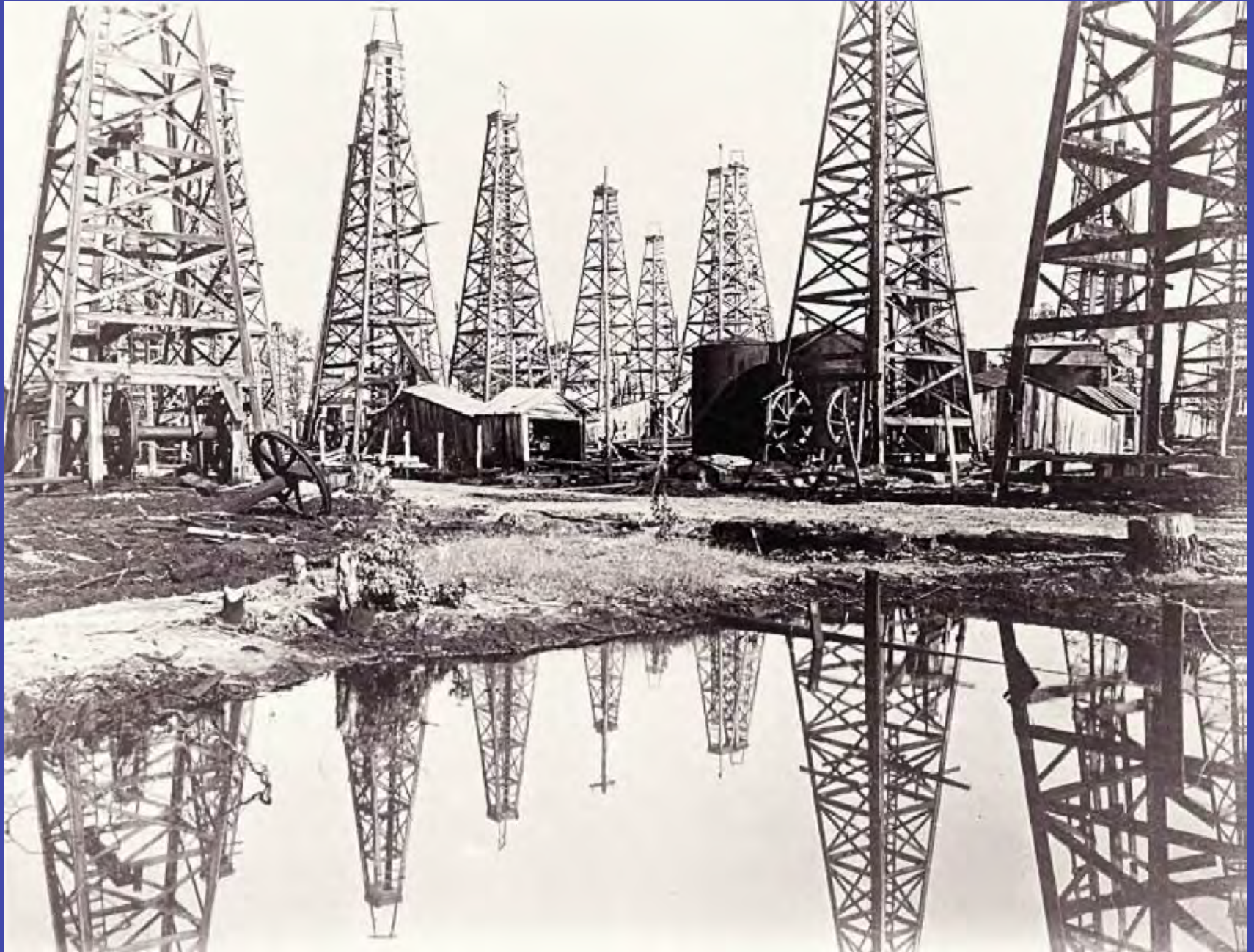
The Yates Field and the Texas Railroad Commission



Yates Oil Field: 1.2 Billion Barrels

- Discovered 1926 at 992' below the surface
- First large field west of the Pecos River
- In 1928 The Texas Railroad Commission set a quota for each well in the field so that each well owner could ship some oil through the field's only pipeline.
- In 1929 a Yates well flowed 204,672 BOPD
- The TRC soon dictated "prudent" oil field practices throughout the Texas, known as "pro-rationing".

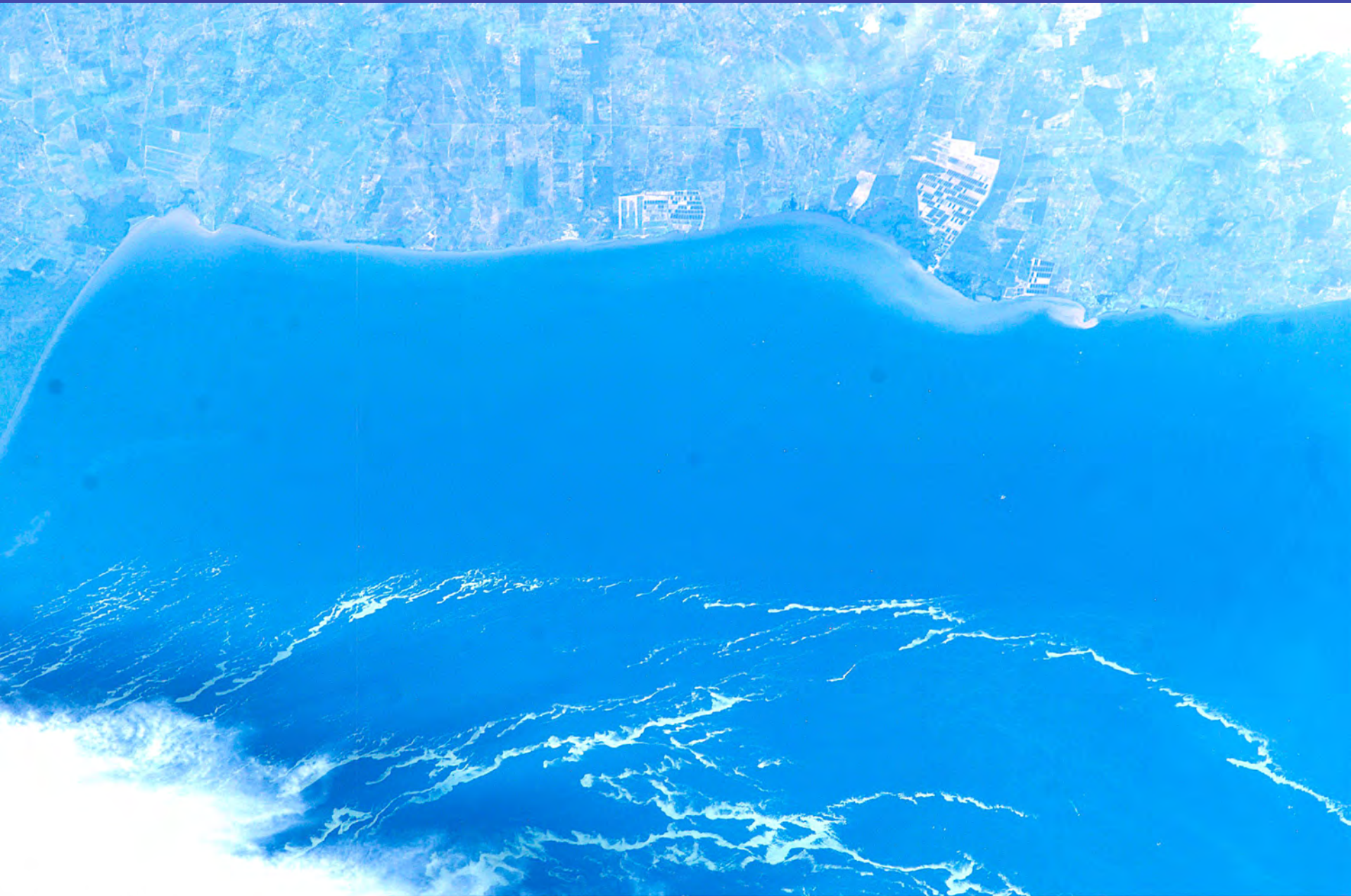
East Texas Field: Six billion barrels of oil Discovered 1930



East Texas Field

- HL Hunt purchased leases from “Dad” Joiner
- Price oil fell from \$1/bbl to \$0.15/bbl between 1930 and mid-1931.
- F. Godber of Shell Oil asked Texas Legislature to “pro-ration” East Texas Field production.
- Mid-1931 East Texas Field accounted for half of world’s oil production.
- Founded in 1891 to regulate in-state railroads, the TRC shut down East Texas Field. August 1931
- Nov 1931 the TRC introduced “pro-ration” state-wide.
- Hunt founded Hunt Oil Co in 1934.

Lake Maracaibo, Venezuela: Mene Grande Field 1914





Ships in a row flying over **PETROLIO**

<http://geoinfo.nmt.edu/staff/scholle/graphics/stamps/venezprf/VenPostcd.jpg>

Juan Carlos Perez Alfonso

- Venezuelan businessman
- Moved to US after 1948 coup d'etat
- Detailed study of Texas Railroad Commission oil regulatory activities
- Proposed formation of an organization of petroleum exporting countries in 1949.

OPEC, Venezuela and Saudi Arabia find common ground

The Arab Peninsula and Gulf



Early History of Oil in the Gulf

- 1914 Turkish Petroleum Co. Concession
- 1914 Archduke assassinated
- 1919 Treaty of Versailles
- 1920 San Remo Agreement
- 1921 Faisal made King of Iraq
- 1925 TPC Concession revised
- 1926 The Treaty of Lausanne
- 1927 Baba Gurgur-1 oil discovery
- 1928 TPC Red Line Agreement
- 1932 minor discoveries in Bahrain

Early History of Oil in the Gulf

1914 Turkish Petroleum Co. Concession
Founded in 1912 to seek Iraqi concessions.
Anglo-Persian Oil Co (British Government) 50%

Deutsche Bank

Royal Dutch Shell

Calouste Gulbankian
Mr Five Percent



Early History of Oil in the Gulf

1920 San Remo Agreement

British control of Mesopotamian oil (ie TPC)

Option for Iraq to claim 20% interest

German interest transferred to France (CFP)

US and Italy excluded from TPC

Early History of Oil in the Gulf

- 1925 TPC Concession revised
Concession did not include Iraq
Granted for 75 years
TPC chose 24 plots for its holding
Iraq government to receive royalty for each
ton of oil produced after 20 years
Iraq permitted to tax TPC at same rate as
Other companies.
TPC to build refinery and pipeline for Iraq

Early History of Oil in the Gulf

- 1926 The Treaty of Lausanne
 - Ended the Ottoman Empire
 - Defined the borders of Turkey
- 1927 Baba Gurgur-1 oil discovery
 - 5 US companies then added to TPC
 - Anglo-Persian given 10% royalty
- 1928 TPC Red Line Agreement
 - TPC partners could not act independently within the borders of the Ottoman Empire
 - US and other TPC members excluded from exploration in Arab/Persian Gulf until 1945

Early History of Oil in the Gulf

- 1914 Turkish Petroleum Co. Concession
- 1914 Archduke assassinated
- 1919 Treaty of Versailles
- 1920 San Remo Agreement
- 1921 Faisal made King of Iraq
- 1925 TPC Concession revised
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Early History of Oil in the Gulf

1928 TPC Red Line Agreement

1929 TPC renamed Iraq Petroleum Co (IPC)

Anglo-Persian

Esso (later EXXON)

CFP

“minor” US companies

1931 IPC contract renegotiated

75 year term over 83,200 sq km

Committed to build two pipelines to Med

Burgan Discovery Well Kuwait 1938



Damman Field
Discovery Well
Saudi Arabia
1938



1938 Burgan Field discovered in Kuwait

- 1939 Iraq exports 4 tons/year (30 mmbo/year)
- 1938 Damman Field discovered in Saudi Arabia
- January 1941 World War Two shut-down
 - World Reserves: 63% US, 5% Middle East
- 1946 Socony and Standard Oil form Aramco
- 1948 Iraq Petroleum Co formed, Red Line Agreement ended
- 1949 Getty Oil agrees to pay Saudi Arabia \$0.55/bbl royalty
- 1953 CIA-led coup in Iran places Shah in power.
- 1958 Army coup in Iraq
- 1960 IPC 99.5% concession in Iraq revoked
- 1960 OPEC founded

Question: Why OPEC?

Answer: Standard Oil

- 1960 Middle East oil production depressed world crude prices
- July 1960 Standard Oil reduced the posted price it paid by seven percent
- Perez contacted Abdullah Tariki, Minister of Energy, Saudi Arabia, suggesting they formulate a joint response to Standard Oil's decision.

Recent History of Oil in the Gulf

- 1960 OPEC founded
- 1972 Kirkuk Field discovered in Iraq
- 1973 First Arab Oil Embargo following October Yom Kippur War
- January 1979 Shah of Iran deposed
- November 1979 US Embassy in Tehran seized
- **Carter embargoes Iranian Oil the next day**
- 1979 Second Arab Oil Embargo begins with 15% reduction in OPEC production

Further History of Oil in the Gulf

1982-1988 Iraq-Iran War

1995 –US expands sanctions to include companies doing business with Iran

1998-1999 Saudi Arabia-Venezuela oil dispute

2003-U S invaded Iraq

2006 UN imposes sanctions on Iran for its nuclear weapons program

2011-? U S withdrawal from Iraq? (Syria?)

2016-Nuclear sanctions on Iran lifted

2017-US expands sanctions . . .

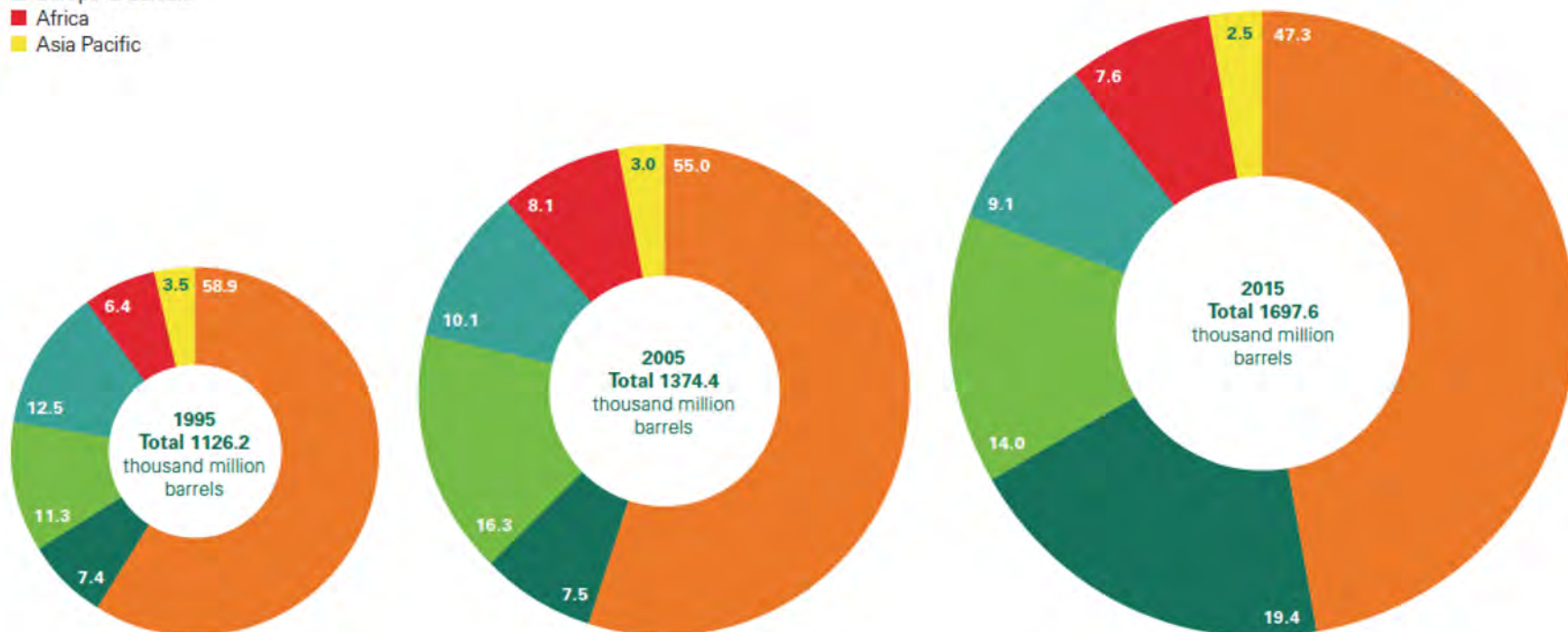
Distribution of proved oil reserves: 1994, 2004 and 2014

Percentage

Distribution of proved reserves in 1995, 2005 and 2015

Percentage

- Middle East
- S. & Cent. America
- North America
- Europe & Eurasia
- Africa
- Asia Pacific

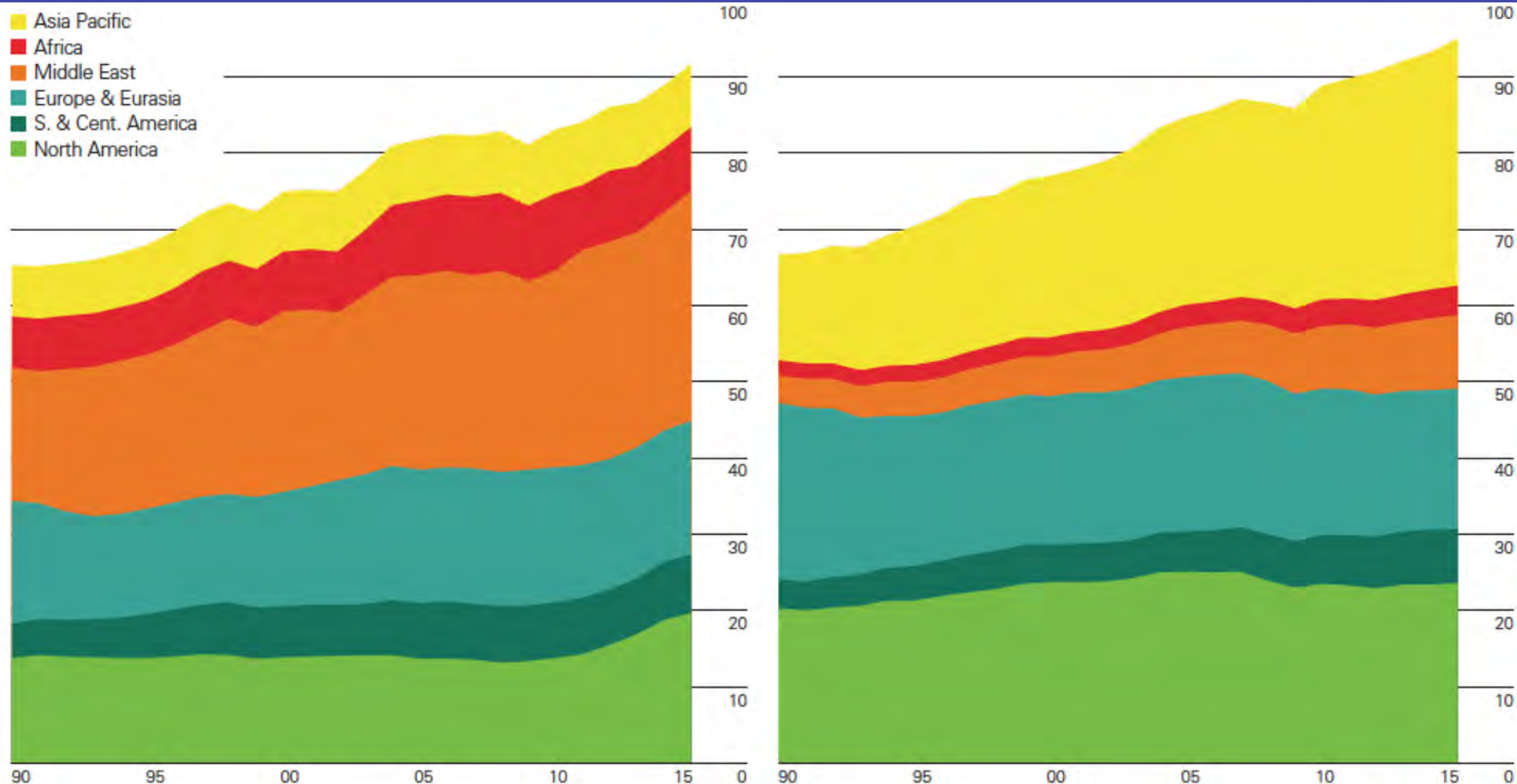


Oil production/consumption by region

Million barrels daily

Production by region

Consumption by region

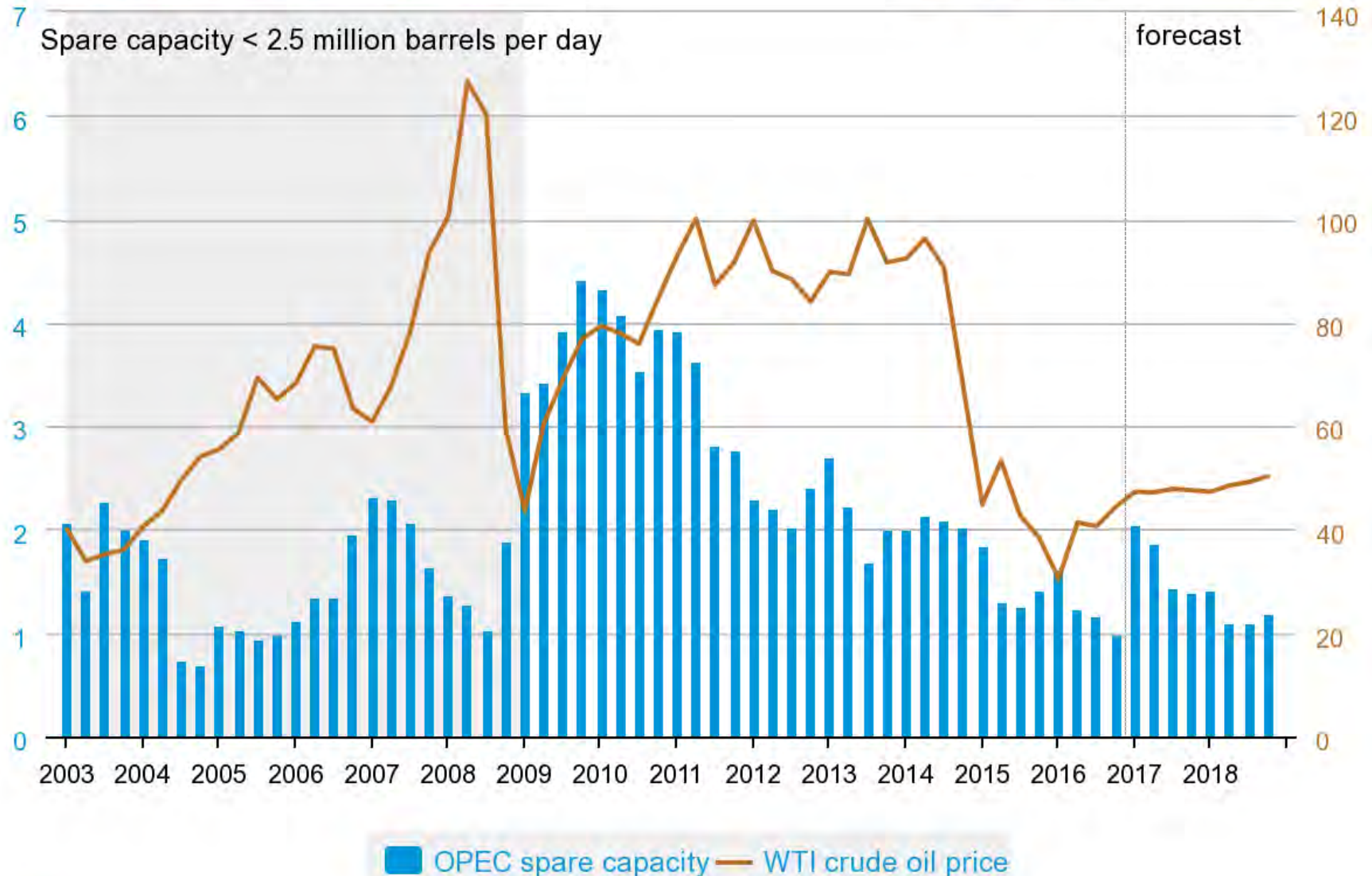


World oil production growth in 2015 significantly exceeded the growth in oil consumption for a second consecutive year. Production grew by 2.8 million b/d, led by increases in the Middle East (+1.5 million b/d) and North America (+0.9 million b/d). Global oil consumption increased by 1.9 million b/d, nearly double the 10-year average, with above-average growth driven by OECD countries. The Asia Pacific region accounted for 74% of global growth, with China once again contributing the largest national increment to global oil consumption (+770,000 b/d).

OPEC spare production capacity and WTI crude oil prices

spare capacity (million barrels per day)

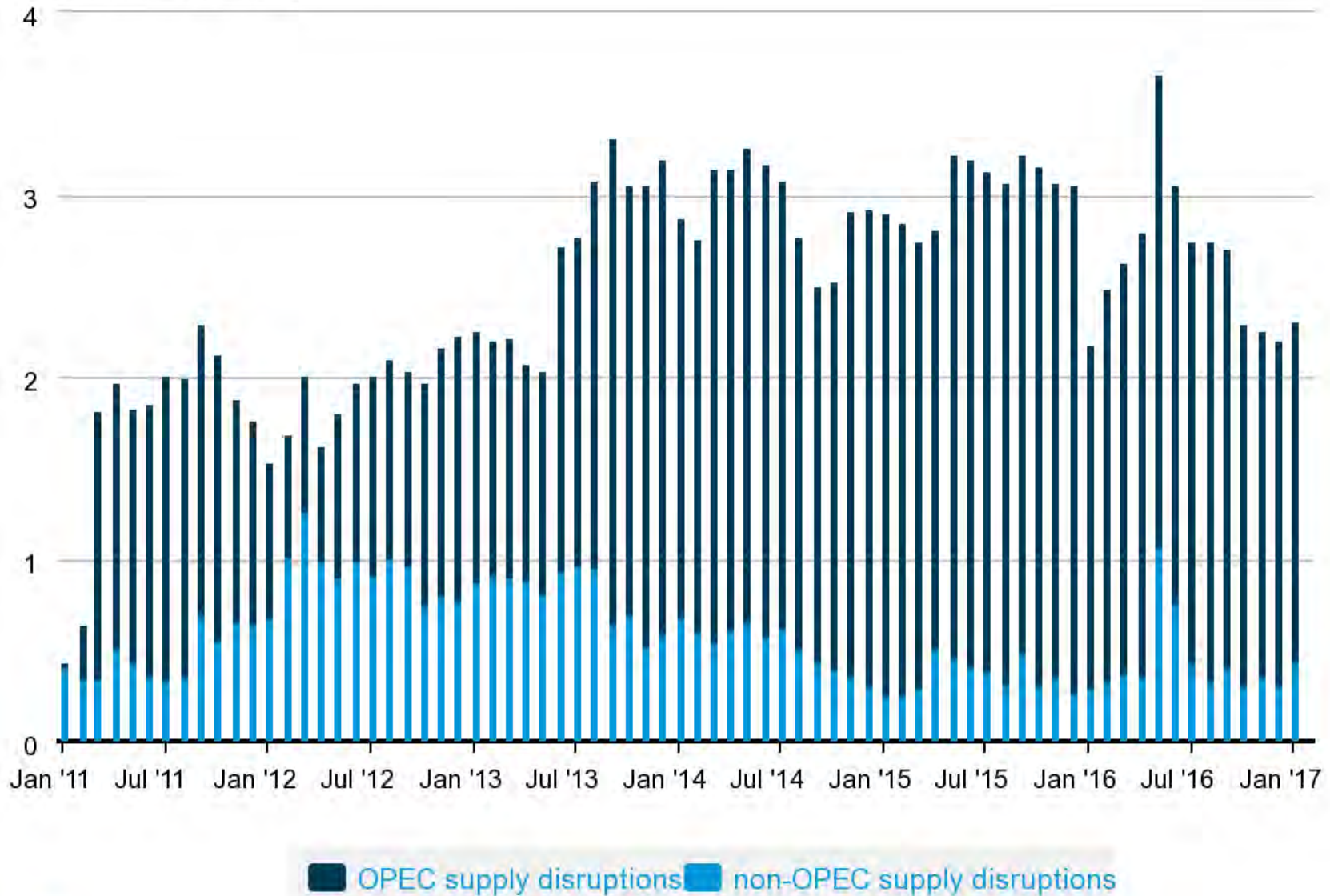
price per barrel (real 2010 dollars)



Source: U.S. Energy Information Administration, Thomson Reuters

OPEC and non-OPEC supply disruptions

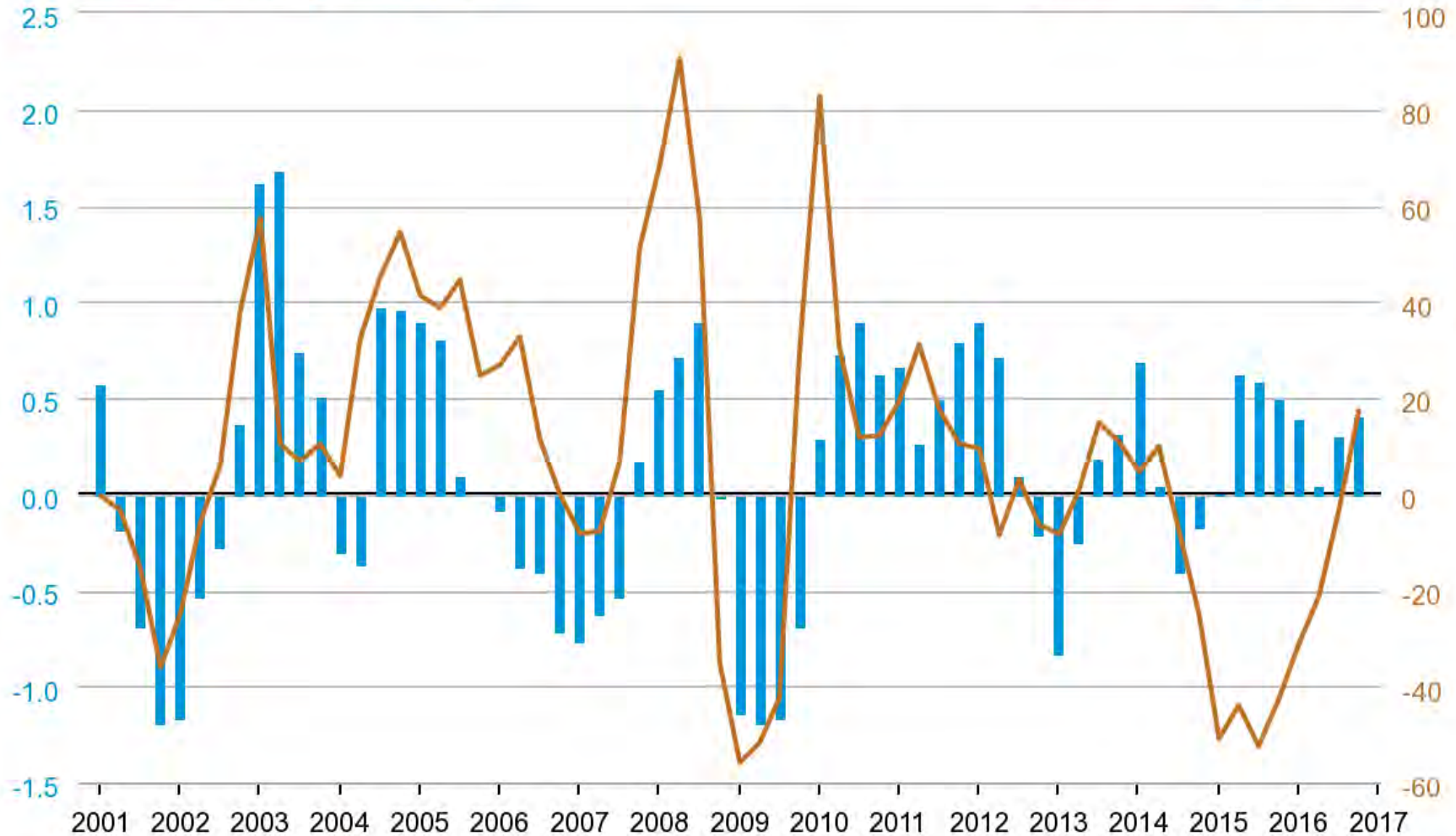
million barrels per day



Changes in Saudi Arabia crude oil production and WTI crude oil prices

million barrels per day (year-on-year)

percent change (year-on-year)



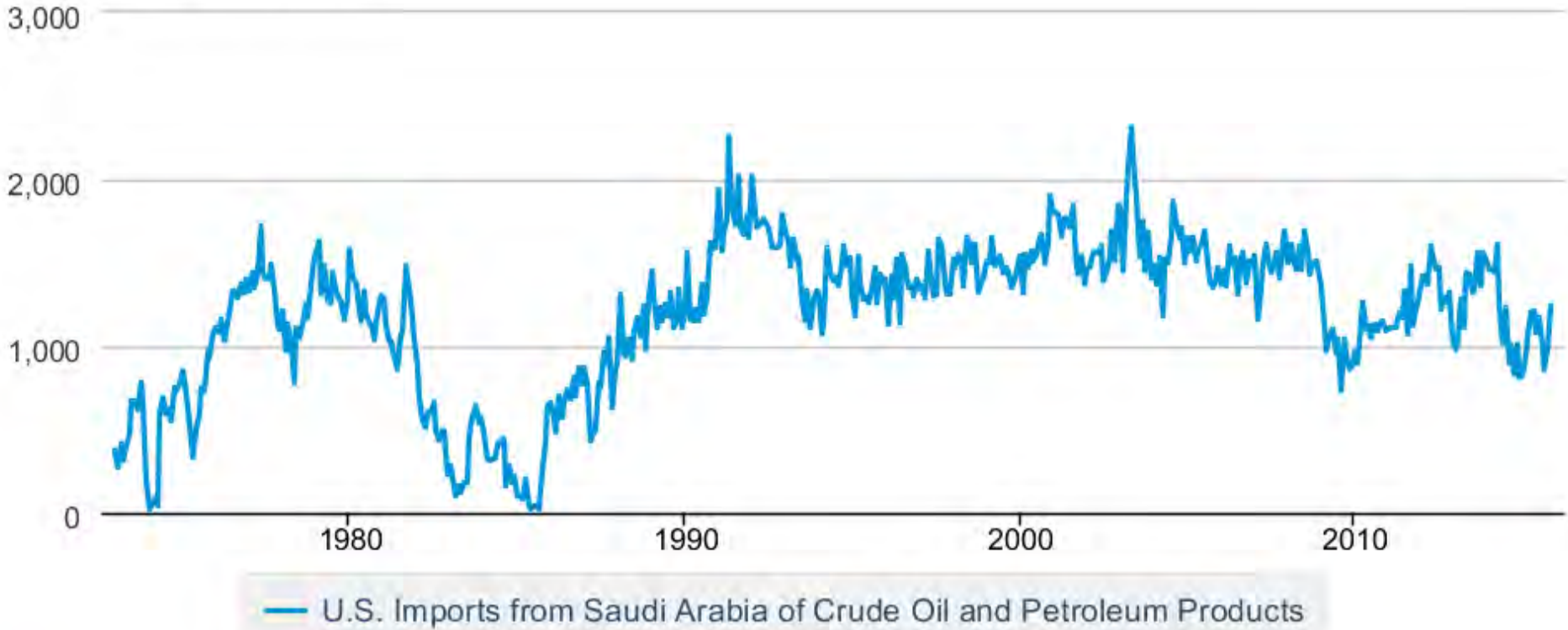
■ Saudi Arabia crude oil production — WTI percent change



Source: U.S. Energy Information Administration, Thomson Reuters

U.S. Imports from Saudi Arabia of Crude Oil and Petroleum Products

Thousand Barrels per Day



— U.S. Imports from Saudi Arabia of Crude Oil and Petroleum Products



Source: U.S. Energy Information Administration

U.S. crude oil imports from selected countries (Jan 2012-Feb 2017)

million barrels per day (four-week moving average)



Source: U.S. Energy Information Administration, [Weekly Preliminary Crude Imports](#)

EXCELLENT

