



JANUARY 29-30 • TAMPA FL

SHIFTING TRADE

Title: Forecast of Today's Energy Industry

Presented By: Barry Worthington, Executive Director, USEA





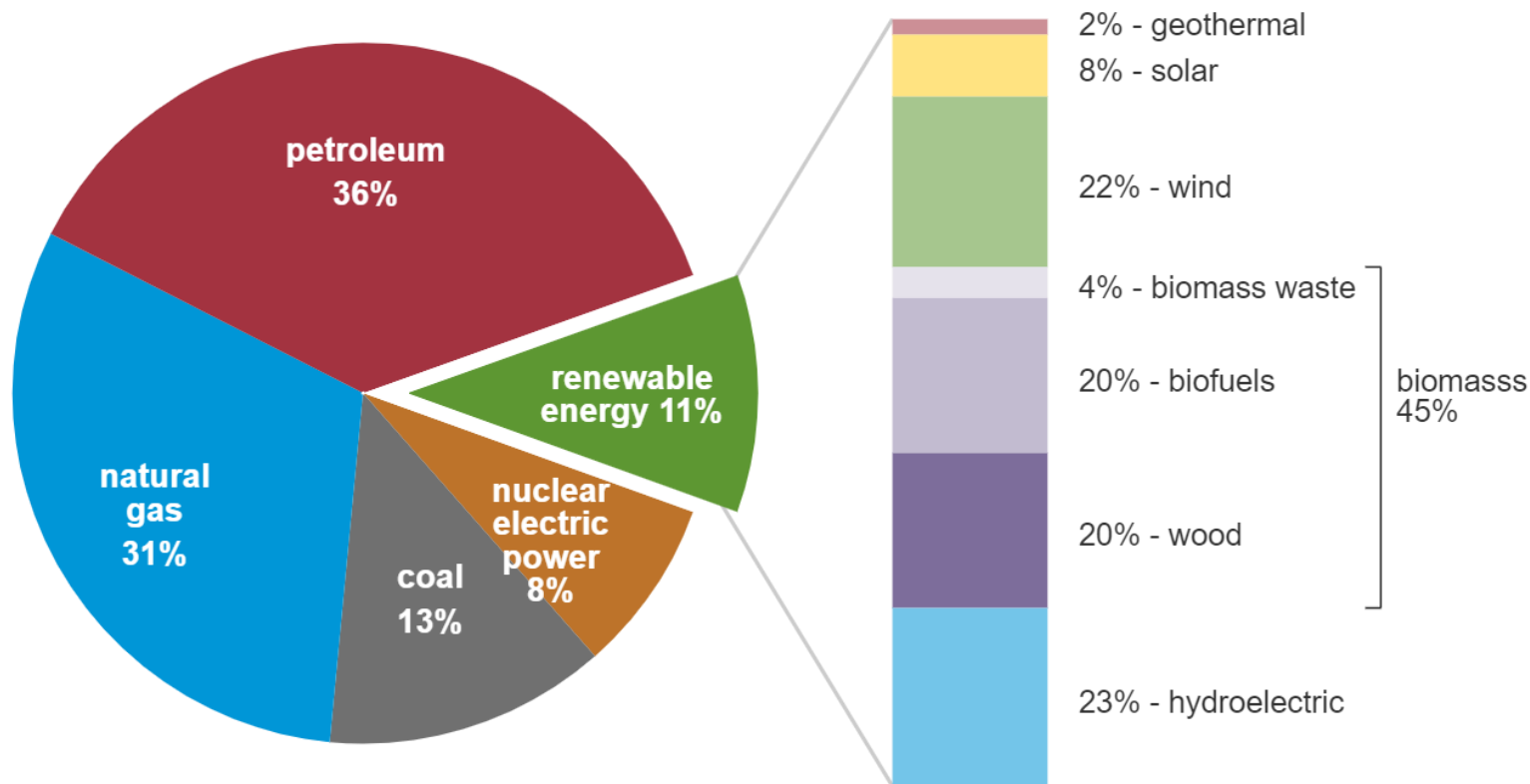
U.S. Energy Consumption

SHIFTING TRADE • JANUARY 29-30, 2020

U.S. primary energy consumption by energy source, 2018

total = 101.3 quadrillion
British thermal units (Btu)

total = 11.5 quadrillion Btu



Note: Sum of components may not equal 100% because of independent rounding.

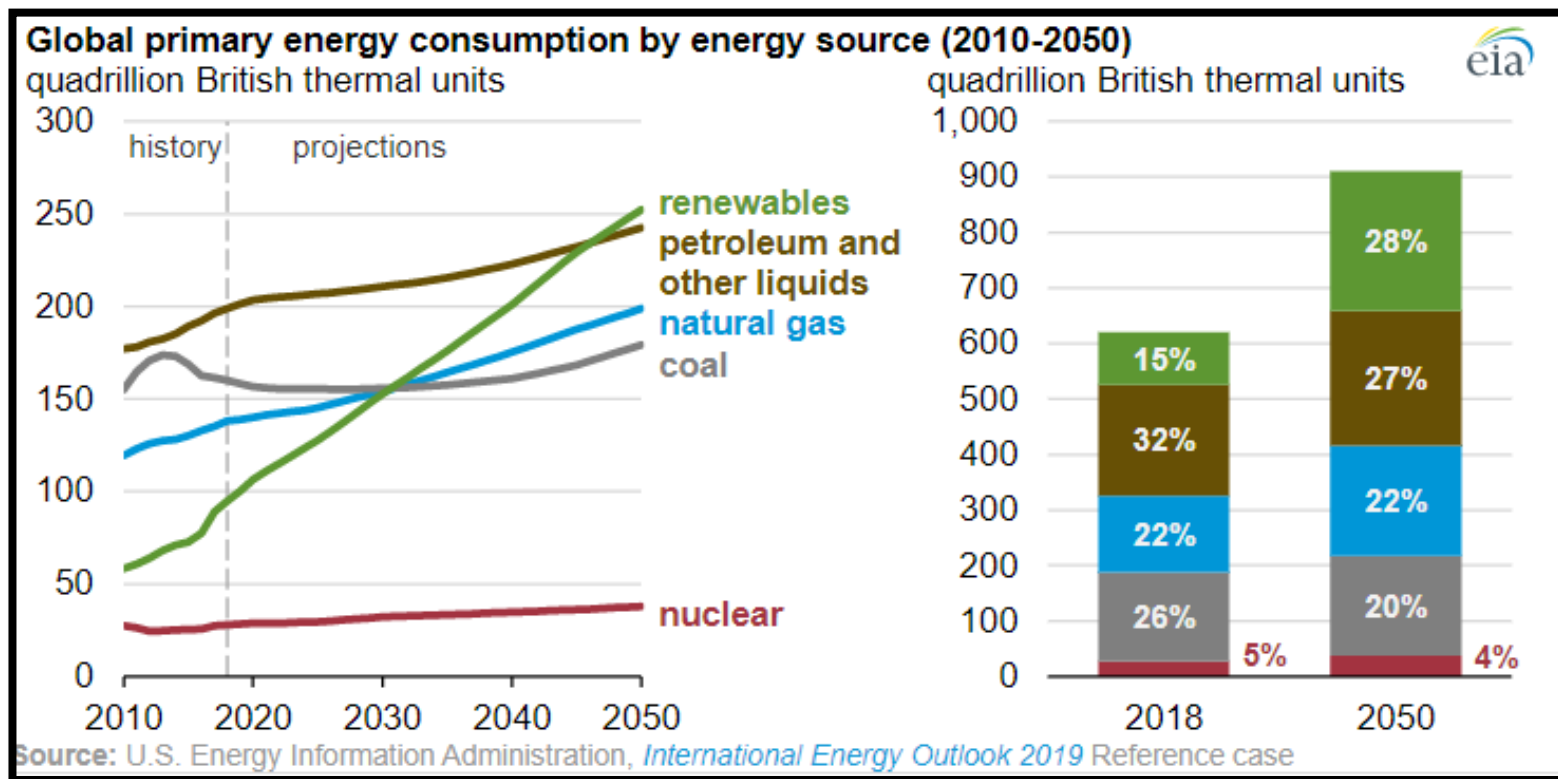
Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 1.3 and 10.1, April 2019, preliminary data





Global Energy Consumption

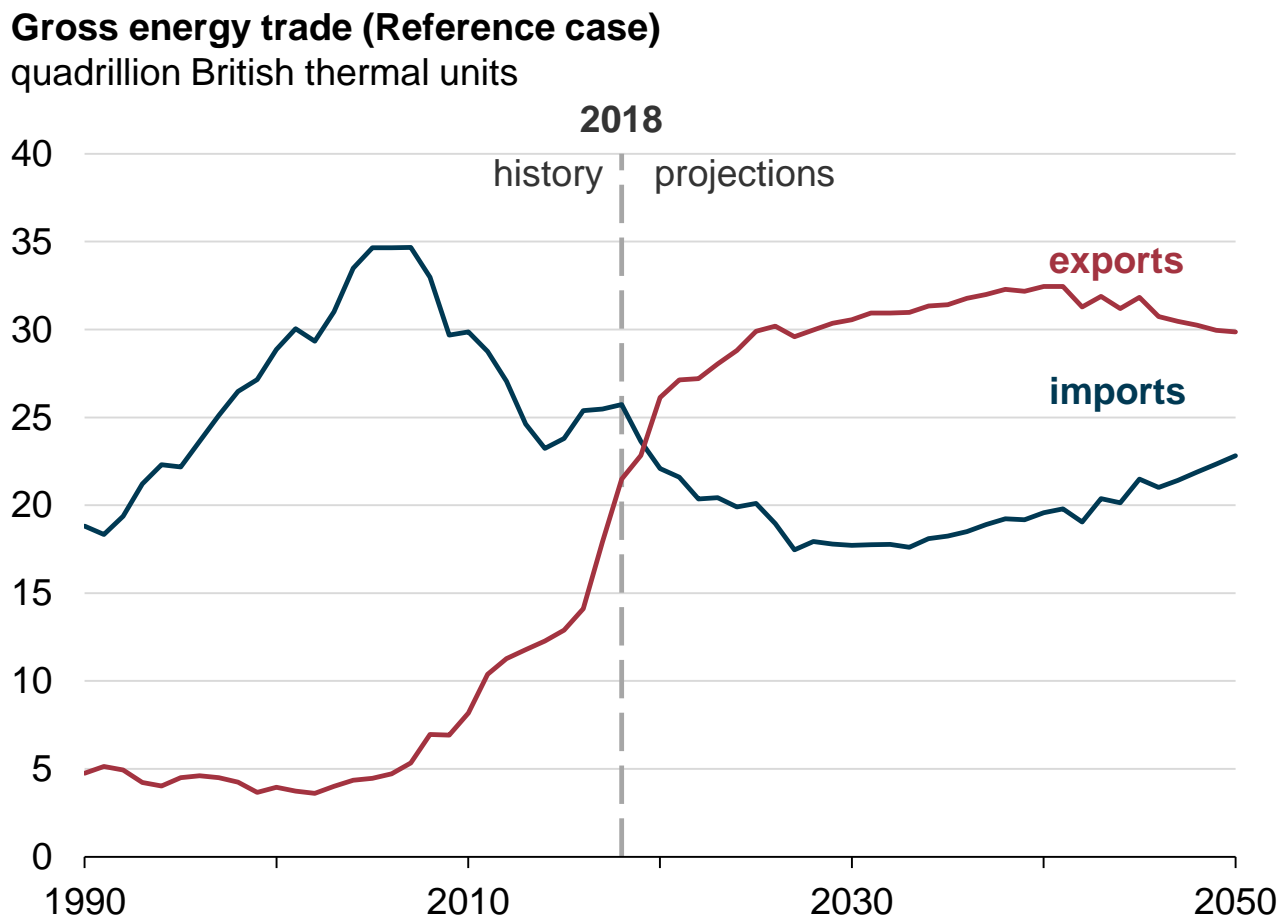
SHIFTING TRADE • JANUARY 29-30, 2020





U.S. Gross Imports & Exports

SHIFTING TRADE • JANUARY 29-30, 2020

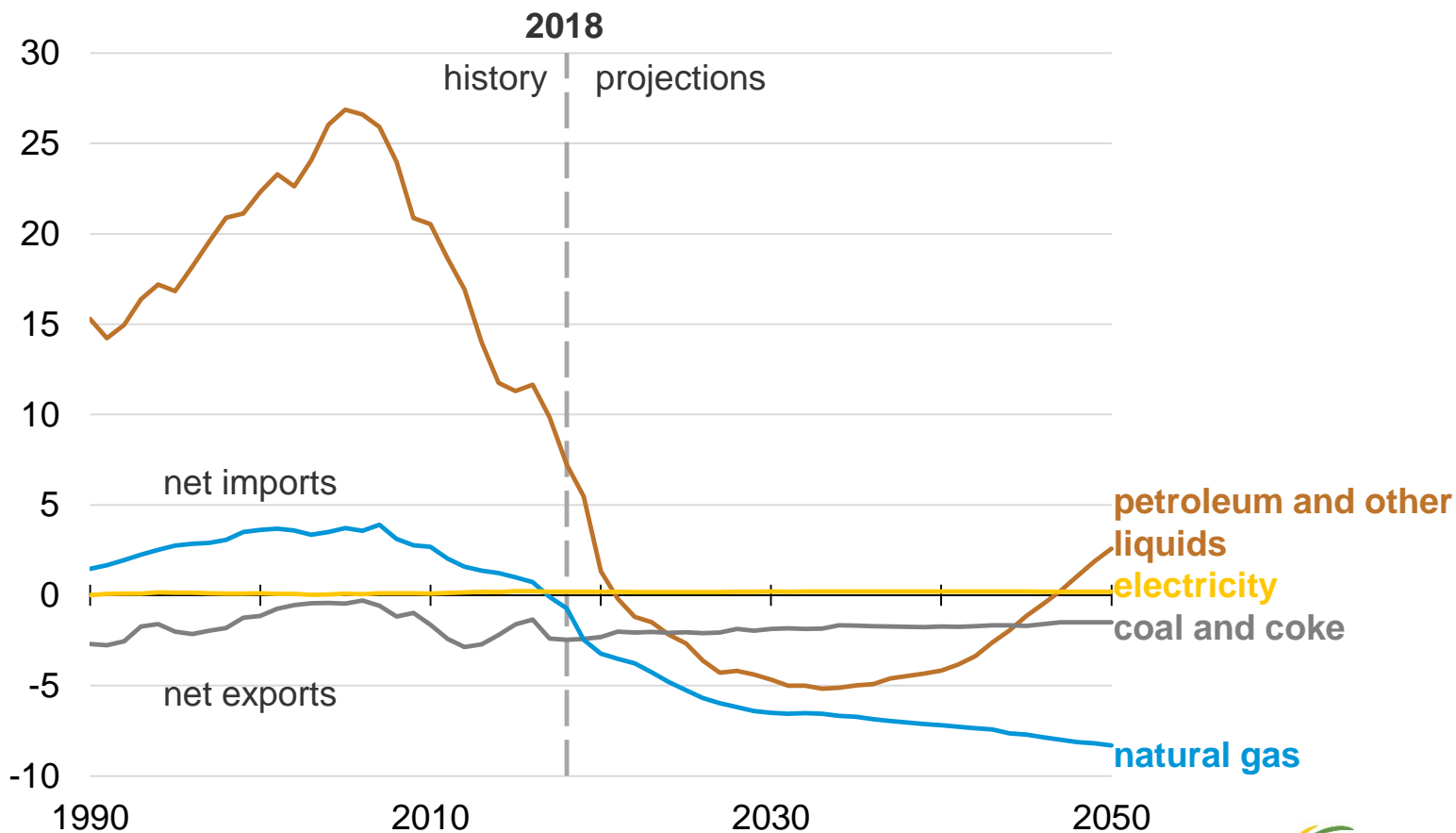




U.S. Net Energy Imports & Exports

SHIFTING TRADE • JANUARY 29-30, 2020

Net energy imports (Reference case)
quadrillion British thermal units

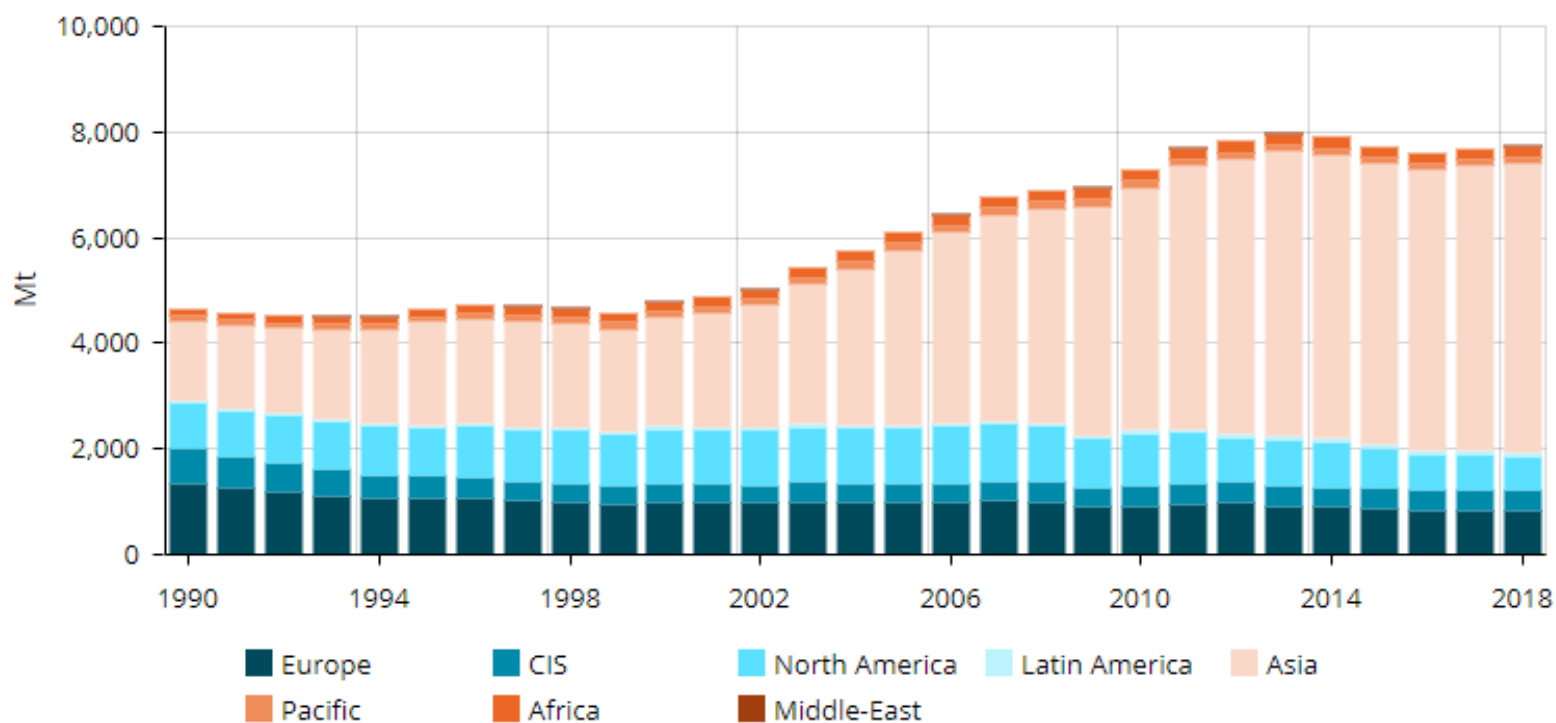




Global Coal Consumption

SHIFTING TRADE • JANUARY 29-30, 2020

Trend over 1990 - 2018

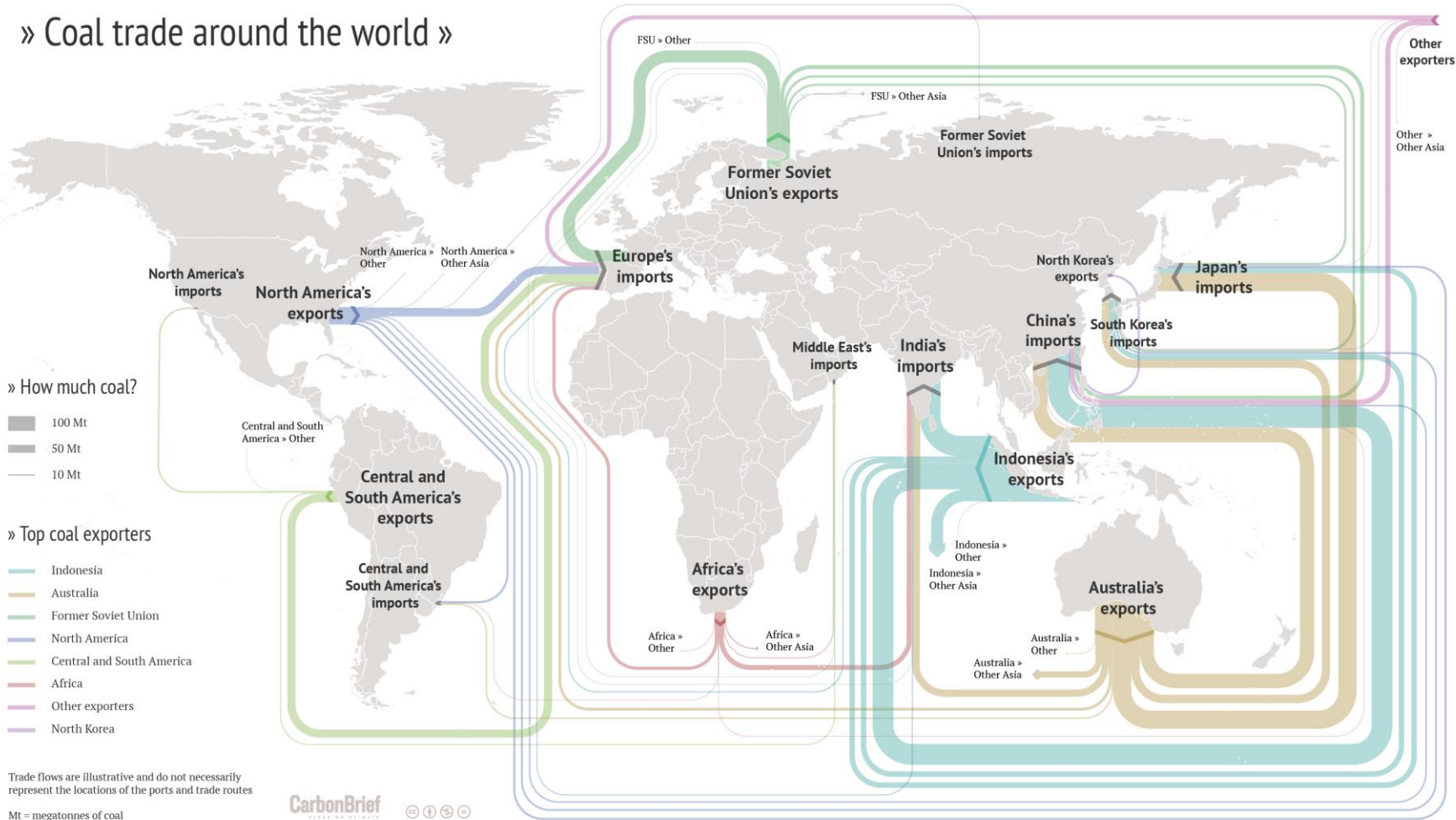




Global Coal Trade

SHIFTING TRADE • JANUARY 29-30, 2020

» Coal trade around the world »

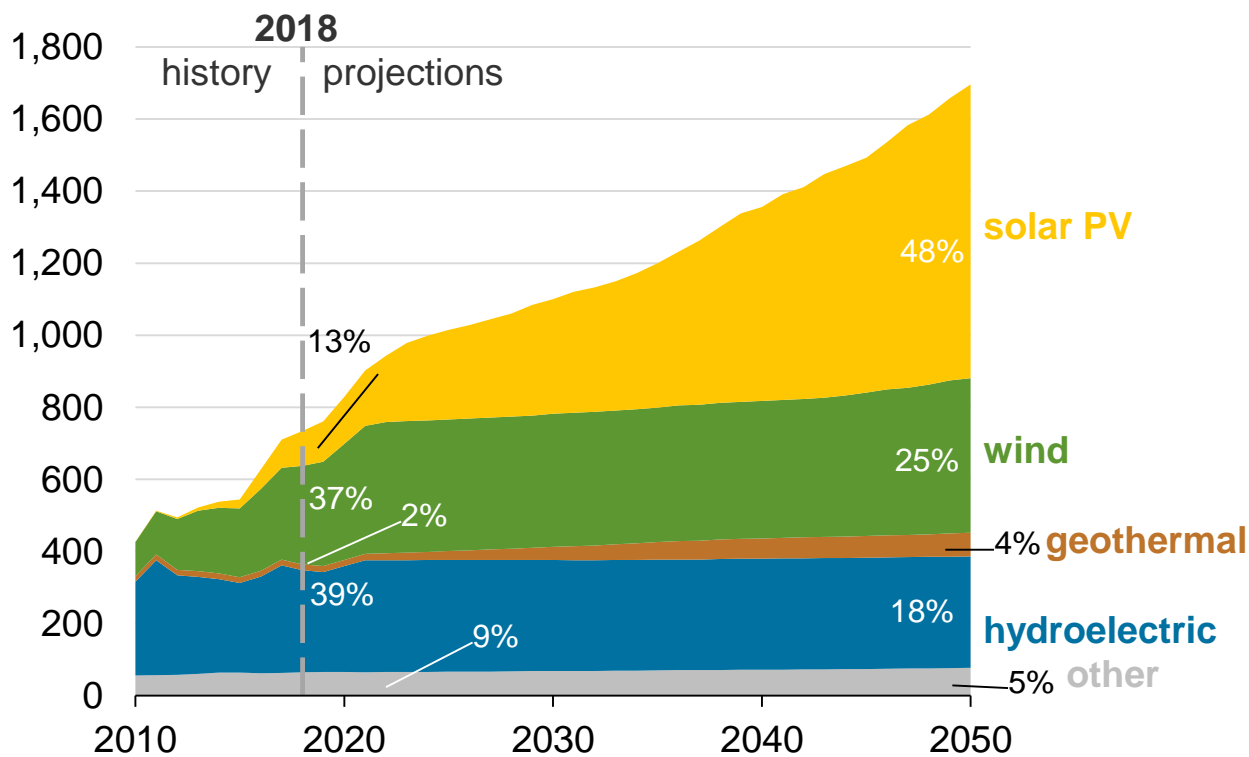




Global Renewable Growth

SHIFTING TRADE • JANUARY 29-30, 2020

Renewable electricity generation, including end-use (Reference case)
billion kilowatthours

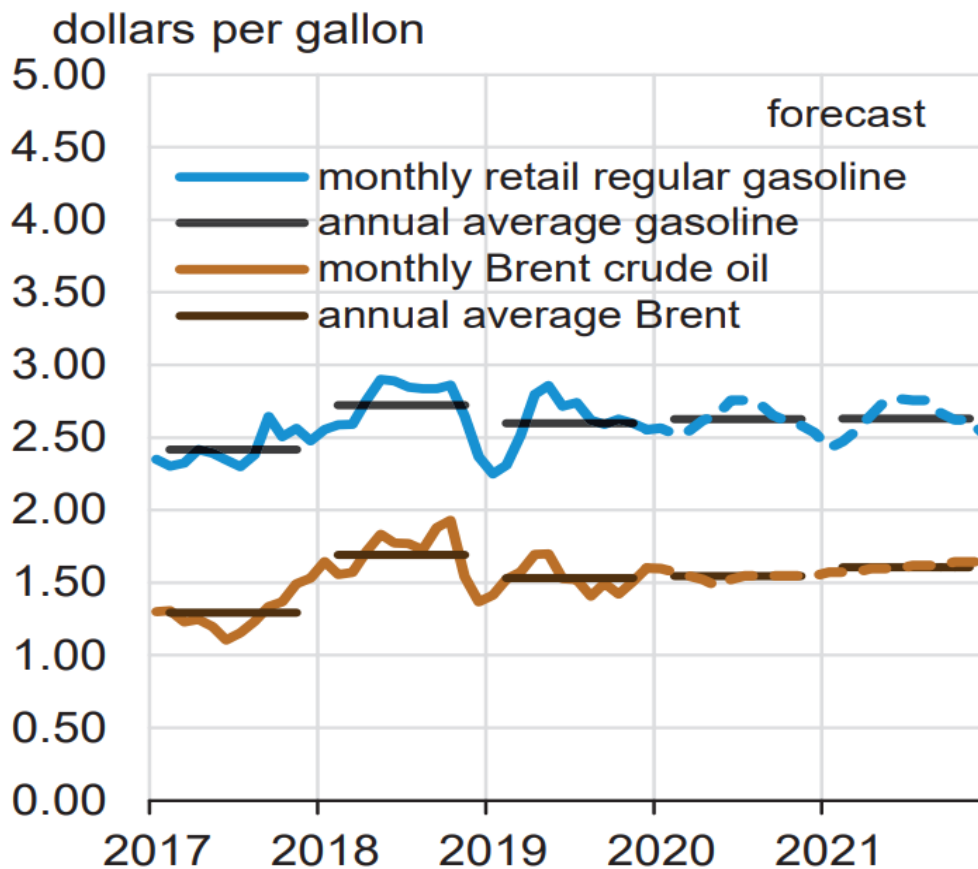




Low Oil Price Environment

SHIFTING TRADE • JANUARY 29-30, 2020

U.S. gasoline and crude oil prices





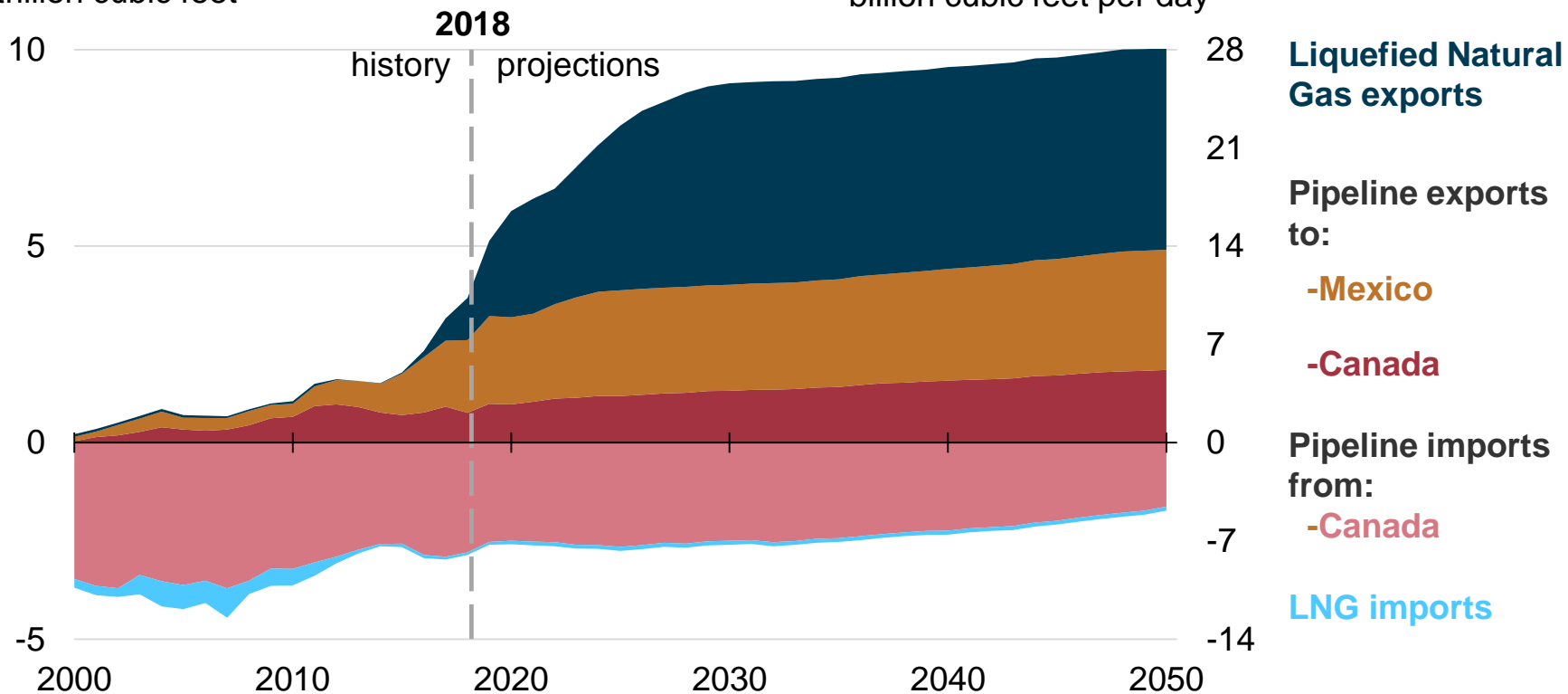
U.S. Natural Gas (LNG) Exports

SHIFTING TRADE • JANUARY 29-30, 2020

Natural gas trade (Reference case)

trillion cubic feet

billion cubic feet per day



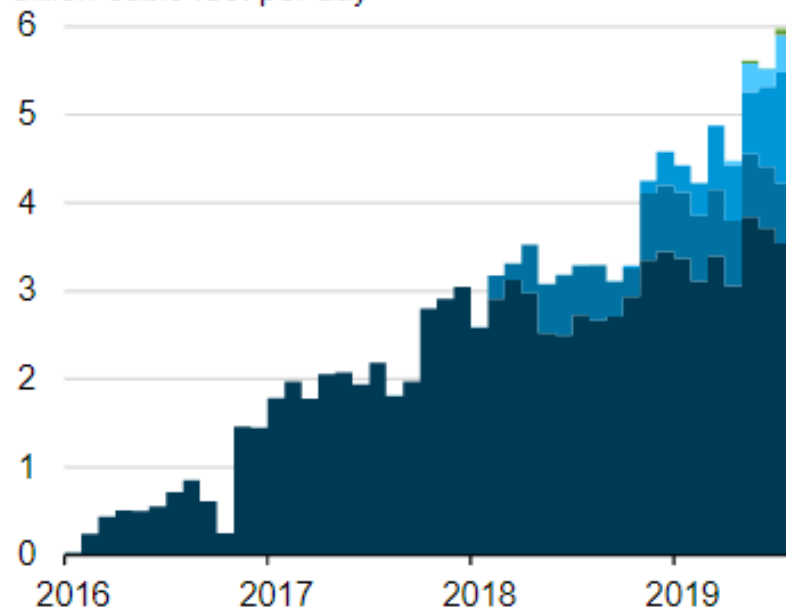


U.S. LNG Export Terminals

SHIFTING TRADE • JANUARY 29-30, 2020

U.S. natural gas feedstock to LNG export facilities (Jan 2016–July 2019)

billion cubic feet per day



Elba Island, Georgia
Freeport, Texas

coming online
in Q3 2019

Cameron, Louisiana
Corpus Christi, Texas

facilities
already
exporting

Cove Point, Maryland

Sabine Pass, Louisiana

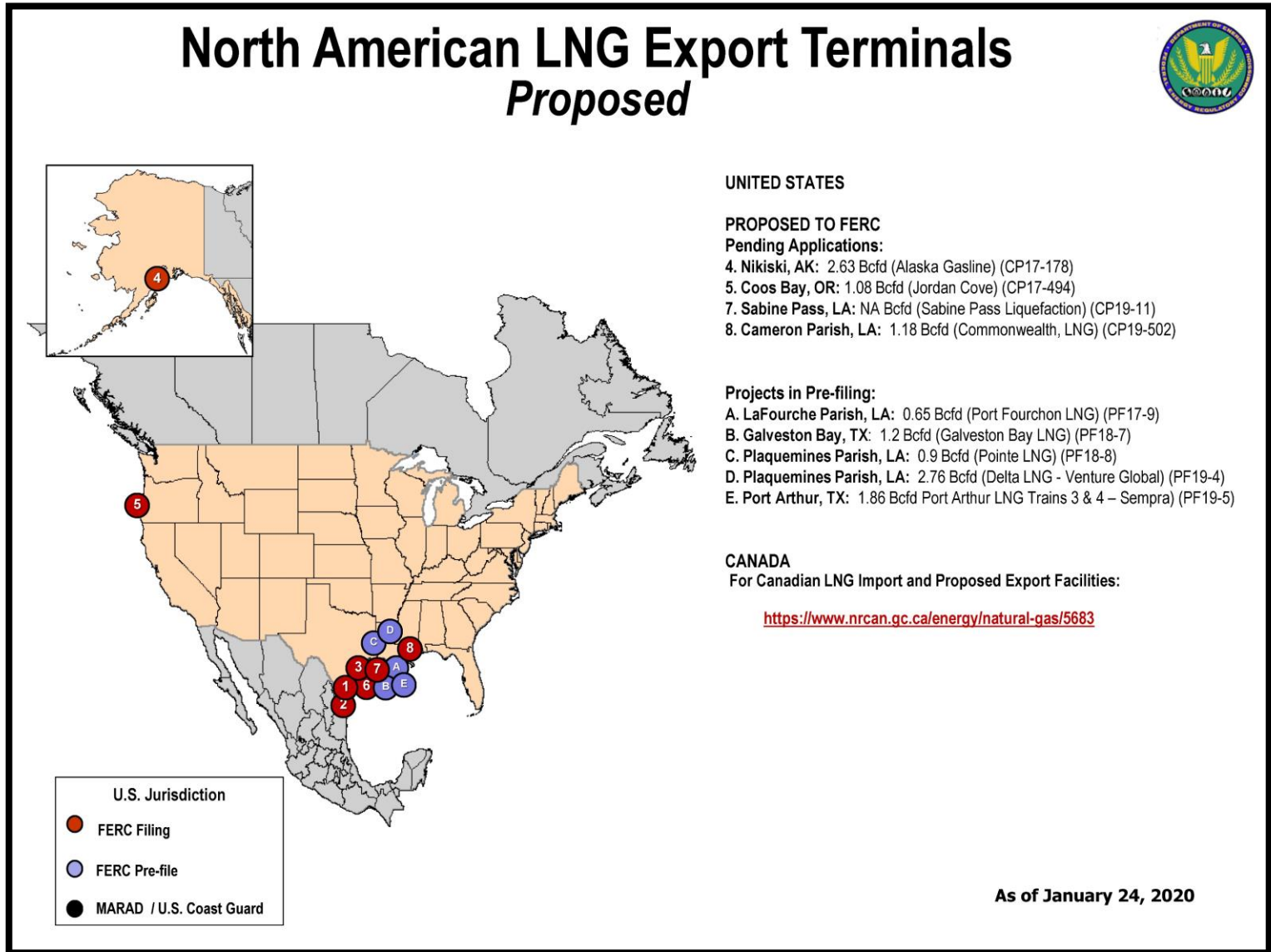


Source: U.S. Energy Information Administration, based on data from OPIS PointLogic Energy



Pending U.S. LNG Export Terminals

SHIFTING TRADE • JANUARY 29-30, 2020





IMO Sulphur Regulations for Fuel

SHIFTING TRADE • JANUARY 29-30, 2020

Five beneficial changes from IMO's Sulphur Limit for ships' fuel oil

Sulphur 2020

- Cleaner air**
77% drop in overall sulphur oxide (SOx) emissions from ships – annual reduction of approximately 8.5 million metric tonnes of SOx
- Positive impacts on human health**
Premature deaths, cardiovascular, respiratory and pulmonary diseases will all be reduced
- Higher quality fuels**
The majority of ships will switch to higher quality, low sulphur fuel oil to meet the limit.
- Ship operators, owners + refineries have adapted**
Guidance issued by IMO and other stakeholders to enhance preparedness ahead of the entry into force of Sulphur 2020
- Changes for enforcement authorities**
Flag and port State control will be making sure ships are compliant.

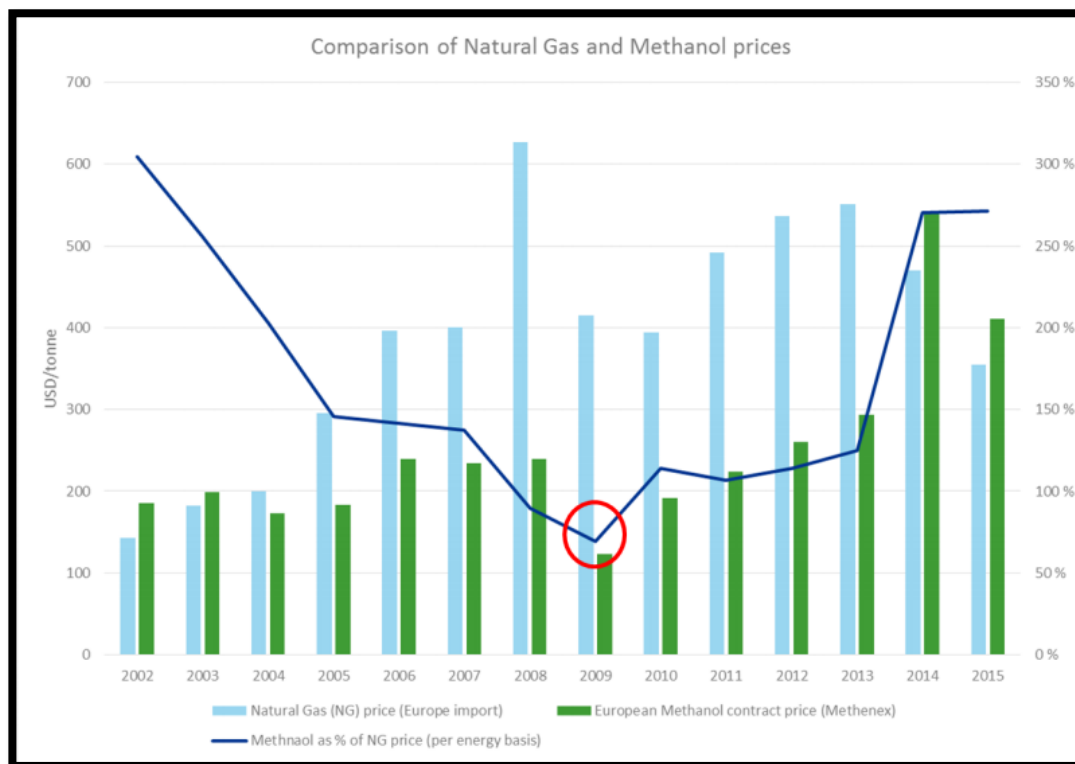
IMO INTERNATIONAL MARITIME ORGANIZATION



Methanol, LNG, & Scrubbers

SHIFTING TRADE • JANUARY 29-30, 2020

“For shipping companies, the three most viable options to reduce their sulphur exhaust to 0.5% are: switching to ultra-low sulphur fuel oil (ULSFO); fitting an exhaust scrubber (a device that washes the exhaust gasses) or a switch to Liquid Natural Gas (LNG).” –**Hellenic Shipping News**



“If you are conservative and say that ships are spending about \$3m (£2.4m) per ship to install scrubbers, at 4,000 ships that's \$12bn (£9.7bn) dollars of investment in a technology that enables ships to use the world's dirtiest fossil fuel – heavy fuel oil.” –**Business Insider**



Gaze Into The Future

SHIFTING TRADE • JANUARY 29-30, 2020

- Offshore Wind
- Robust Trade
- Oil and Natural Gas Storage
- Carbon Dioxide Imports
- Carbon Dioxide Offshore Storage
- Methane Hydrates
- Electrification of other transportation modes
- Increased global trade with new trade agreements
- Watch for more Anti-Fracking pressures
- Threat to continued pipeline construction, and all pipelines.



Concluding Remarks

- Imports Shrink
- Exports Expand
- Chaos Reigns
- Change has never been more rapid
- Shipping will attract attention of climate change concerns
- All energy transportation to be under attack