

The Economics and Geopolitics of Energy and Insurance *A Global Perspective*

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Overview

- **The American Mid-Term Elections: A ‘Flash’ Analysis**
 - ◆ Outcome and consequences
- **The Global Economy, Energy and Insurance**
 - ◆ Growth, Emerging market challenges and “Trumponomics”
- **Populism, Trade Wars and Energy**
 - ◆ Consequences for insurers
- **Energy Nationalism**
 - ◆ The combustible mixture of energy, influence and politics
- **Energy and Insurance Market Overview and Outlook**
 - ◆ Energy market supply, demand and investment
 - ◆ Performance, threats and opportunities
- **Question Time**

The American Mid-Term Elections (6 November 2018)

A 'Flash' Analysis

Impacts for Insurance and Energy Interests

The American Mid-Term Elections: What's at Stake?

■ 35 of 100 Senate seats

- ◆ Republicans have a narrow majority of 51 seat vs. 47 Democrats and 2 Independents (who typically vote Dem.)
- ◆ They are expected to retain this majority

■ All 435 House of Representative seats

- ◆ Republicans have a narrow majority
- ◆ Democrats need to “flip” 23 seats to gain a majority
- ◆ Polls (and history) suggested this was likely to happen



The American Mid-Term Elections: Likely Consequences if Republicans Lose Control of the House of Representatives

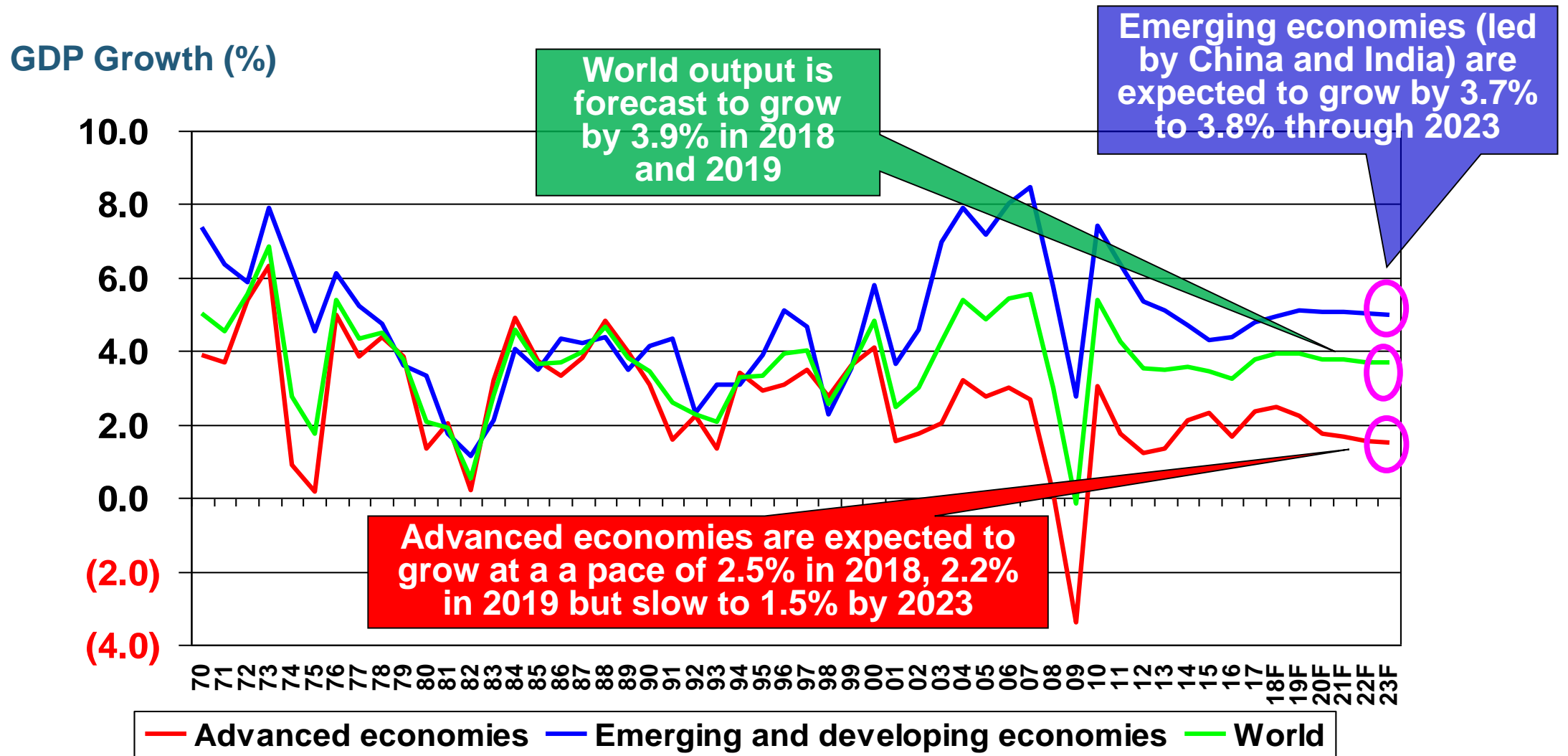
- **Immediate Derailment of Much of Trump's Agenda**
- **Likely that regulatory rollbacks will slow in areas such as financial services, the environment**
- **Fewer pro-energy (esp. pro-carbon) policies**
- **New tax cuts unlikely**
- **Potential for agreement on infrastructure initiatives**
- **Impeachment proceedings against Trump**
- **The 2020 Presidential election will begin 7 Nov. 2018 irrespective of the outcome**
 - ◆ **Trump will enjoy running against a Democratic house**

THE GLOBAL ECONOMY, ENERGY AND INSURANCE

**The Strength of the Global Economy
Will Greatly Influence Insurance
Industry Growth**

***The Global Energy Sector Is Vulnerable
to Many Risks—So Too Are Their
Insurers***

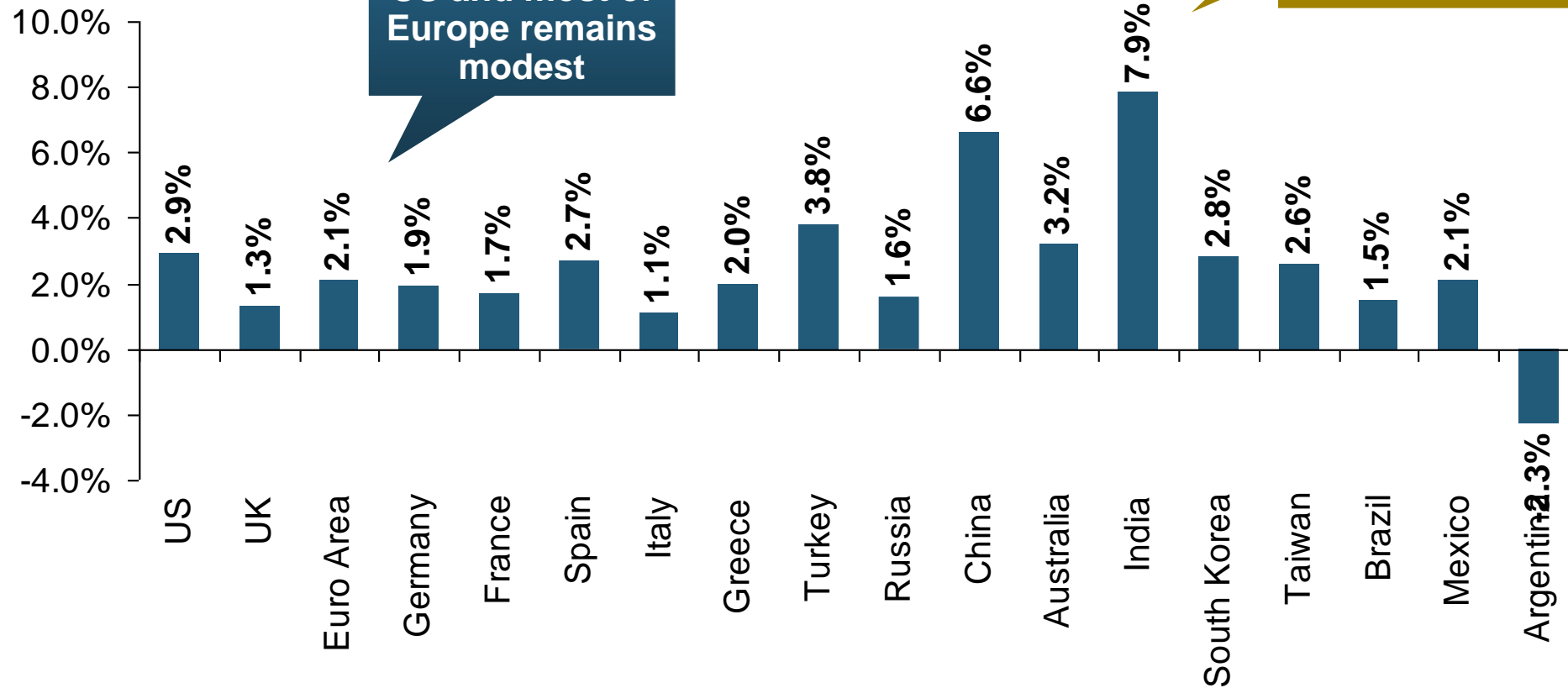
GDP Growth: Advanced & Emerging Economies vs. World, 1970-2023F



Source: International Monetary Fund, *World Economic Outlook*, Apr. 2018;
 Univ. of South Carolina, Risk and Uncertainty Management Center.

2018 GDP Growth for Most of the World's Major Economies Is Modest

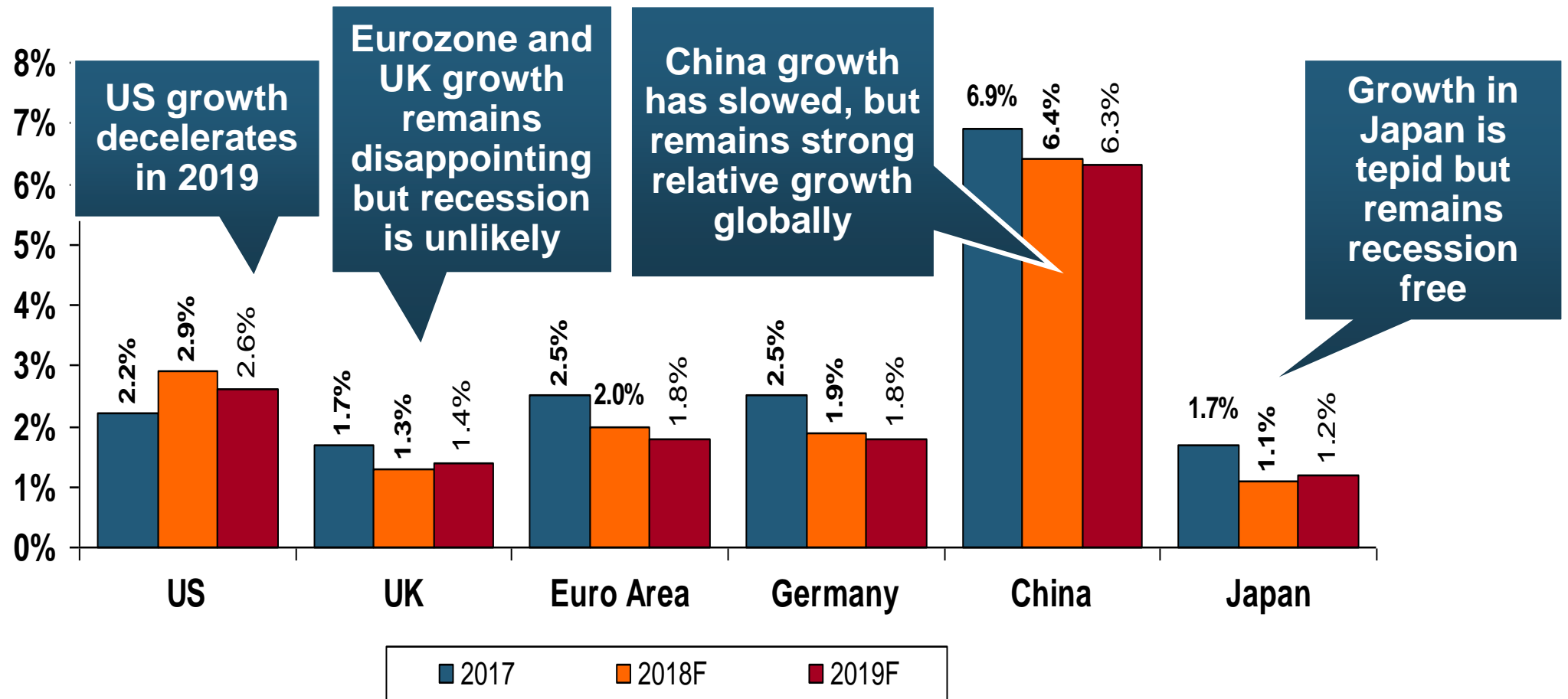
Real GDP Growth



Growth in the US and most of Europe remains modest

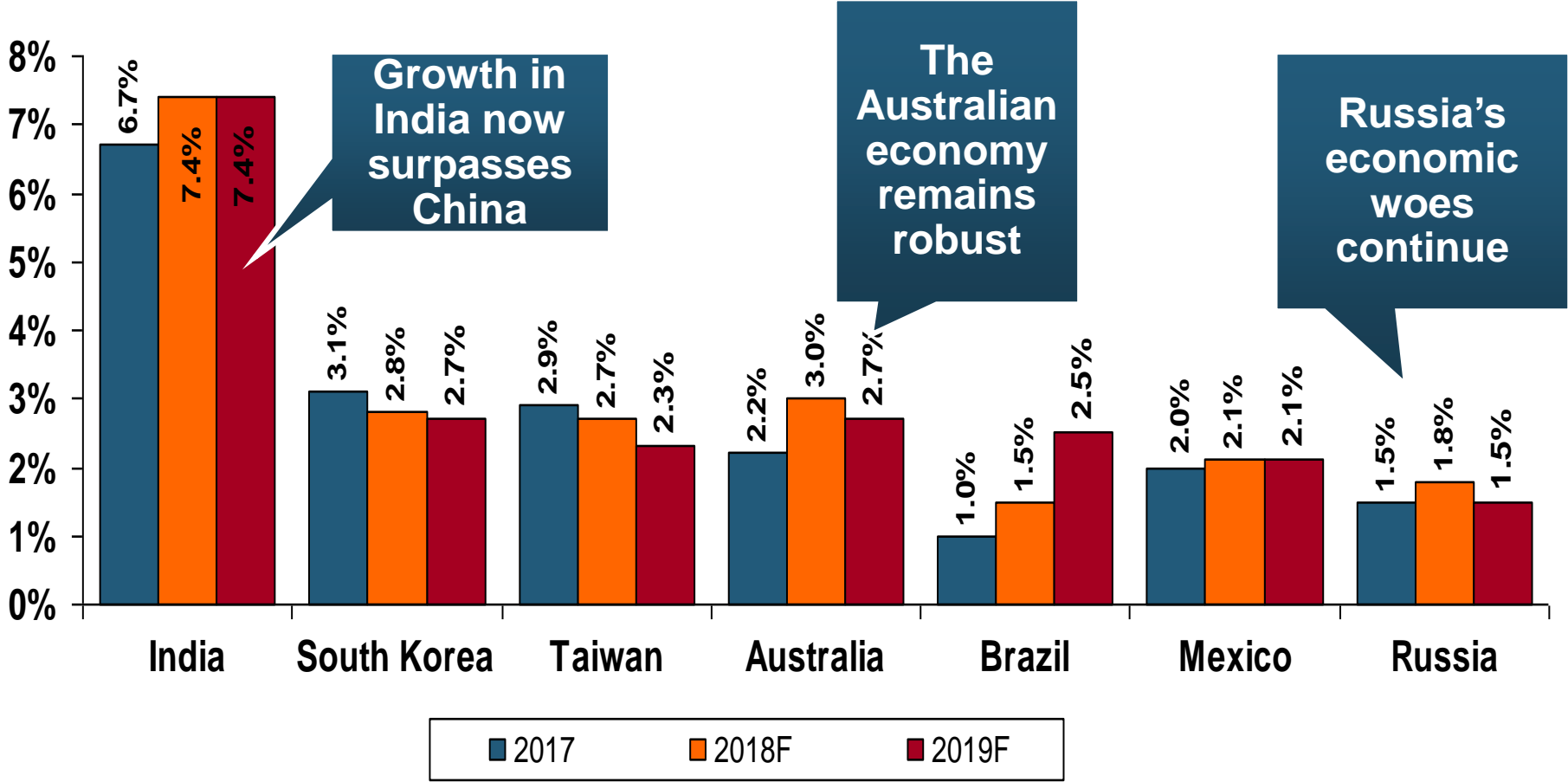
India and China are by far the fastest growing major economies in the world

Real GDP Growth Forecasts: Major Economies: 2017 – 2019F



Growth Prospects is Among the World's Major Economies Varies Widely by Region with China Leading the Leading the Way

Real GDP Growth Forecasts: Other Key Economies: 2017 – 2019F

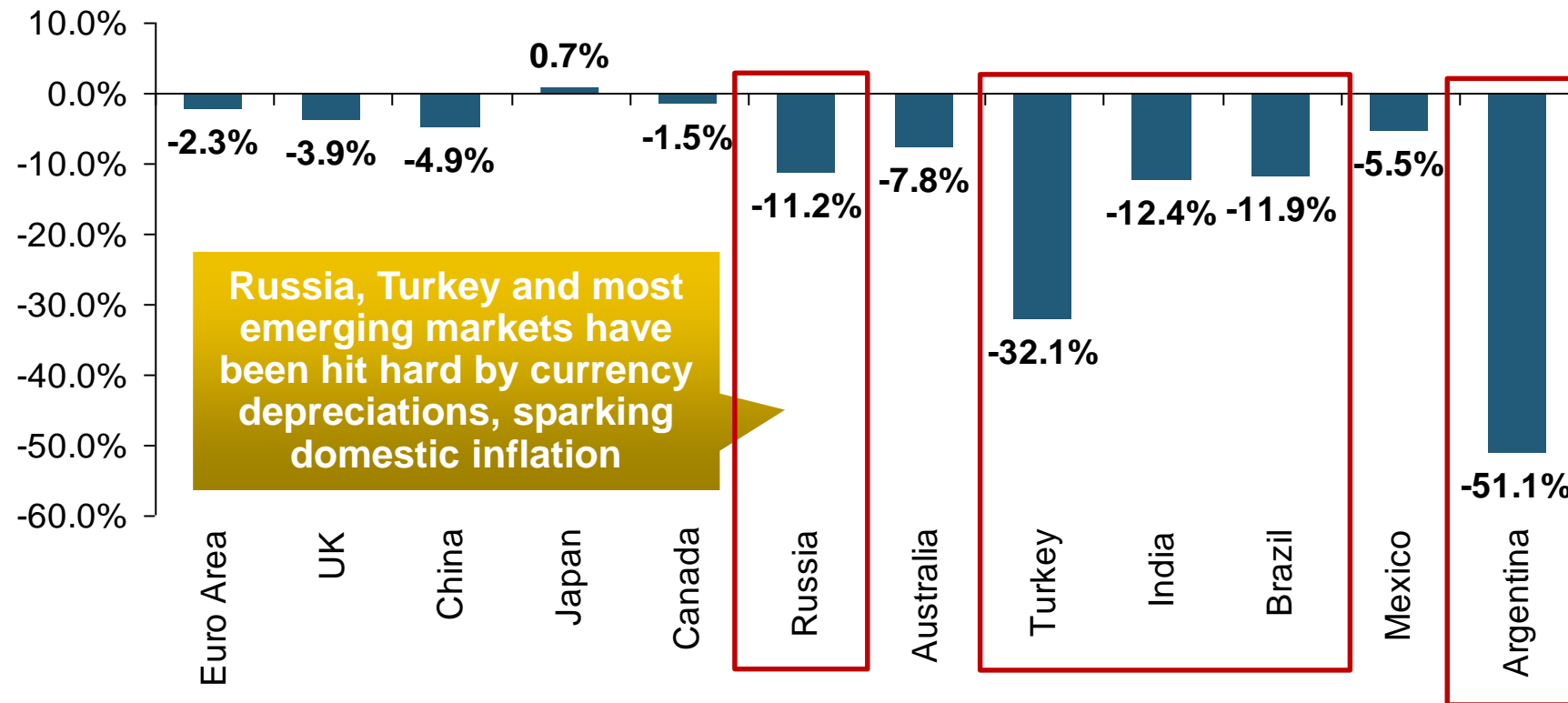


Global Growth Is Expected to Decelerate Modestly in 2019

Sources: Blue Chip Economic Indicators (10/2018 issue); Univ. of South Carolina Risk and Uncertainty Management Center.

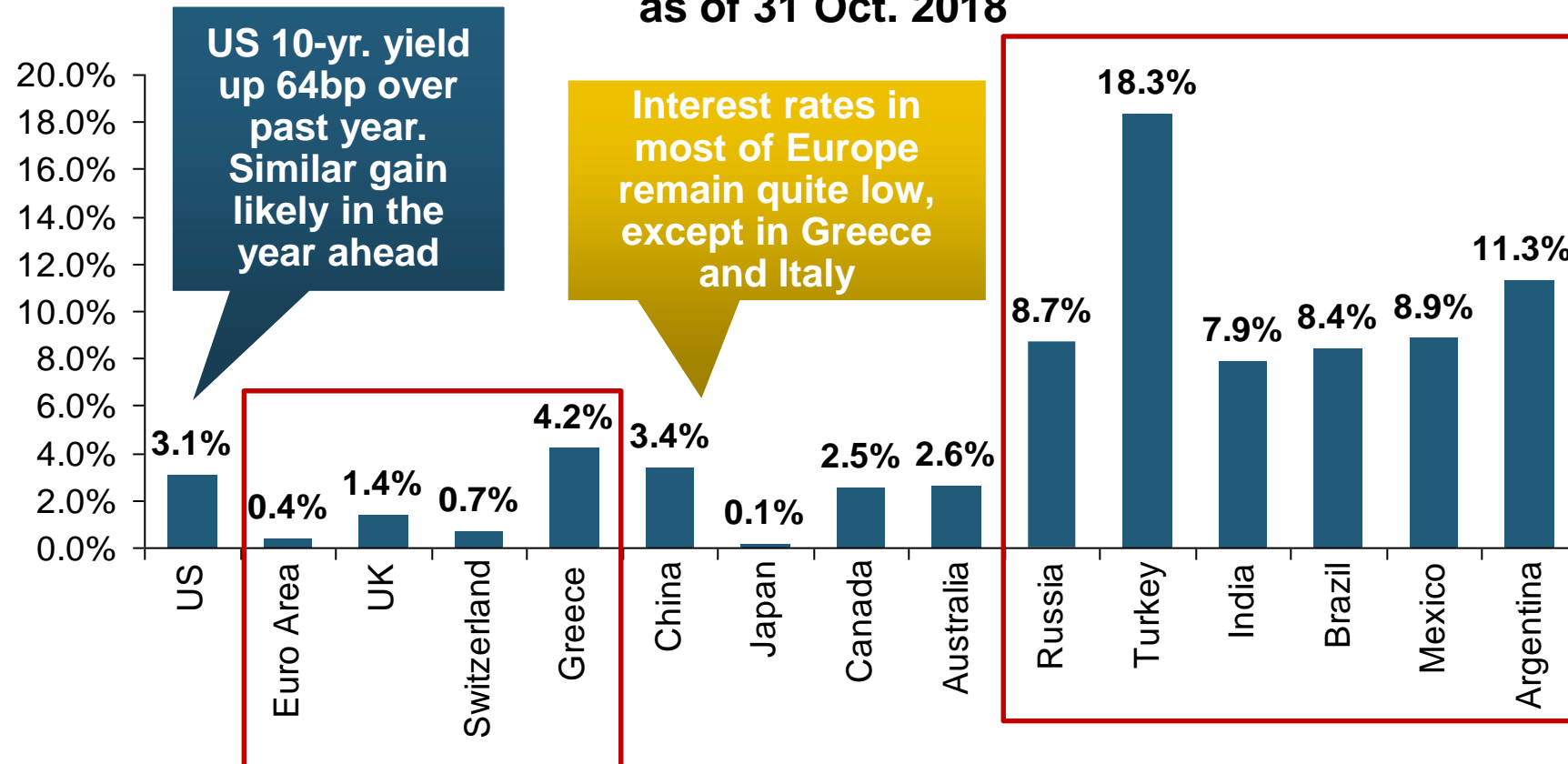
Global Depreciation Against the Dollar— Especially Painful for Emerging Markets, Russia

Percentage Change in Domestic
Currency vs. USD from Year Ago
as of 31 Oct. 2018

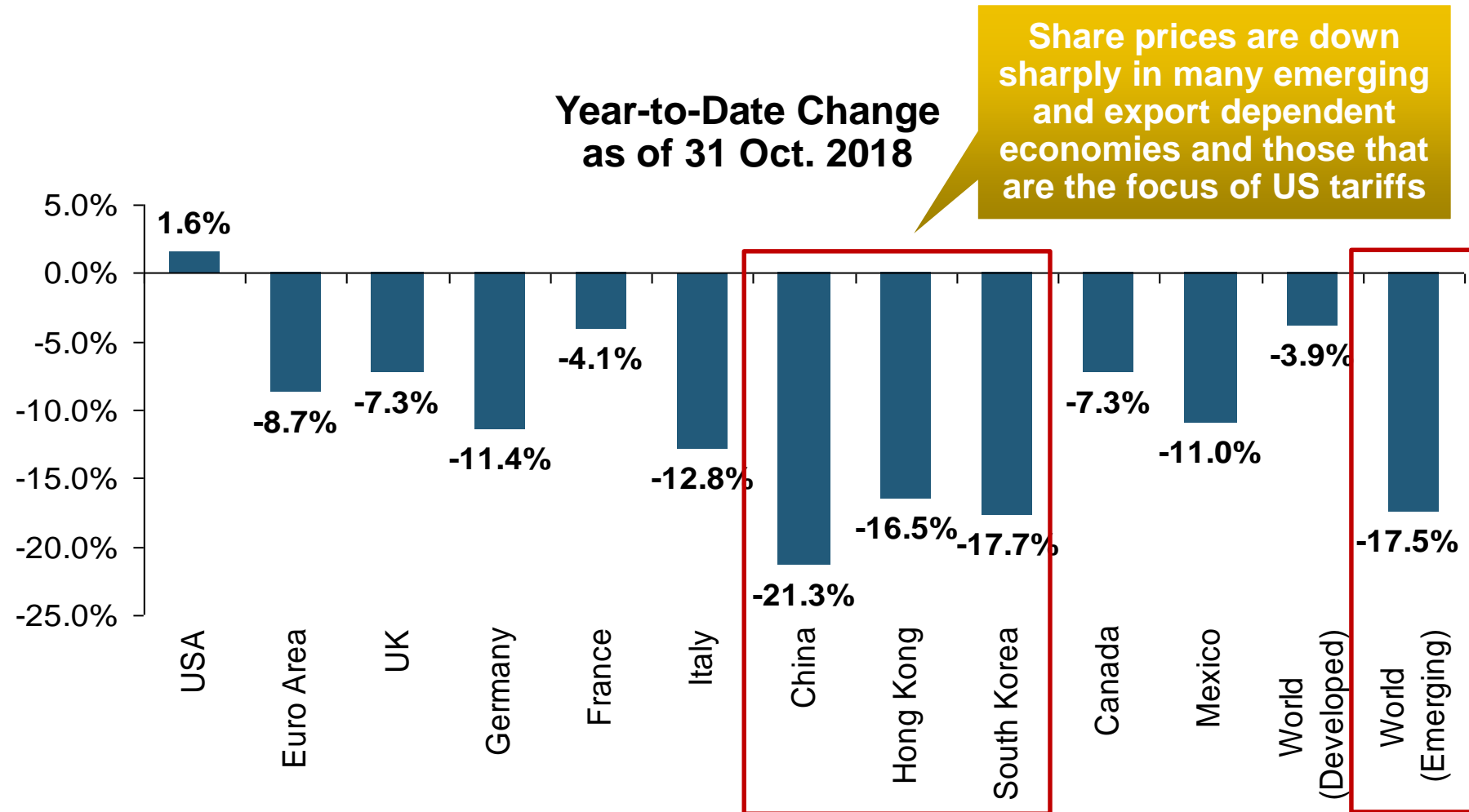


Global Interest Rates Remain Low Except in Emerging Markets Facing Currency Crises and Inflation Threats

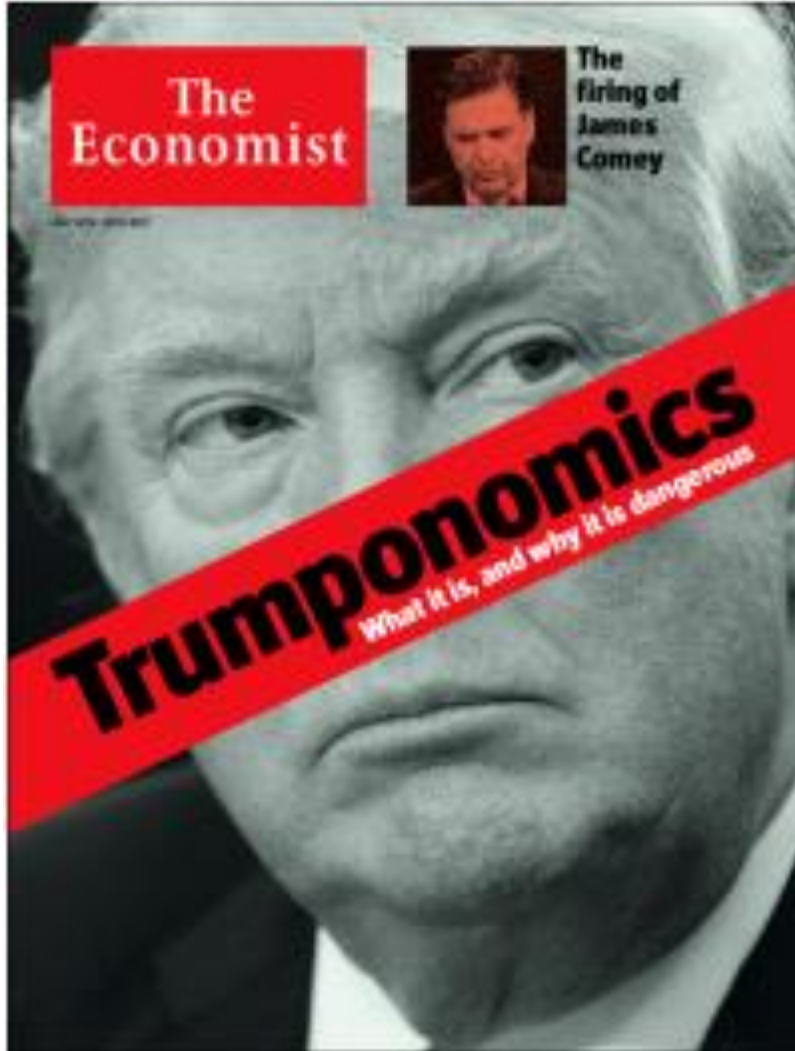
Percentage Change in Domestic Currency vs. USD from Year Ago as of 31 Oct. 2018



Stock Markets: Global Pain and Volatility in Response to Trade, Geopolitical Uncertainties



“Trumponomics”: The Essential Elements

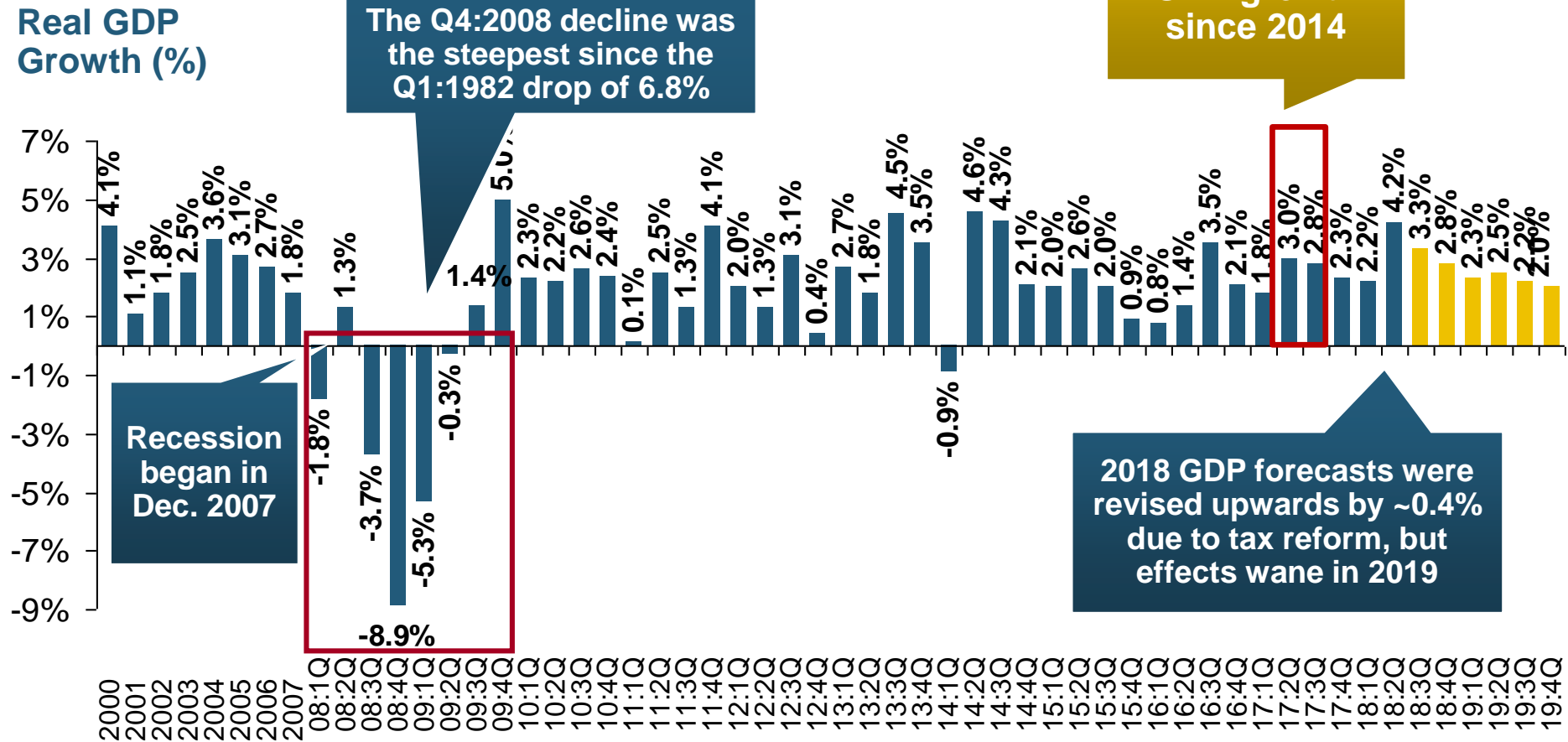


■ 5 Elements

- ◆ Fair Trade
- ◆ Tax Reform
- ◆ Deregulation
- ◆ Infrastructure Investment
- ◆ Healthcare
- ◆ Immigration Reform/Enforcement

■ **Most of these have direct impacts for insurers**

US Real GDP Growth*



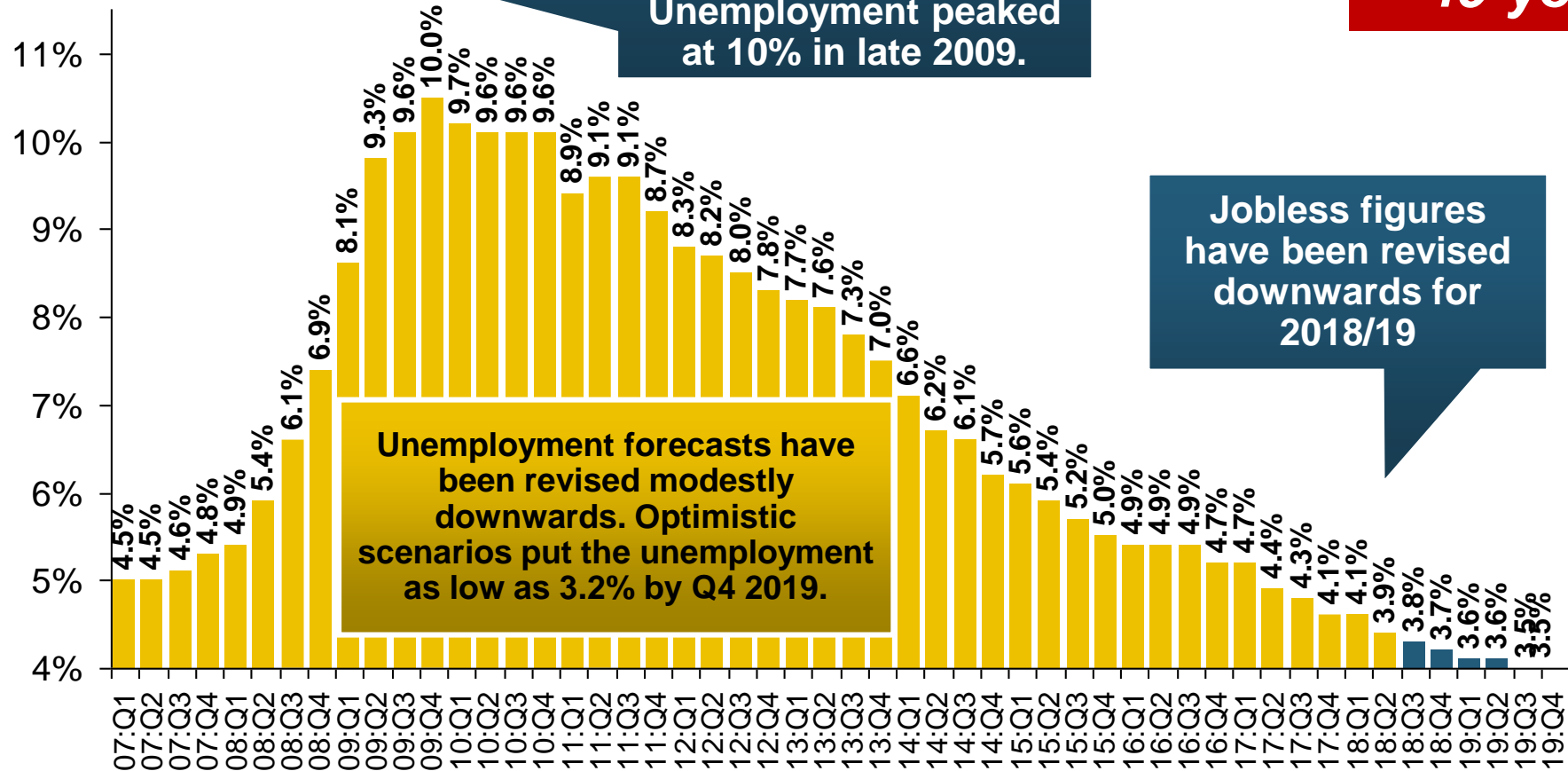
Demand for Insurance Should Increase in 2018-19 as GDP Growth Continues at a Steady Pace and Gradually Benefits the Economy Broadly

* Estimates/Forecasts from Blue Chip Economic Indicators.

Source: US Department of Commerce, Blue Economic Indicators 11/18; Center for Risk and Uncertainty Management, Univ. of South Carolina.

US Unemployment Rate Forecast

2007:Q1 to 2019:Q4F*



* ■ actual; ■ forecasts

Sources: US Bureau of Labor Statistics; Blue Chip Economic Indicators (11/18 edition); Risk and Uncertainty Management Center, University of South Carolina.

POPULISM, ECONOMICS AND ENERGY

Populist Movements Around the World Are Impact Global Economics and Geopolitics

Insurers, Energy Industry Will Be Impacted

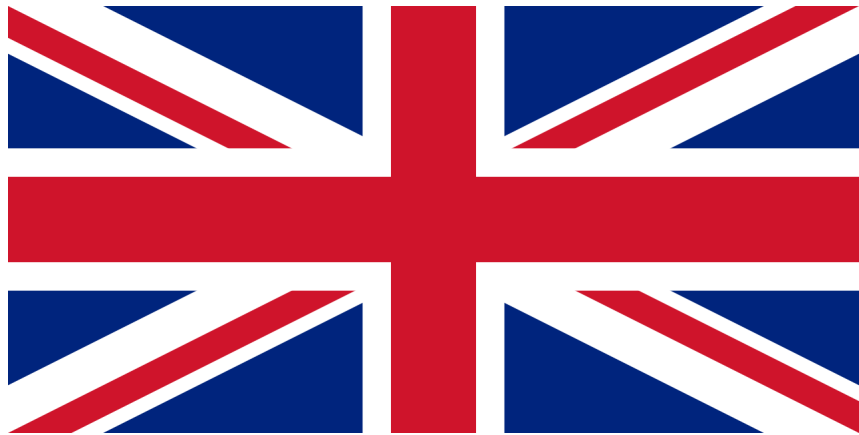
Trump's Trade War: "America First" Policy

- **The United States has levied or threatened to levy tariffs against all \$262 billion of Chinese imports to the US**
 - ◆ Major products impacted include solar panels, steel, aluminum, motor vehicle parts, electronics, home appliances, clothing
 - ◆ China has strategically matched US tariffs, dollar for dollar
- **Tariffs also been levied against many US trade partners incl. Canada, Mexico, South Korea, Turkey and the EU**
 - ◆ Most have retaliated
- **The US has dissolved NAFTA in favor of a new agreement known as USMCA—US Mexico Canada Agreement**
- **The US has threatened to pull out of the WTO**
- **The US withdrew from the TPP (2017)**
- **Expect the US to renegotiate more intl. agreements**

Populism Spans the Globe



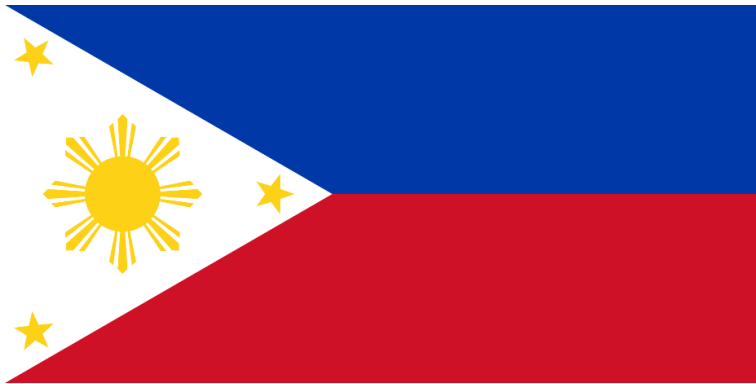
Trumpeters



Brexiters

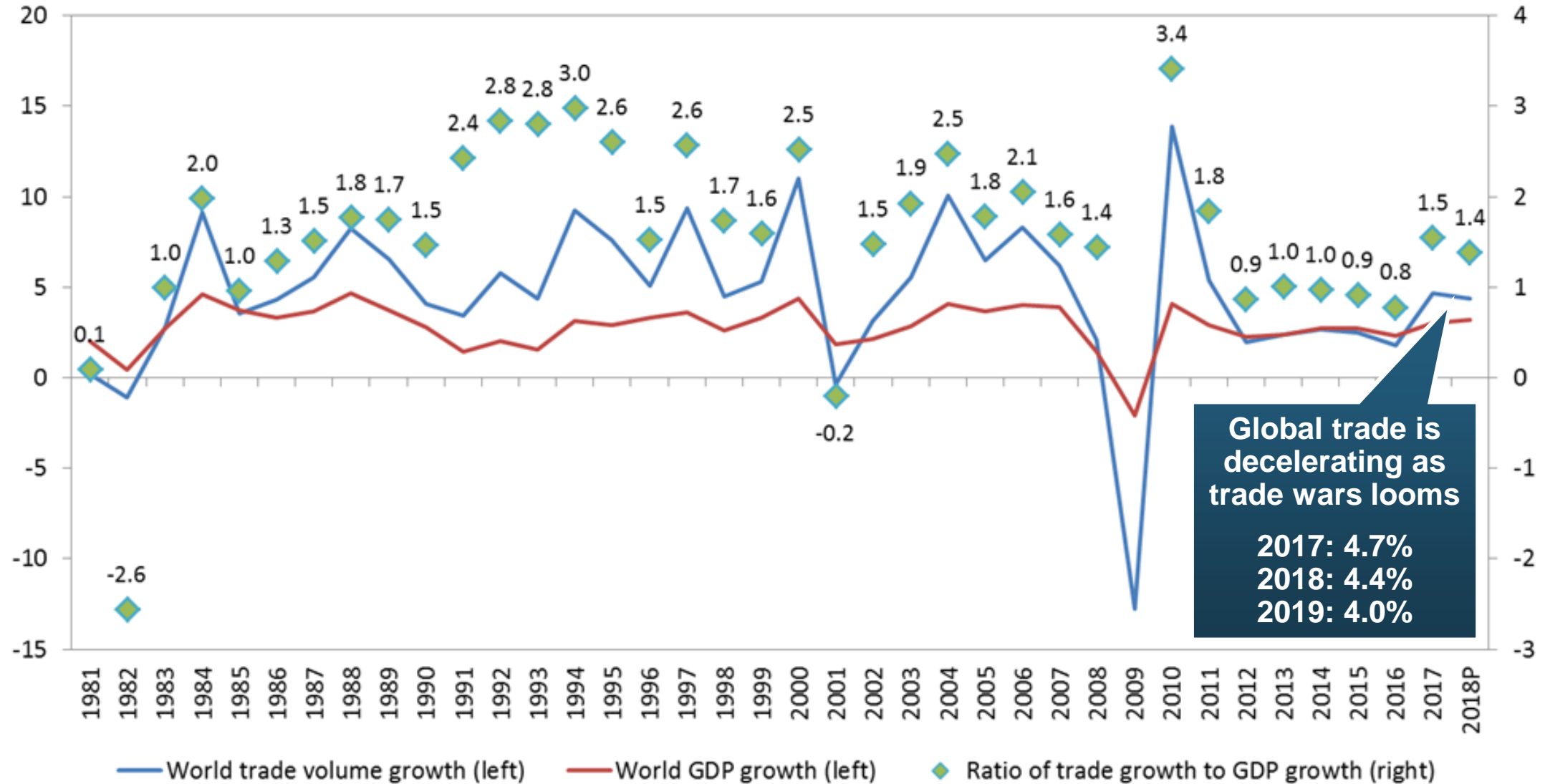
- There many differences but also many differences in between the populist movements in the US and UK and elsewhere around the world
- All represent a threat to globalization—the free flow of goods, services and people across borders
- This can only be a negative for global industries such as insurance and energy

Populism and Nationalism Span the Globe



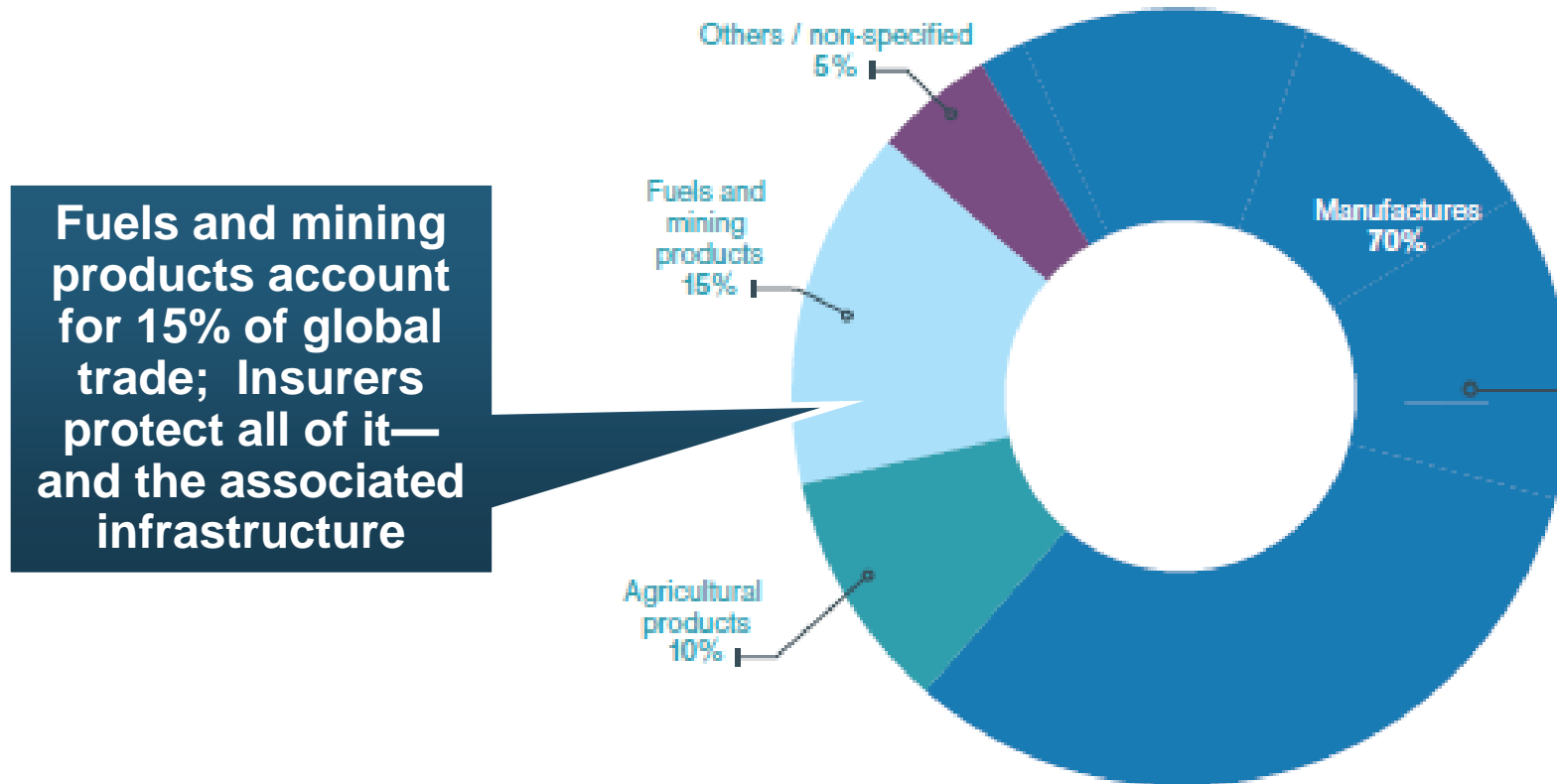
- **Brazil, Turkey, Philippines, Indonesia, Thailand, Venezuela and many others outside Europe have populist leaders or movements**
- **Smaller countries cannot afford to become more insular as many are export dependent**

Ratio of World Merchandise Trade Growth to World GDP Growth, 1981 – 2018P



Source: World Trade Organization: https://www.wto.org/english/news_e/pres18_e/pr820_e.htm

Energy Products (Fuels) Account for a Significant Share of Global Trade Volume, 2018



ENERGY NATIONALISM

**The Use of Energy Resources to
Exert Political and Economic
Influence Is on the Rise**

***Nationalism and Energy Are a
Volatile Combination***

Energy Nationalism—Back Again

- **The United States is using its newfound energy riches to restructure the global energy hierarchy**
 - ◆ The rapid transition from a net energy importer to a major exporter has:
 - Reduced dependence on volatile sources in the Middle East and greatly weakened the OPEC cartel
 - Allowed the US to gain leverage over Iran, Russia, Saudi Arabia and as well as “thorns in the side” such as Venezuela
 - Allowed the US to insert itself into Western Europe’s relationship with Russia
- **Russia itself seeks to use its energy resources to exert greater influence in European affairs**
 - ◆ **Nord Stream 2 pipeline**

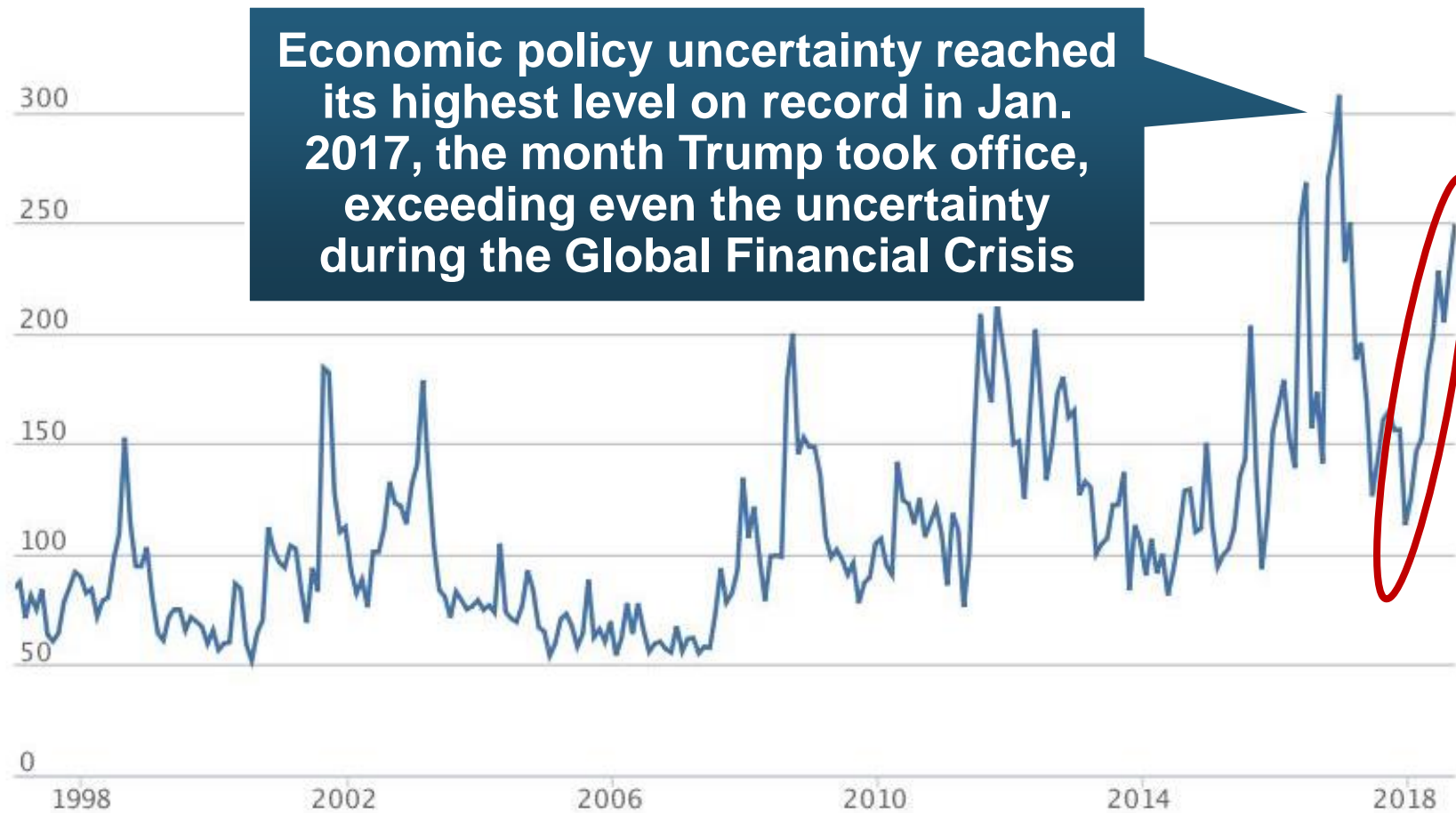


Energy Nationalism—Conflict and Climate

- **Various oil and gas rich states in the Middle East are battling for influence across the region**
 - ◆ **Saudi war in Yemen**
 - ◆ **Iranian support of Assad regime in Syria and Hizbollah in Lebanon**
 - ◆ **Qatar Crisis (alleged support of Iran, terror groups)**

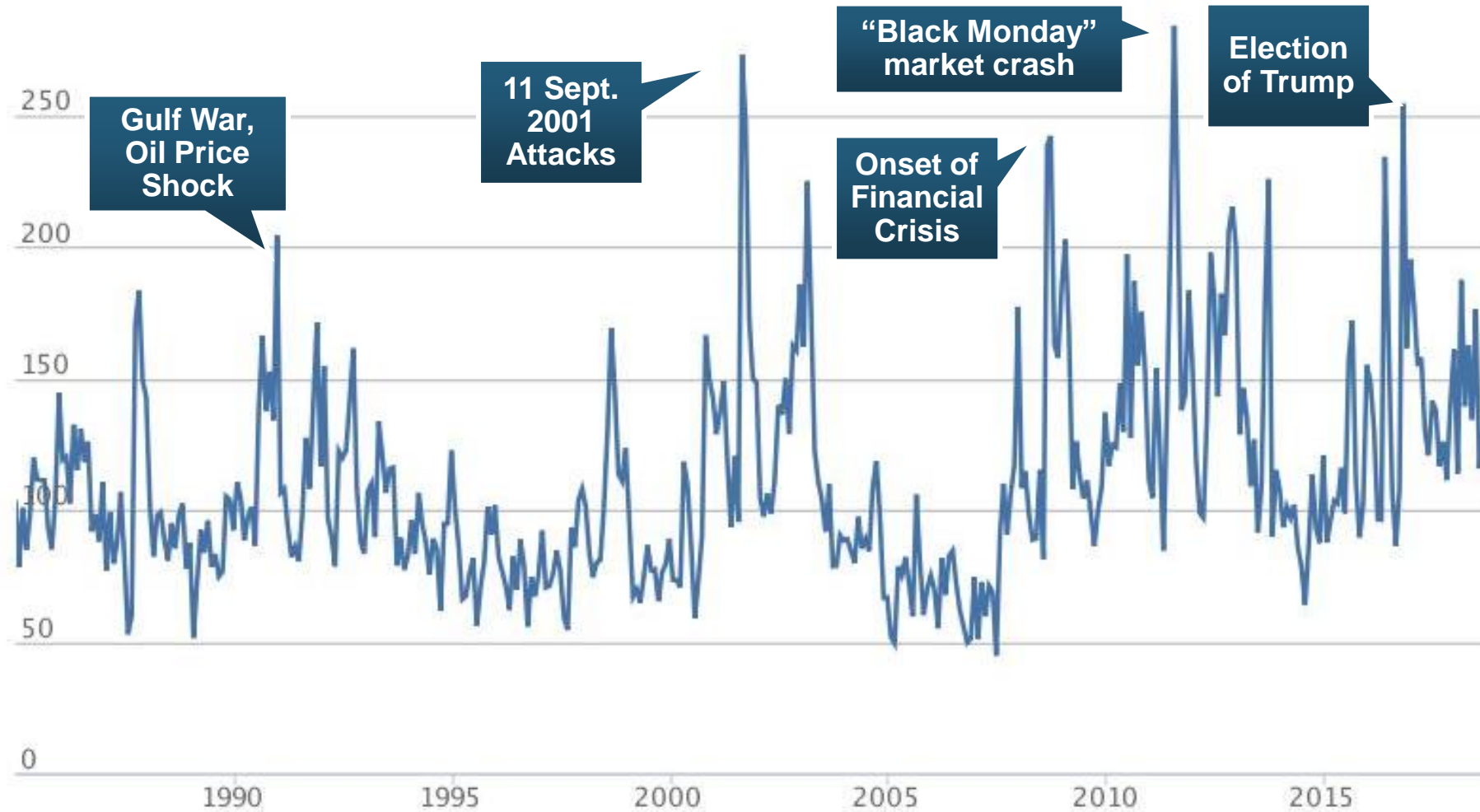
- **Energy nationalism is carbon-focused and could slow the movement toward renewables**
 - ◆ **Oil and gas are potent economic weapons. Countries with these resources have a vested interest in maintaining their hegemony for both economic and political reasons**
 - US: Trump withdrawal from the Paris Climate Accord
 - Rapid US growth in carbon energy exports
 - Scaling back of domestic regulation to support this sector
 - Reduction/elimination of subsidies for renewables
 - Easing of restrictions on coal sector

Global Economic Policy Uncertainty Index: Global Economic Uncertainty Has Increased Significantly Since Trump's Election, Jan. 1997 – Oct. 2018



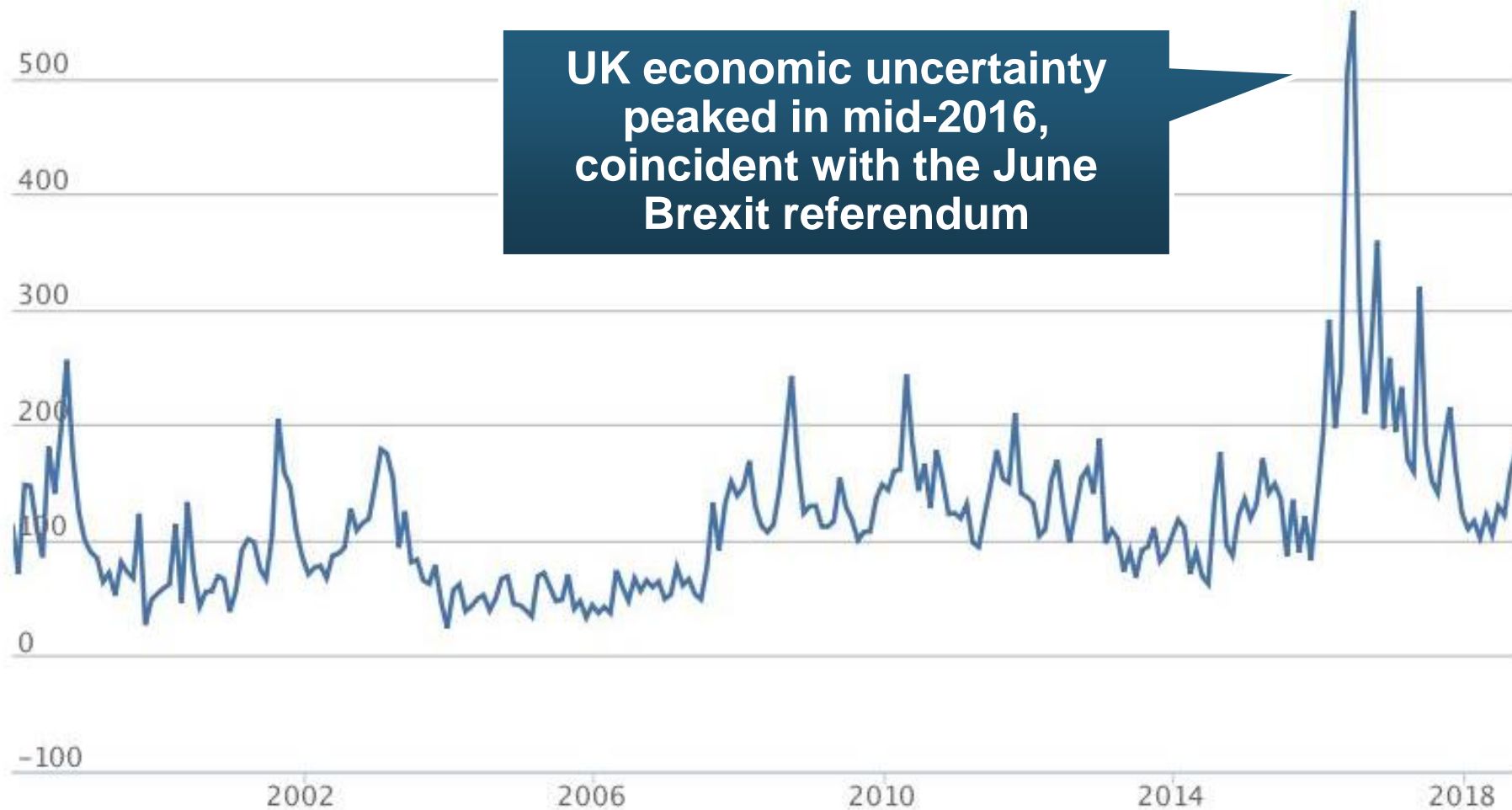
Source: *Economic Policy Uncertainty*, PolicyUncertainty.com accessed 3 Nov. 2018 at: <http://www.policyuncertainty.com/index.html>

US Economic Policy Uncertainty Index: US Has Been Elevated Since the Advent of the Global Financial Crisis, Jan. 1985 – Oct. 2018



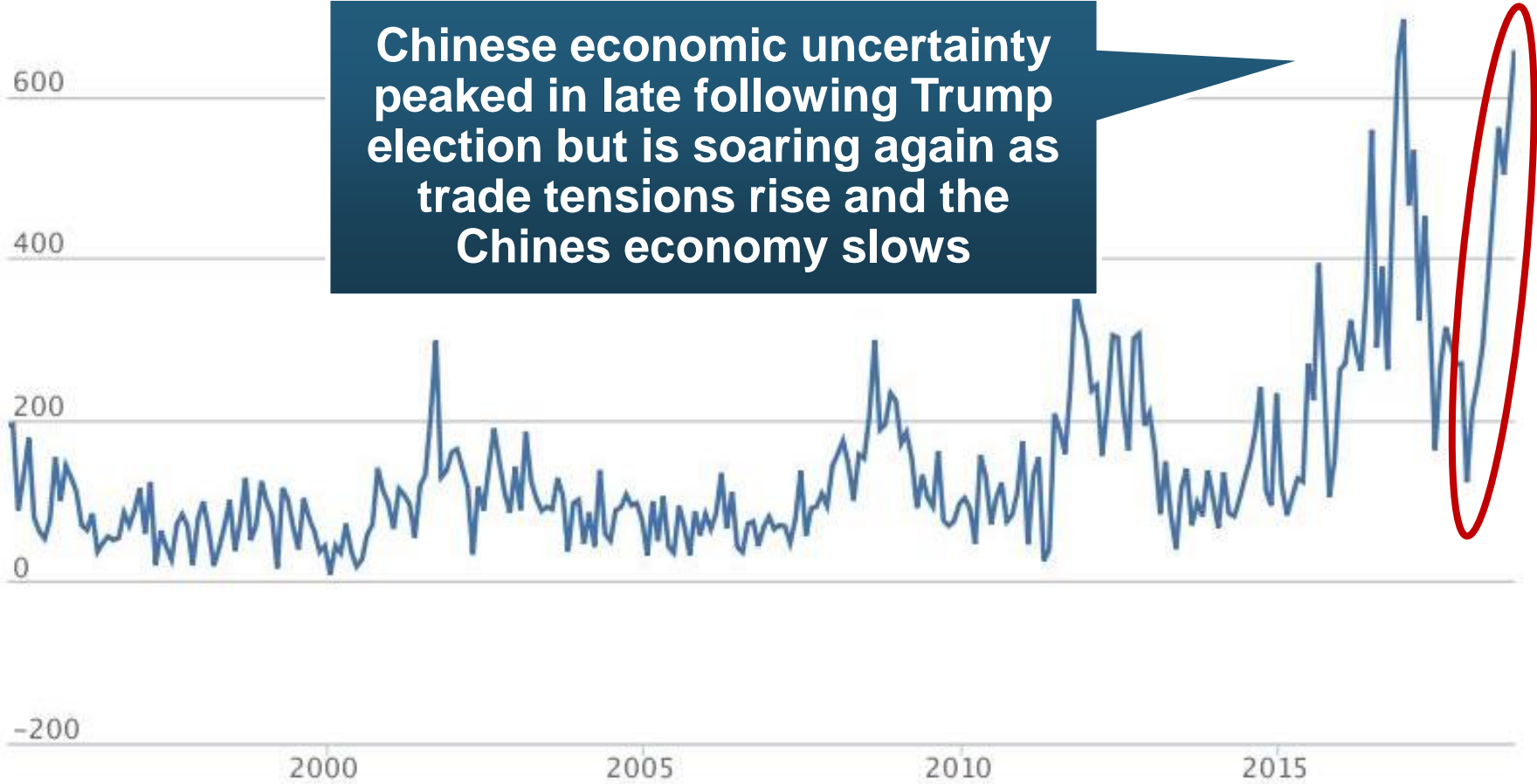
Source: *Economic Policy Uncertainty*, PolicyUncertainty.com accessed 3 Nov. 2018 at: <http://www.policyuncertainty.com/index.html>

UK Economic Policy Uncertainty Index: UK Uncertainty Tied to Brexit, Jan. 1998 – Oct. 2018



Source: *Economic Policy Uncertainty*, PolicyUncertainty.com accessed 3 Nov. 2018 at: <http://www.policyuncertainty.com/index.html>

China Economic Policy Uncertainty Index: Chinese Uncertainty Tied to Escalating Trade War, Jan. 1995 – Oct. 2018



Source: *Economic Policy Uncertainty*, PolicyUncertainty.com accessed 3 Nov. 2018 at: <http://www.policyuncertainty.com/index.html>

Energy Nationalism: Insurance Industry Concerns

■ Growth: Opportunities and Threats

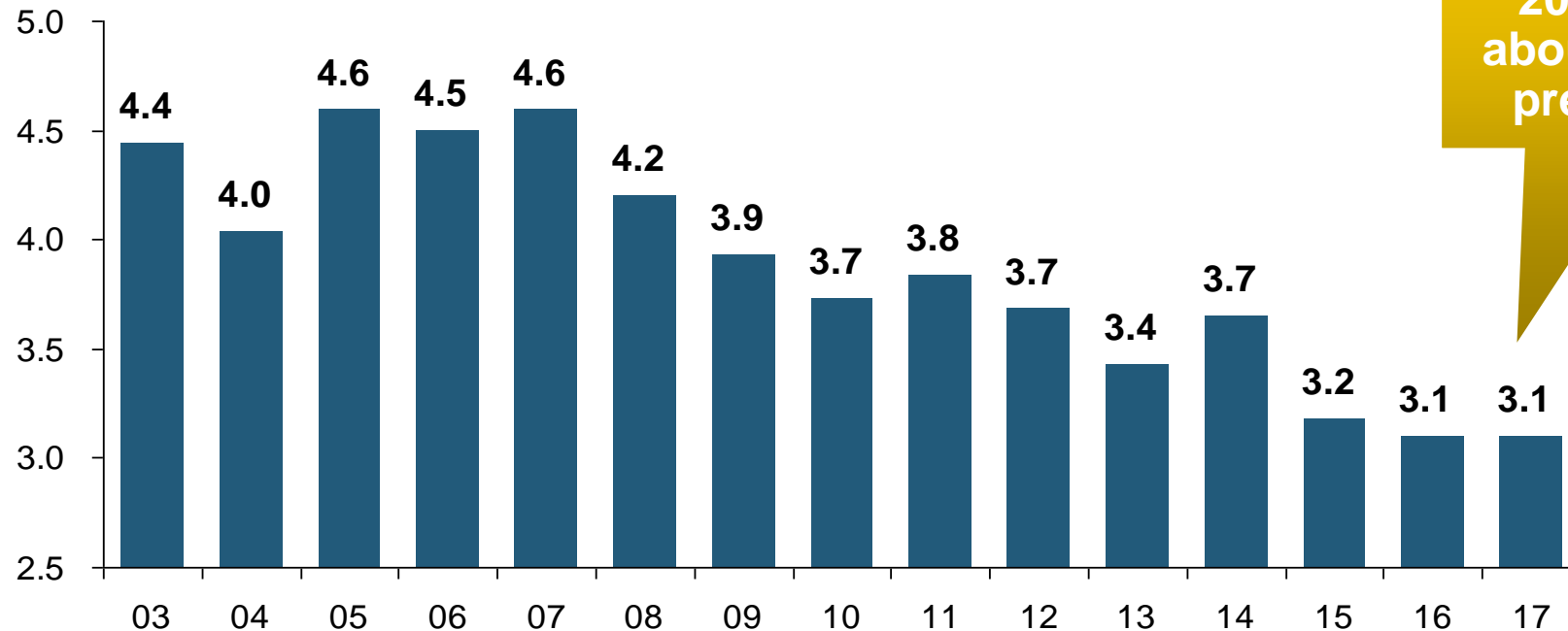
- ◆ Aggressive efforts to expand global energy influence (e.g., as with the US and Russia) can create growth opportunities as investments in energy infrastructure grow
 - Pipelines, LNG facilities, tankers, rail networks, new on/offshore capacity and associated casualty exposures
- ◆ Growth can be harmed if insurers are dragged into enforcing sanctions or energy infrastructure is nationalized
 - Iranian sanctions

■ Financial Market Volatility

- ◆ Insurers are among the largest institutional investors in the world; Uncertainty has historically had an adverse impact on investment returns

Net Investment Yield on US Property/ Casualty Insurance Invested Assets, 2007–2017*

(Percent)



Investment yield in 2017 was down about 150 BP from pre-crisis levels

The yield on invested assets remains low relative to pre-crisis yields. Fed rate increases beginning in late 2015 have pushed up some yields, albeit quite modestly. Shrinking of Fed's balance sheet should help too in 2018 and beyond.

Energy Nationalism: Insurance Industry Concerns

■ Energy Insurance Markets of the Future

- ◆ Carbon vs. Renewables?
- ◆ Should insurers play an active role?

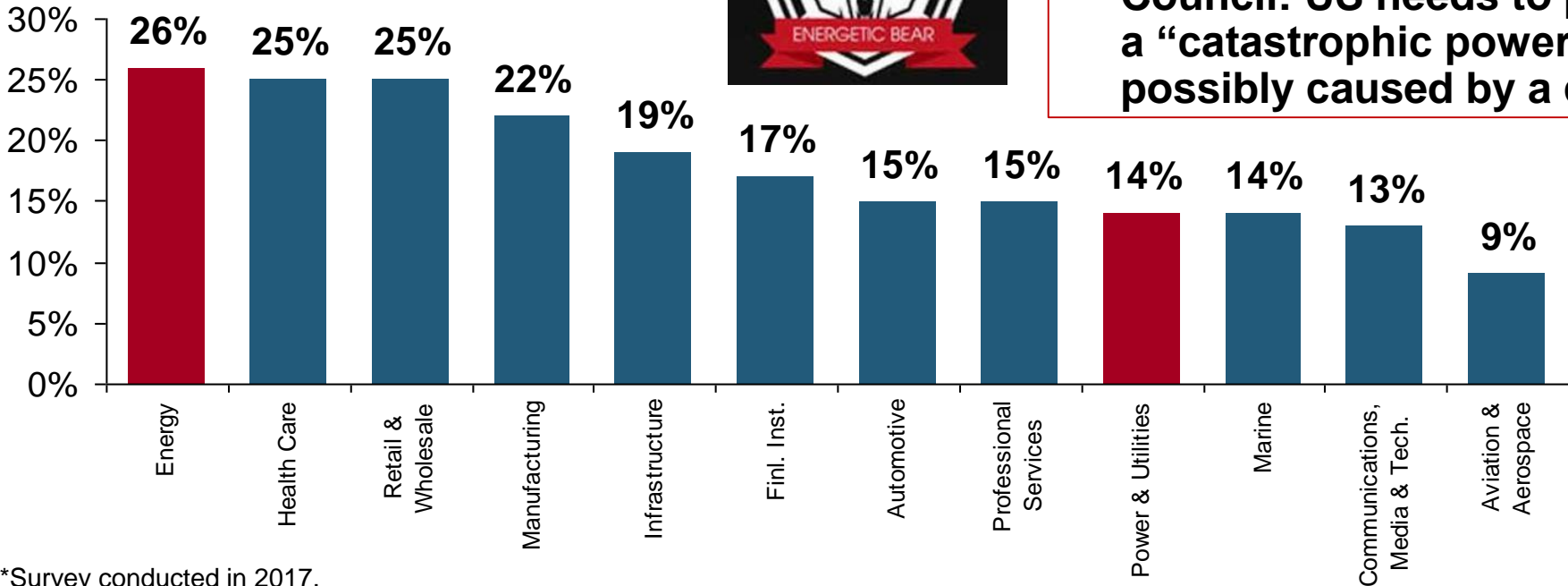
■ The Weaponization of Energy Infrastructure

- ◆ Increasing nationalism, coupled with other geopolitical threats, makes energy infrastructure a vulnerable and high-value target
- ◆ Cyber attacks are the major threat
- ◆ Major attacks on energy infrastructure could produce catastrophic insured losses for (re)insurers



Percentage of Firms Indicating They Were Victims of Cyber Attacks Over the Past 12 Months*

The energy sector is a favorite target for cyber attacks, with more than 1-in-4 companies reporting an attack with a 12-month span



- Russian hackers have penetrated hundreds of US utilities and/or their vendors
- Hackers were effectively “inside the control room” of many utilities and could have caused blackouts
- National Infrastructure Advisory Council: US needs to prepare for a “catastrophic power outage” possibly caused by a cyber attack

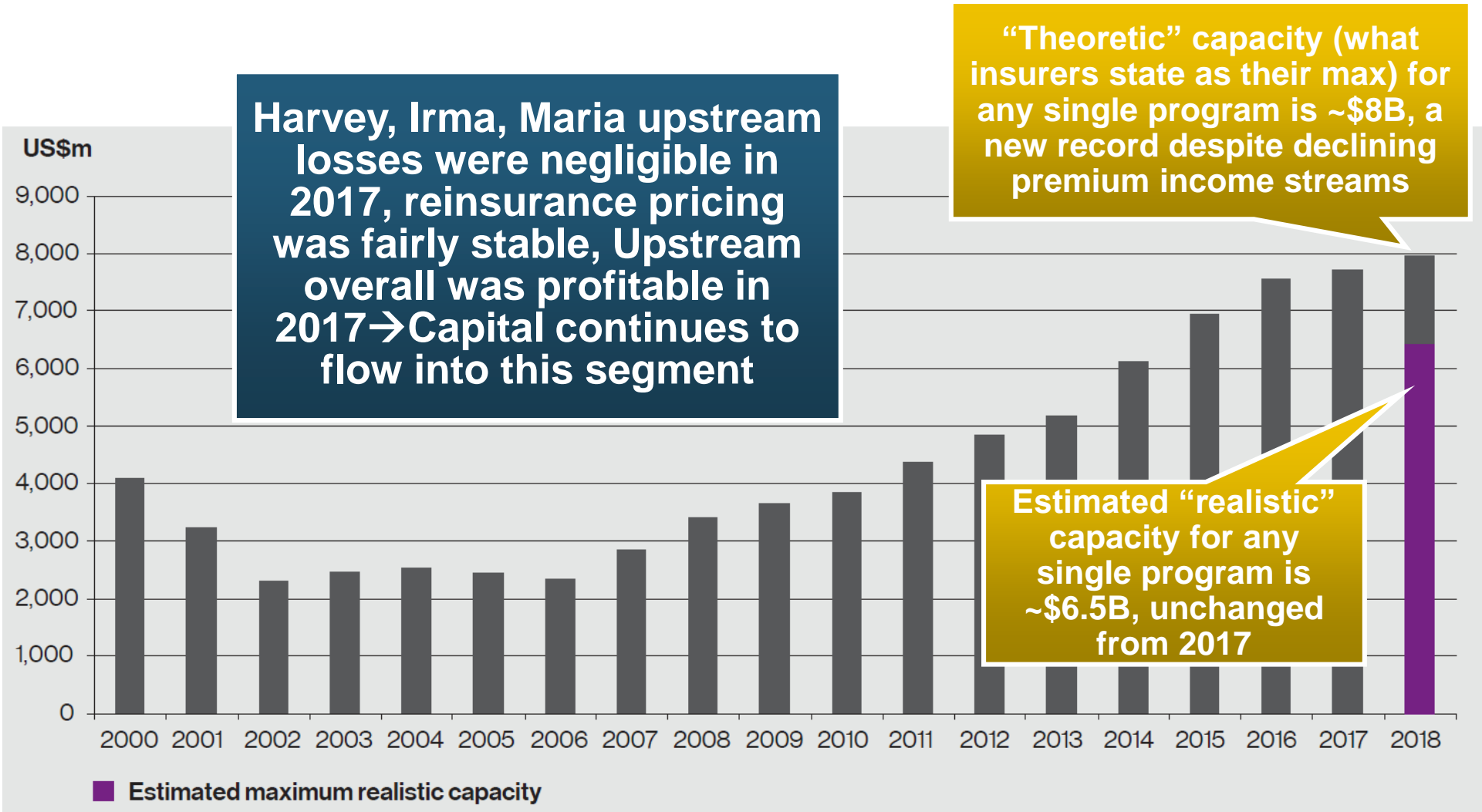
*Survey conducted in 2017.
Source: Marsh Cyber Handbook 2018; USC RUM.

Energy Sector: The Future Is Bright

*Energy Demand and Investment
Outlook Are Favorable, Fueling
P&C Exposures*

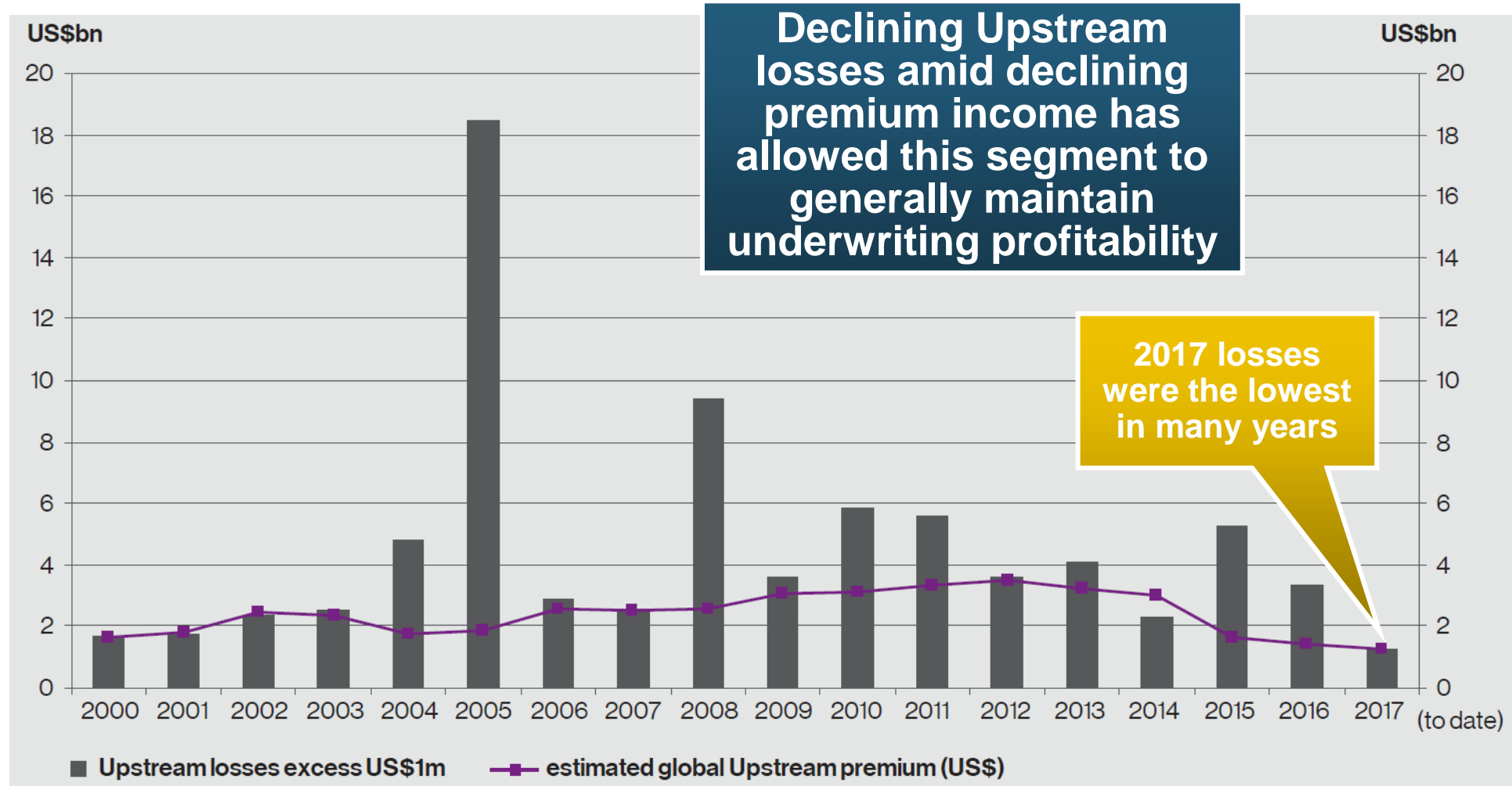
*But Politics and Geopolitics
Loom Large*

Global Upstream Operating Insurer Capacities, 2000 – 2018 (excl. Gulf of Mexico Windstorm)

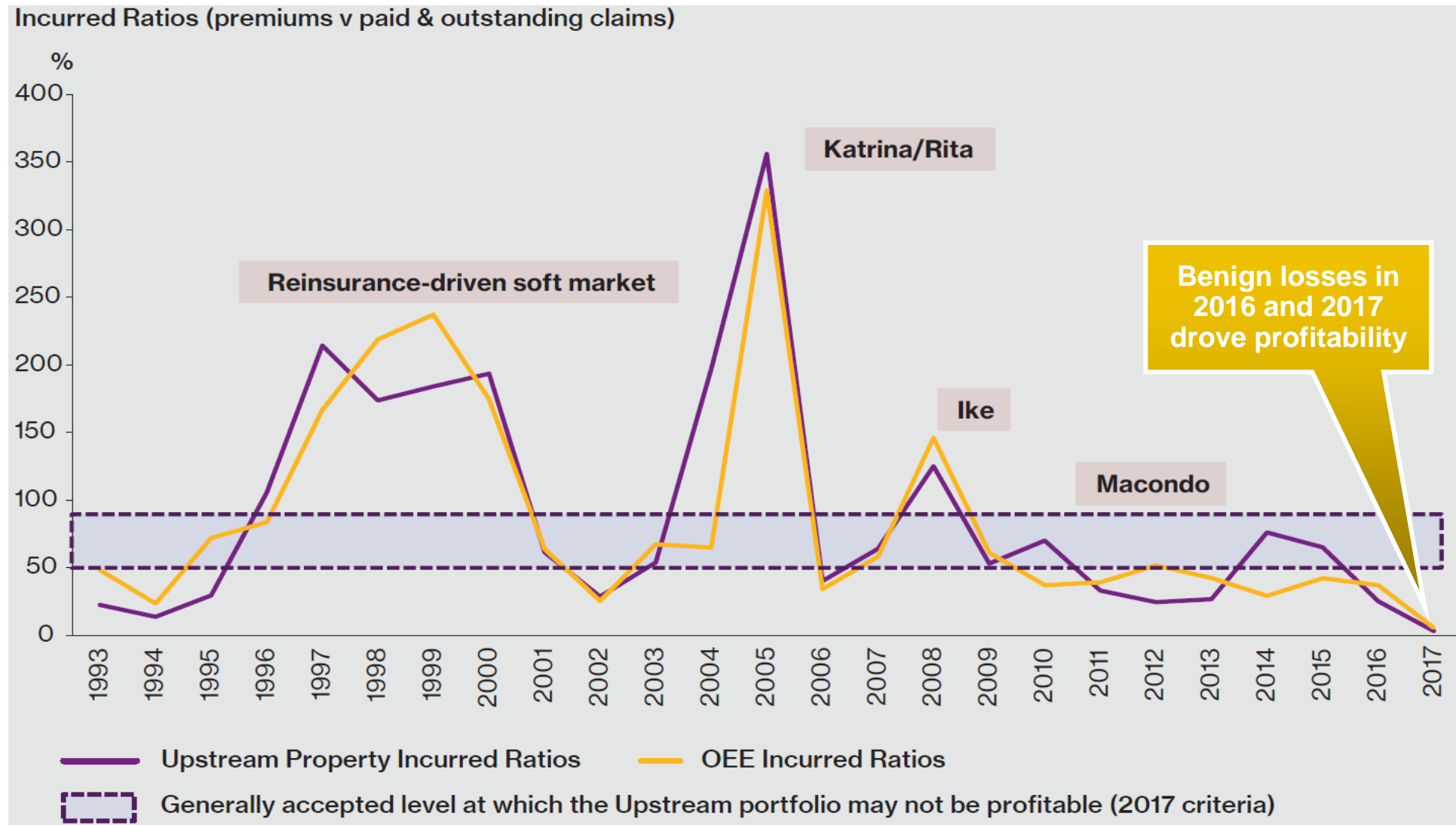


Source: Willis Towers Watson, 2018 Energy Market Review.

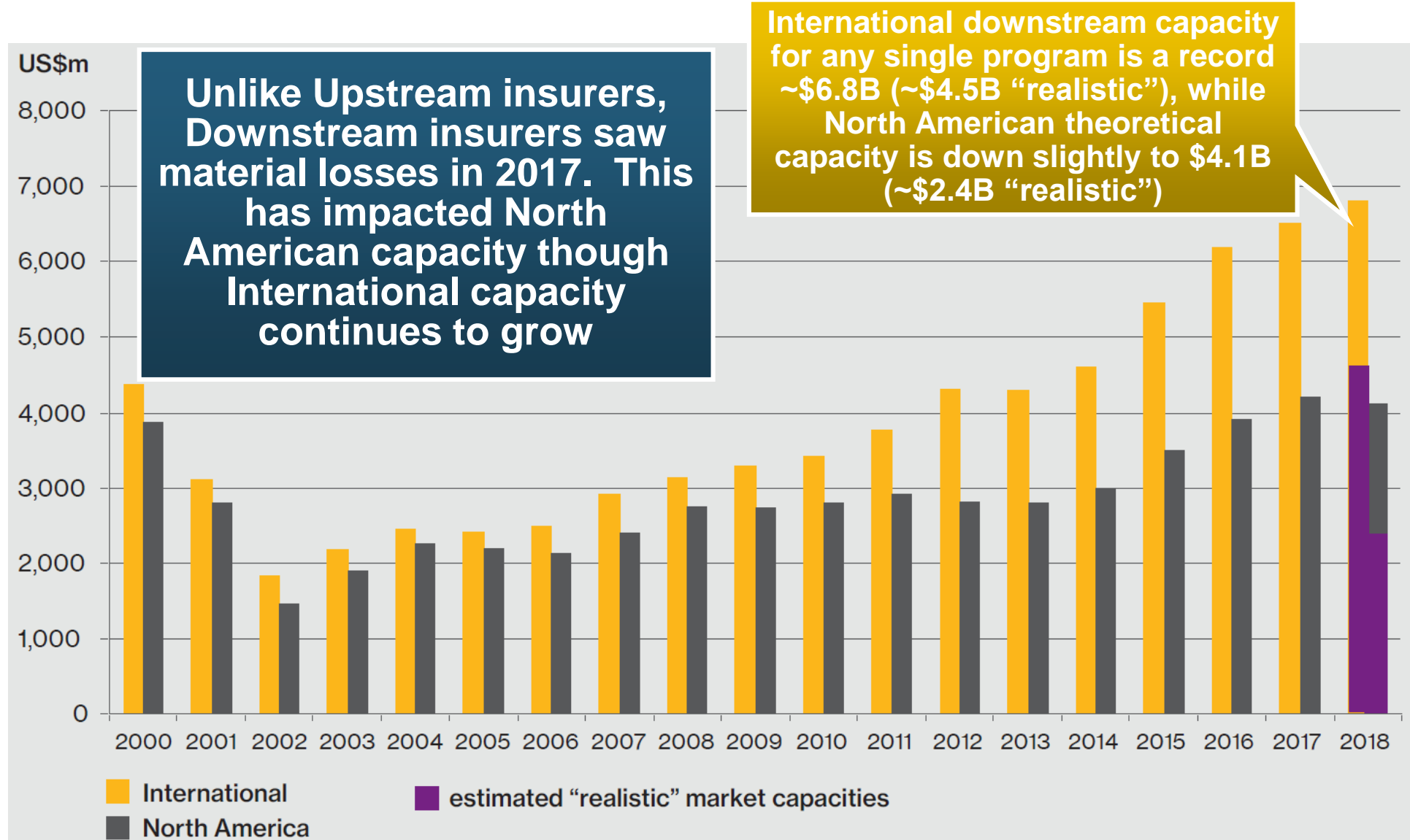
Global Upstream Loss (excess of \$1 mill) vs. Est. Global Upstream Premium Income, 2000 – 2017



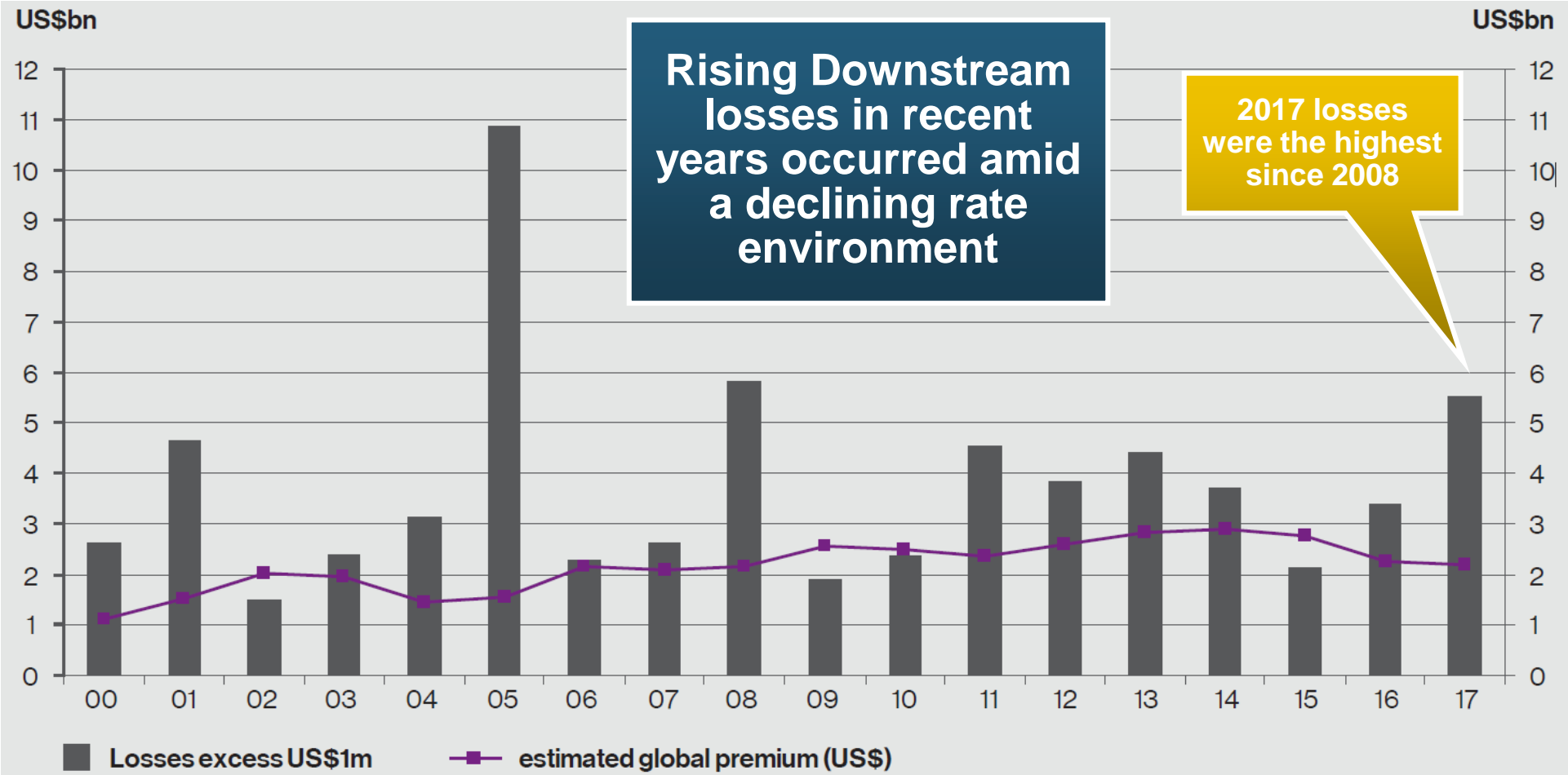
Global Upstream Profitability, 1996 – 2017



Global Downstream Insurer Capacities, 2000 – 2018 (excl. Gulf of Mexico Windstorm)



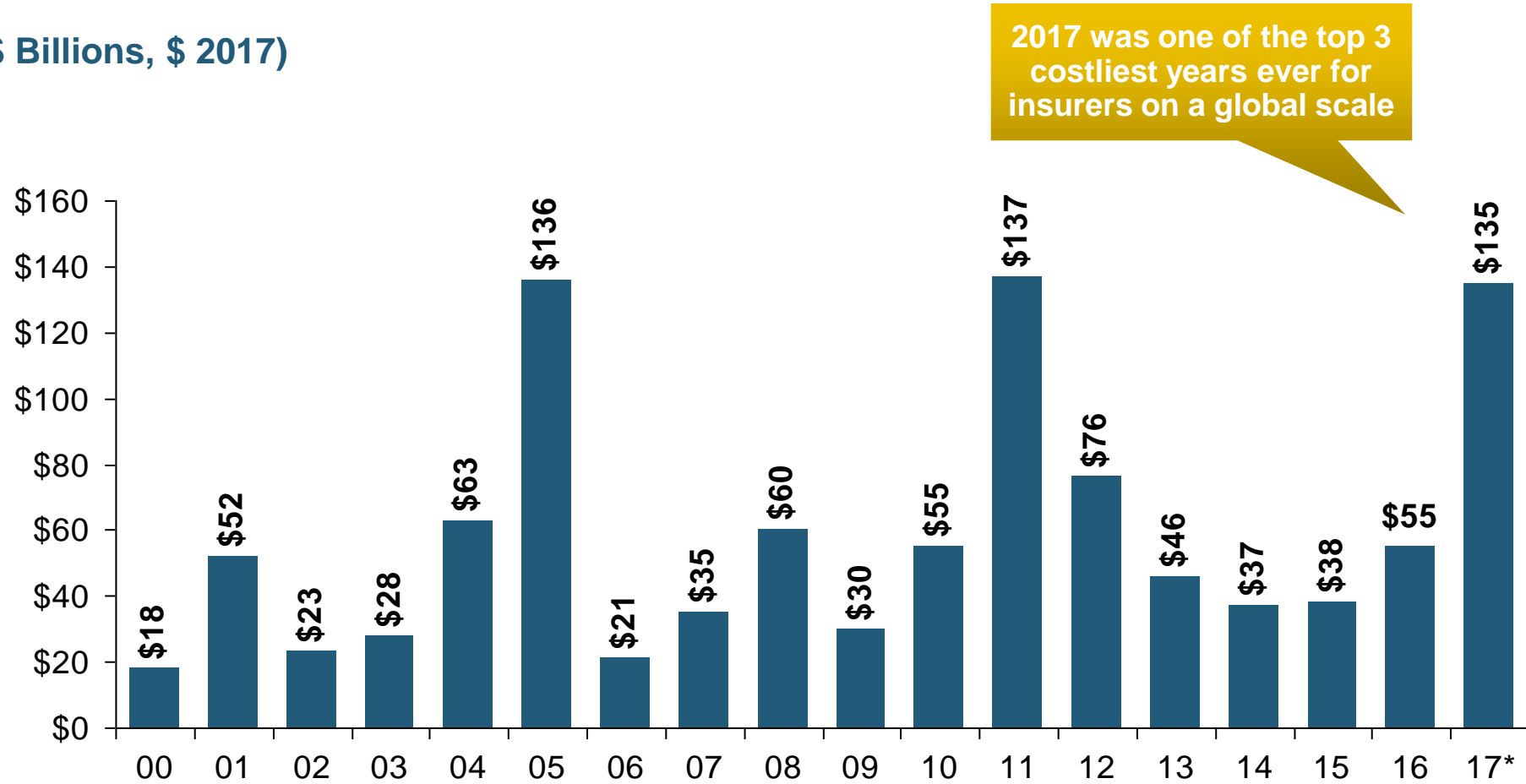
Global Downstream Losses (excess of \$1 mill) vs. Estimated Global Downstream Premium Income, 2000 – 2017



Source: Willis Towers Watson Energy Loss Database, 2018 Energy Market Review.

Global Insured Catastrophe Losses, 2000 – 2017E

(\$ Billions, \$ 2017)

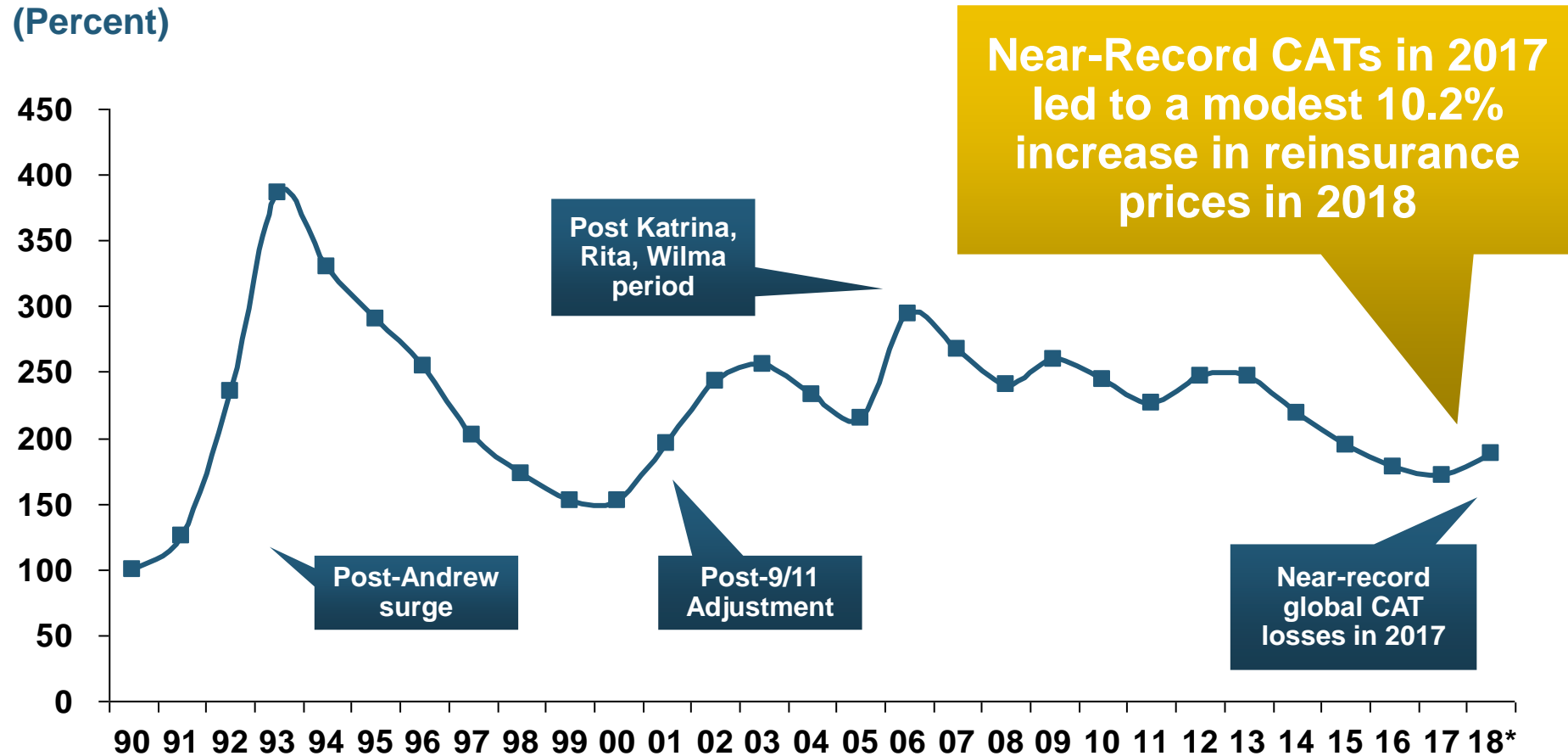


2017 was one of the top 3 costliest years ever for insurers on a global scale

*Estimate

Sources: Swiss Re, RMS, Barclays Research.

Global Property Catastrophe Rate-on-Line Index: 1990 – 2018*

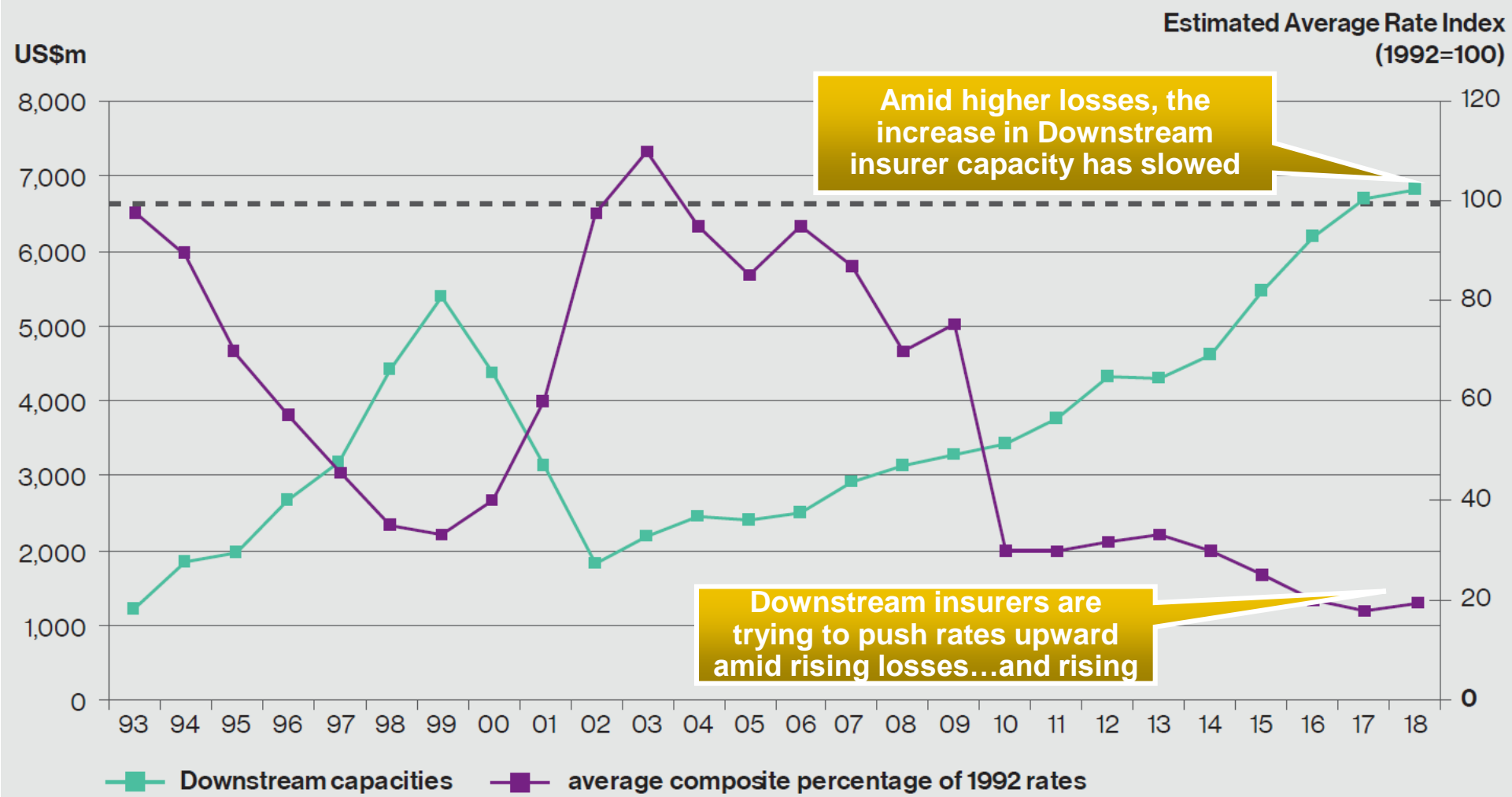


US Reinsurance Pricing Is Sensitive to CAT Activity and Ultimately Impacts Primary Insurance Pricing, Terms and Conditions

*As of January 1 each year.

Source: Guy Carpenter; Artemis.bm accessed at: <http://www.artemis.bm/indices/regional-property-cat-rate-on-line-index.html>

Global Downstream Capacity vs. Rating Levels, 1993 – 2018



Source: Willis Towers Watson, 2018 Energy Market Review.

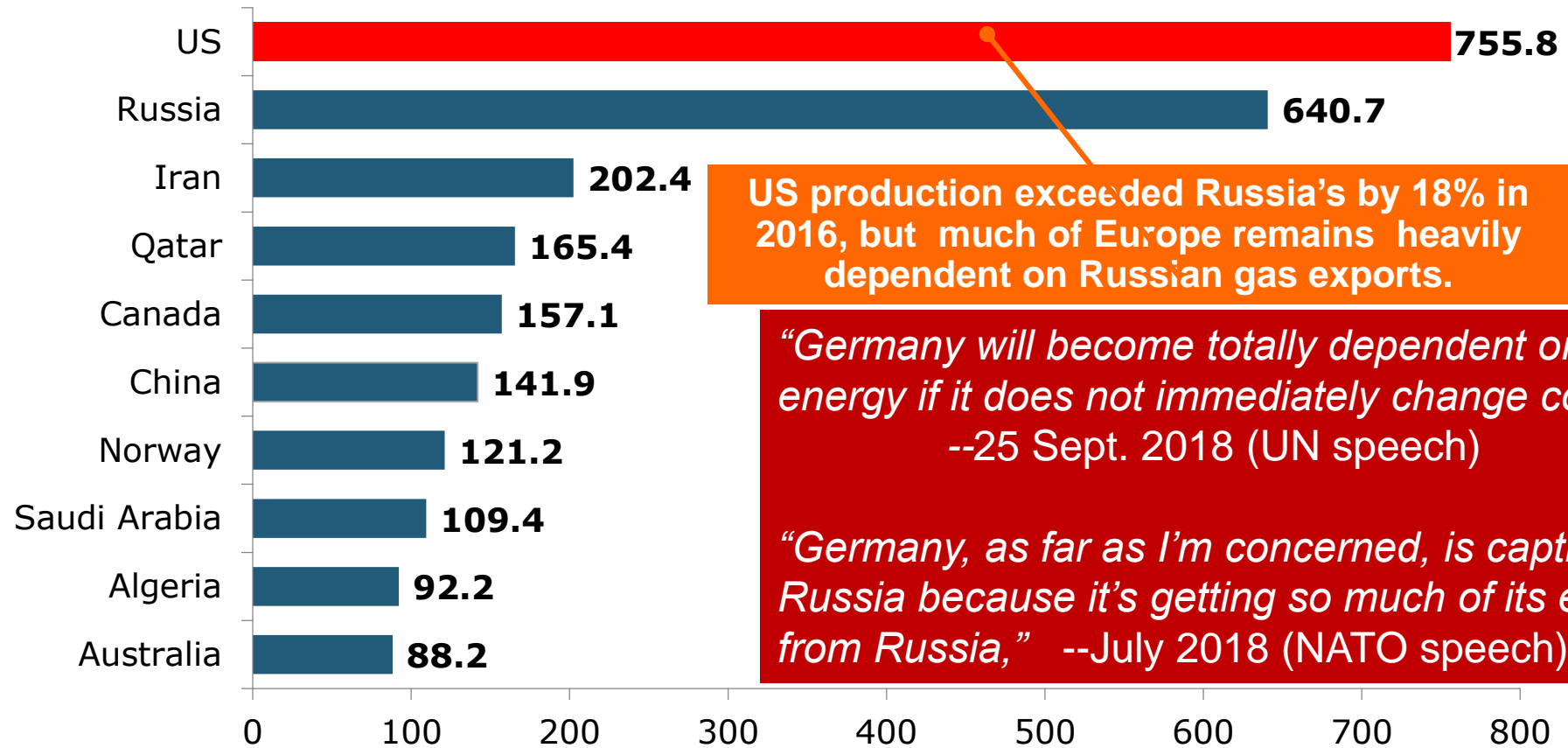
Production and Geopolitics

Shifting Sands and Seas

Risk and Opportunity for Insurers

Top 10 Producers of Natural Gas: 2016

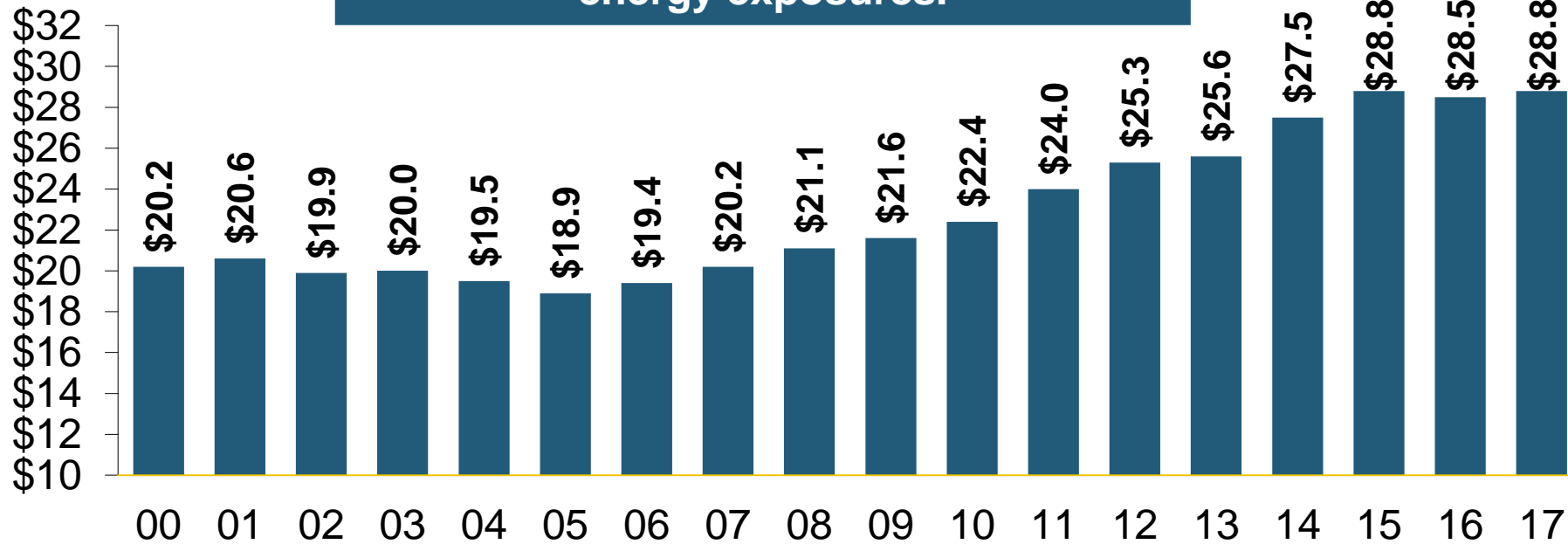
(Billions of Cubic Meters)



U.S. Natural Gas Production, 2000-2017

Trillions of Cubic Ft. per Year

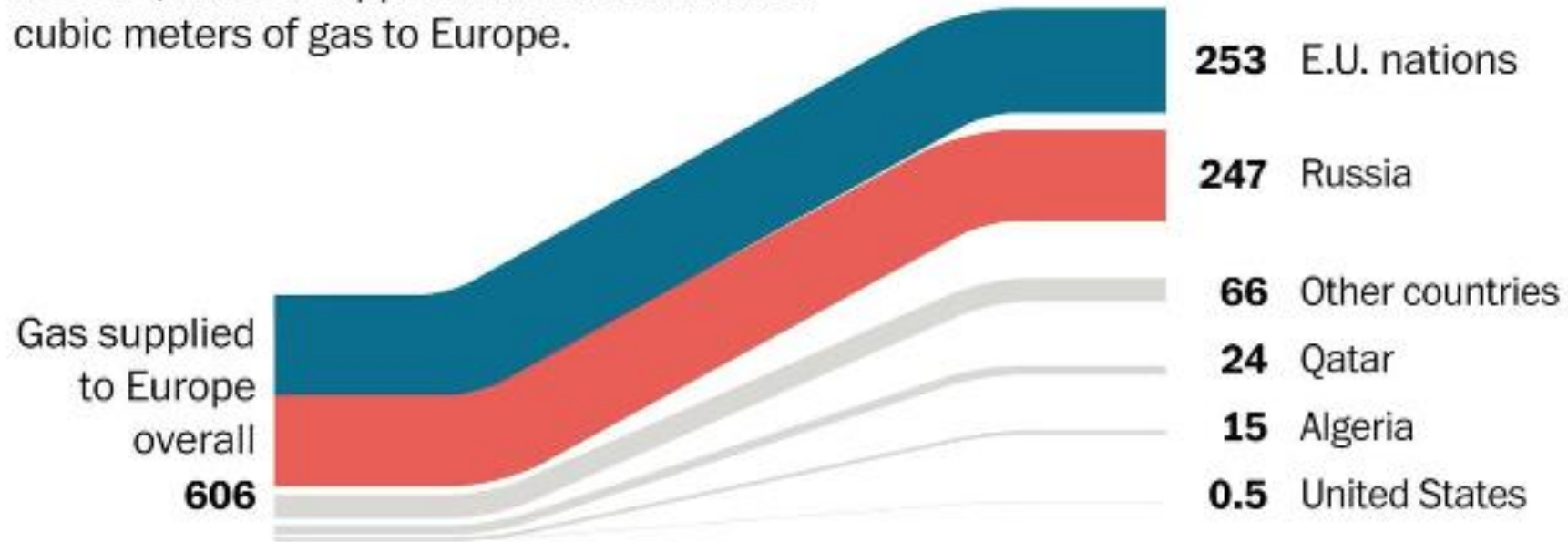
The U.S. is now the world's largest natural gas producer—having overtaking Russia several years ago. This is a potent driver of commercial insurance energy exposures.



Source: Energy Information Administration data accessed 9/15/18 at: <https://www.eia.gov/dnav/ng/hist/n9050us2a.htm> ; University of South Carolina Risk Management and Uncertainty Center.

Source of Natural Gas Supplied to Europe: Russia Dominates—And Dependence Will Grow as Fields in the EU Deplete

In 2016, Russia supplied at least 247 billion cubic meters of gas to Europe.



Source: BP, Gazprom from the *Washington Post*, July 11, 2018:

https://www.washingtonpost.com/news/worldviews/wp/2018/07/11/the-russian-pipeline-to-germany-that-trump-is-so-mad-about-explained/?noredirect=on&utm_term=.078d321b7b11

...And the Easiest Way to Meet that Demand Is Via Pipelines to Russia

 Nord Stream  Nord Stream 2



The Nord Stream 2 pipeline is expected to deliver 55 bill. cu. Meters of gas to Europe by 2019, but many see this as increasing Germany's (and all of Western Europe's) dependence on Russian gas.

Donald Trump:
"Germany, as far as I am concerned, is captive to Russia because it's getting so much of its energy from Russia."

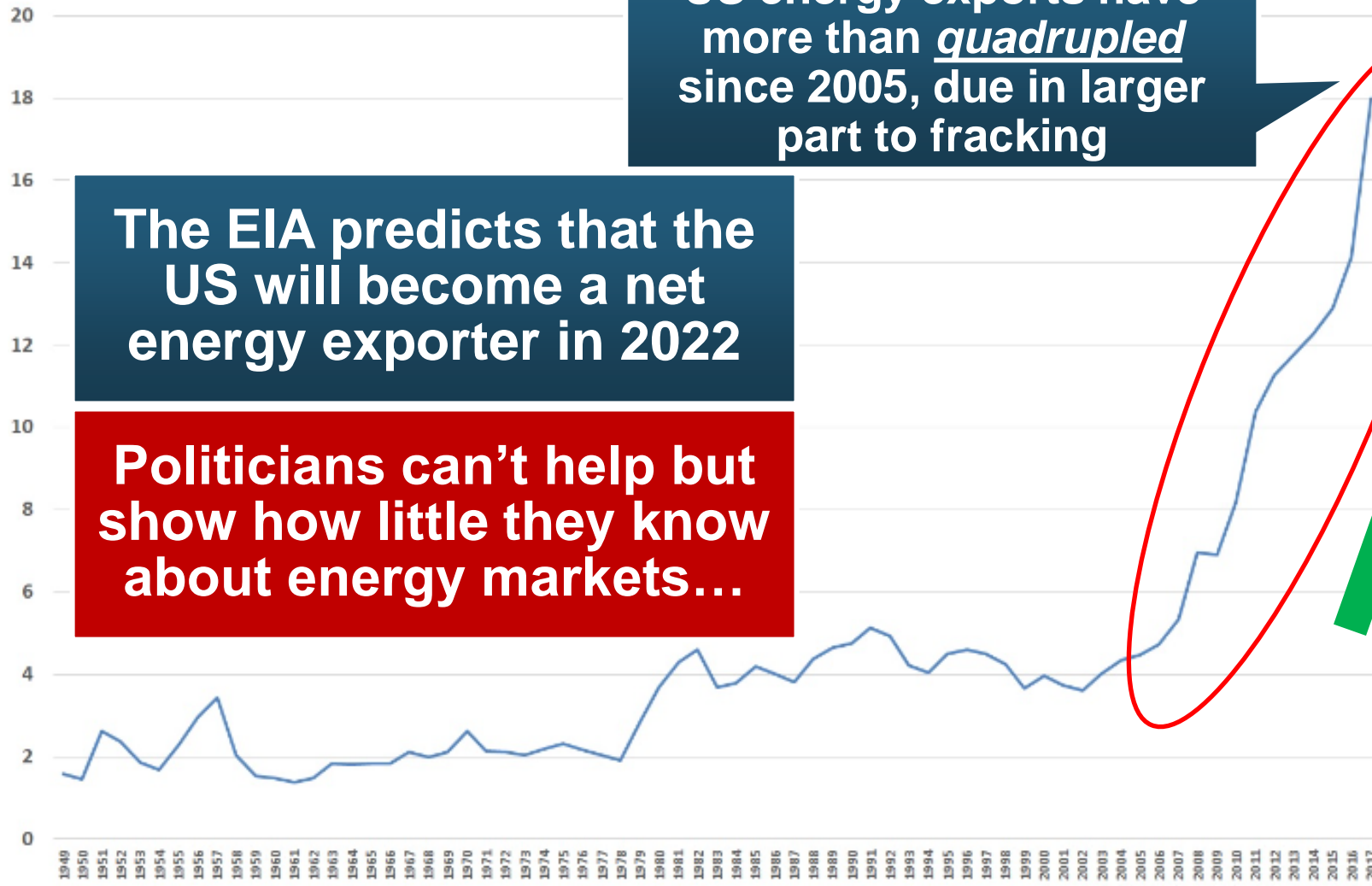
-July 11, 2018

Source: *Washington Post*, July 11, 2018:

https://www.washingtonpost.com/news/worldviews/wp/2018/07/11/the-russian-pipeline-to-germany-that-trump-is-so-mad-about-explained/?noredirect=on&utm_term=.078d321b7b11

US Energy Exports Are Growing Exponentially: Destination Europe? Is Energy Independence Next?

Quadrillion BTUs:
1949 – 2017



US energy exports have more than quadrupled since 2005, due in larger part to fracking

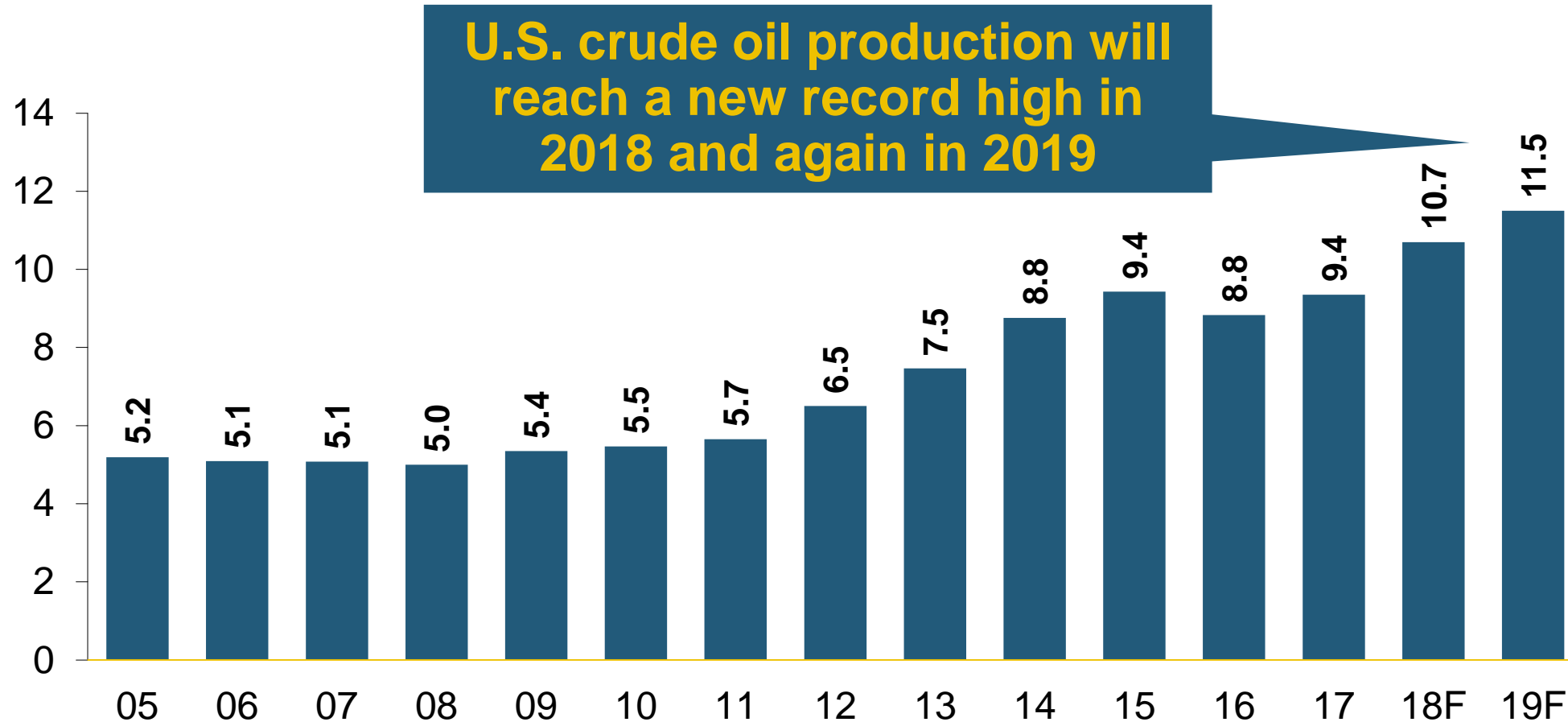
The EIA predicts that the US will become a net energy exporter in 2022

Politicians can't help but show how little they know about energy markets...

Source: Energy Information Administration.

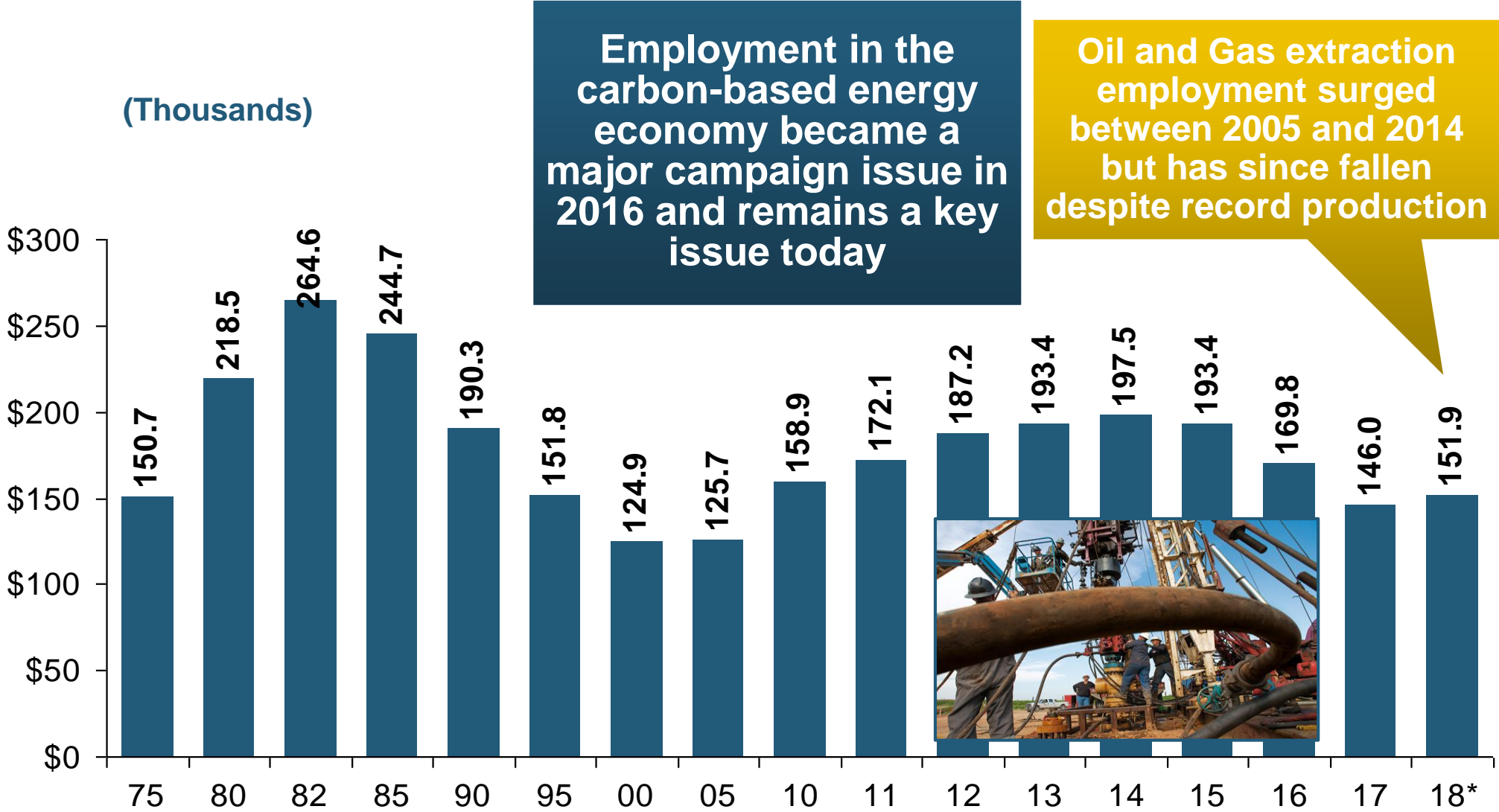
U.S. Crude Oil Production, 2008-2019F

Avg. Number of Barrels per Day (millions)



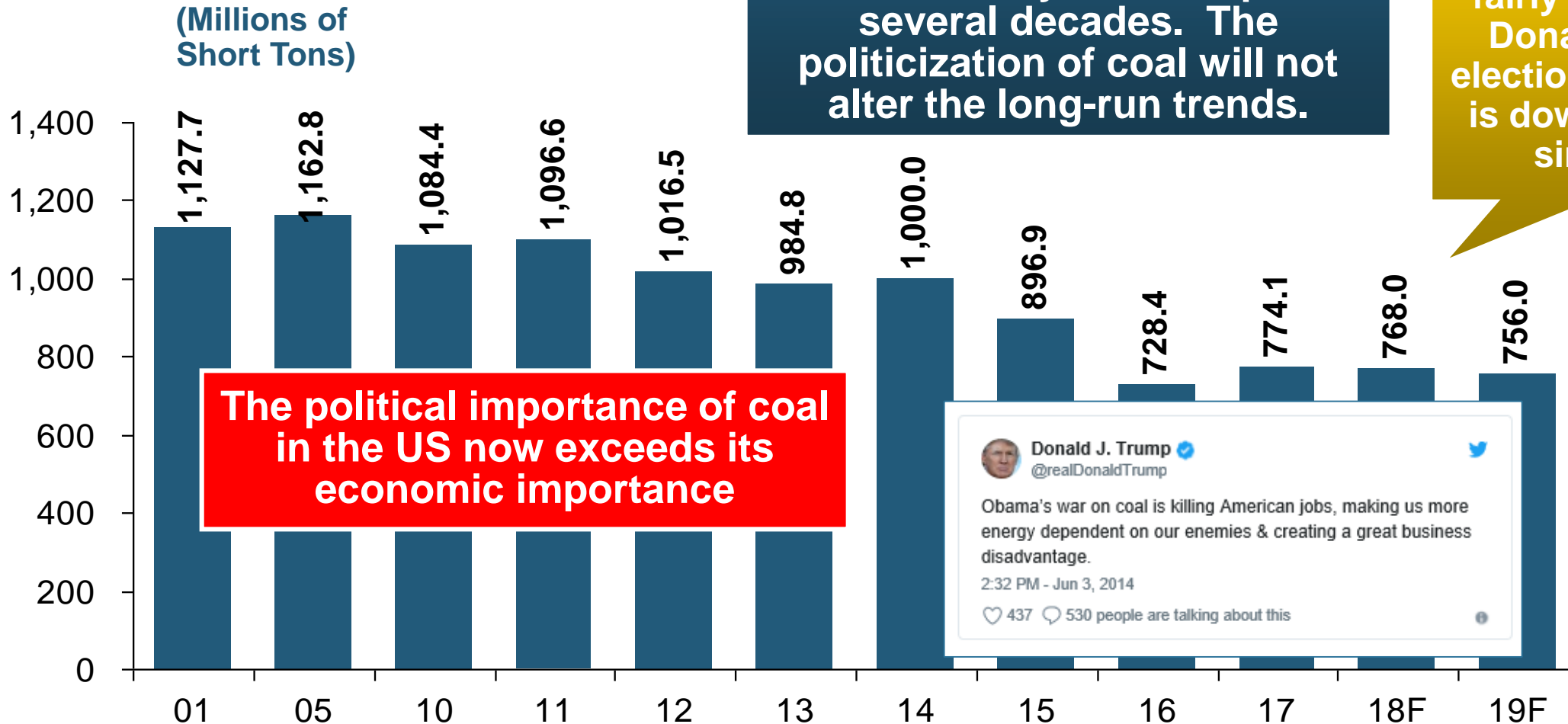
Source: Energy Information Administration *Short Term Energy Outlook*, Sept. 2018, data accessed 9/15/18 at: https://www.eia.gov/outlooks/steo/report/global_oil.php; University of South Carolina Risk Management and Uncertainty Center.

U.S. Oil and Gas Extraction Employment, 1975 – 2018*



*As of August 2018.
Sources: US Bureau of Labor Statistics.

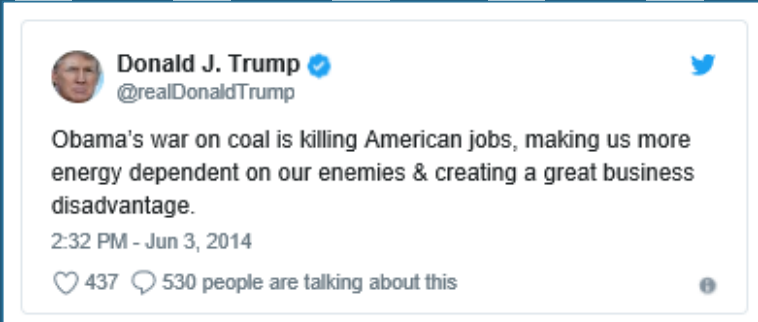
U.S. Coal Production, 2001 – 2019F



Coal mining and coal mining employment are up since Mr. Trump's election, but down substantially over the past several decades. The politicization of coal will not alter the long-run trends.

Coal production is up slightly and is fairly stable since Donald Trump's election in 2016, but is down nearly 1/3 since 2001

The political importance of coal in the US now exceeds its economic importance



Politics and Energy: A Volatile Mix

**Global (Re)Insurers Will Need to
Navigate their Course and Politics,
Energy and Geopolitics Collide**

Politics and Energy: Like Oil and Water?

Politicization of Energy Is Nothing New—But it is Different with a Resurgent Energy Sector

■ American Energy Dominance I: A Political Theme

- ◆ *“Now, for the first time ever, [America is] energy independent”*
 - Hillary Clinton during the second presidential debate, Oct. 2016
 - (Statement is untrue—US was a net energy exporter in the 1950s and is not energy independent today)

■ American Energy Dominance II: Light Tweet Crude

- ◆ President Trump has a long history of tweeting about energy...

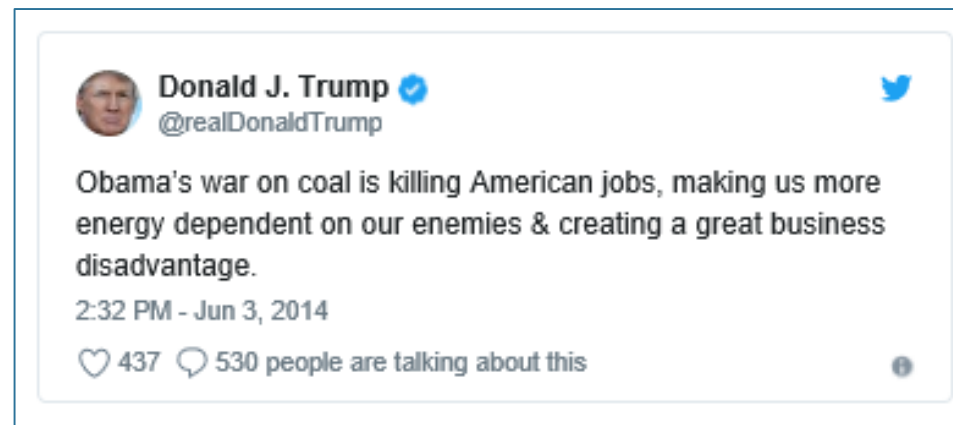


Energy Policy: One Tweet at a Time

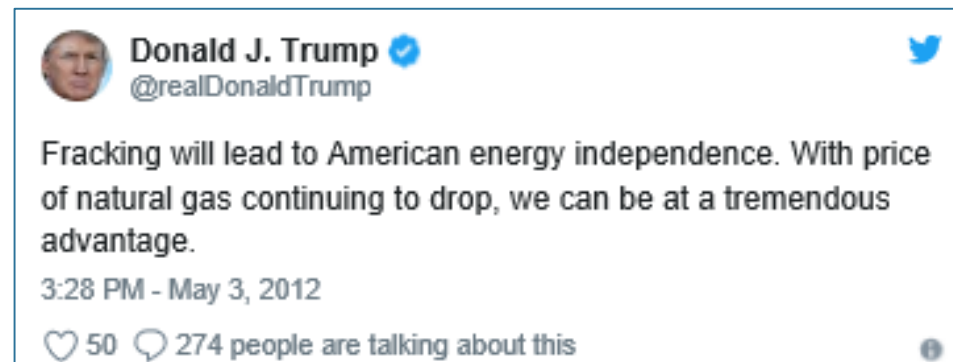
■ OPEC



■ Coal



■ Fracking



Energy Policy: One Tweet at a Time

■ Solar

 **Donald J. Trump** ✓
@realDonaldTrump

Another solar company @BarackObama funded with our money has filed for bankruptcy wapo.st/HgAr5d One (cont) tl.gd/gpp0jr

2:49 PM - Apr 3, 2012

♥ 29 💬 248 people are talking about this

■ Wind


 **Donald J. Trump** ✓
@realDonaldTrump

It's Friday. How many bald eagles did wind turbines kill today? They are an environmental & aesthetic disaster.

3:55 PM - Aug 24, 2012

♥ 2,403 💬 3,715 people are talking about this

■ Global Warming

 **Donald J. Trump** ✓
@realDonaldTrump

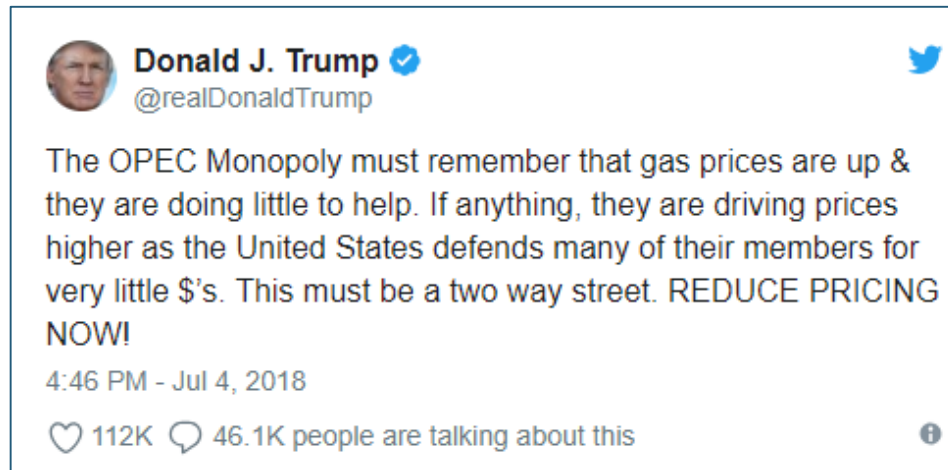
It's really cold outside, they are calling it a major freeze, weeks ahead of normal. Man, we could use a big fat dose of global warming!

9:30 AM - Oct 19, 2015 - Manhattan, NY

♥ 10.2K 💬 9,183 people are talking about this

Energy Policy: One Tweet at a Time

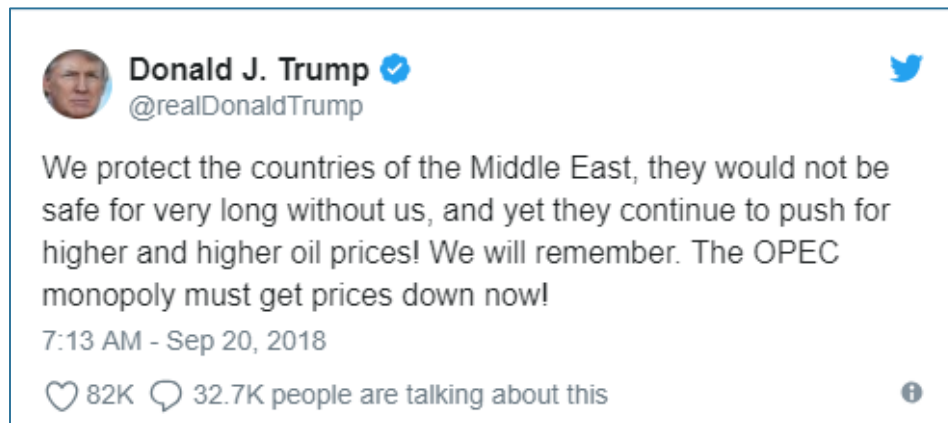
■ OPEC (Again)



■ Twitter and the Price of Oil (According to Iran)

“Your tweets have driven [oil] prices up by at least \$10/b. Please stop it, otherwise it will go even higher!” --Iran OPEC Representative Hossein Kzempour Ardebil, 5 July 2018

■ OPEC (Again!)



Energy Policy: One Tweet at a Time

Iran



Ned Stark, Lord of Winterfell,
Warden of the North



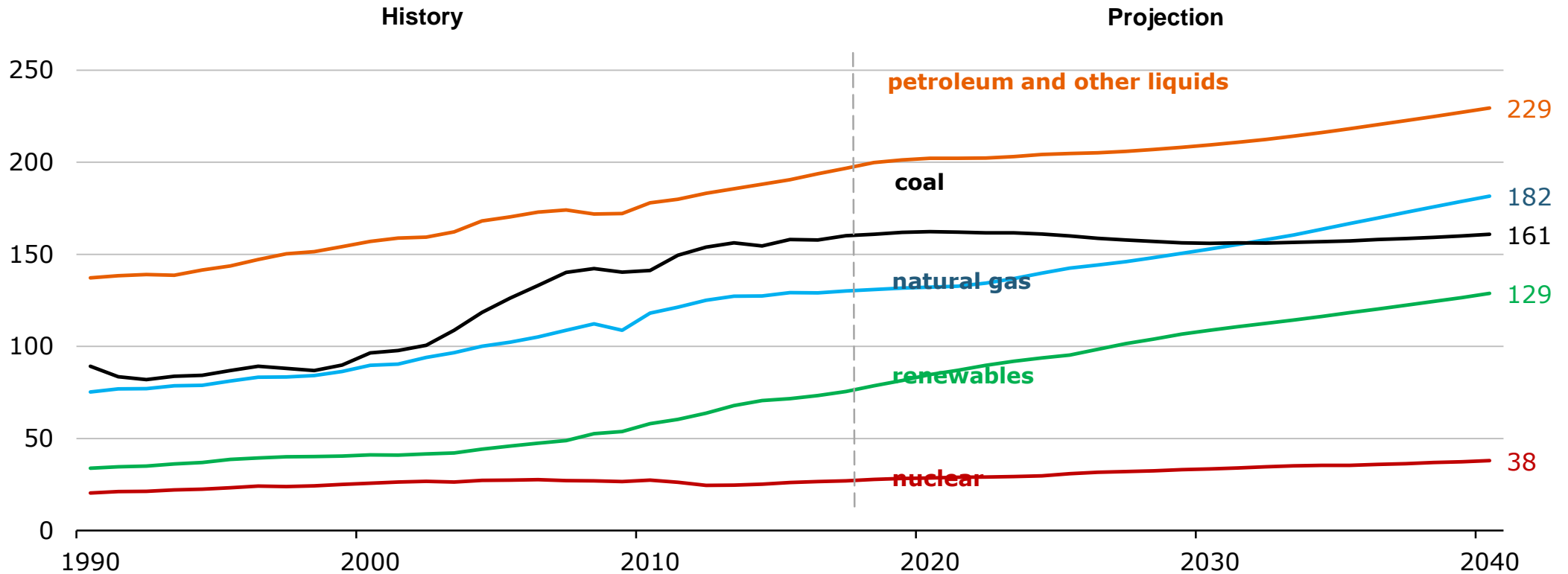
The final word on
global energy
policy...courtesy
of HBO

Global Perspective: We Live in an Energy- Hungry World

**Demand for Energy Will Increase
Robustly on a Global Scale for the
Foreseeable Future**

***Near and Long-Term Growth
Opportunities for (Re)Insurers***

World Energy Consumption Continues to Increase for Fuels—*Other than Coal*

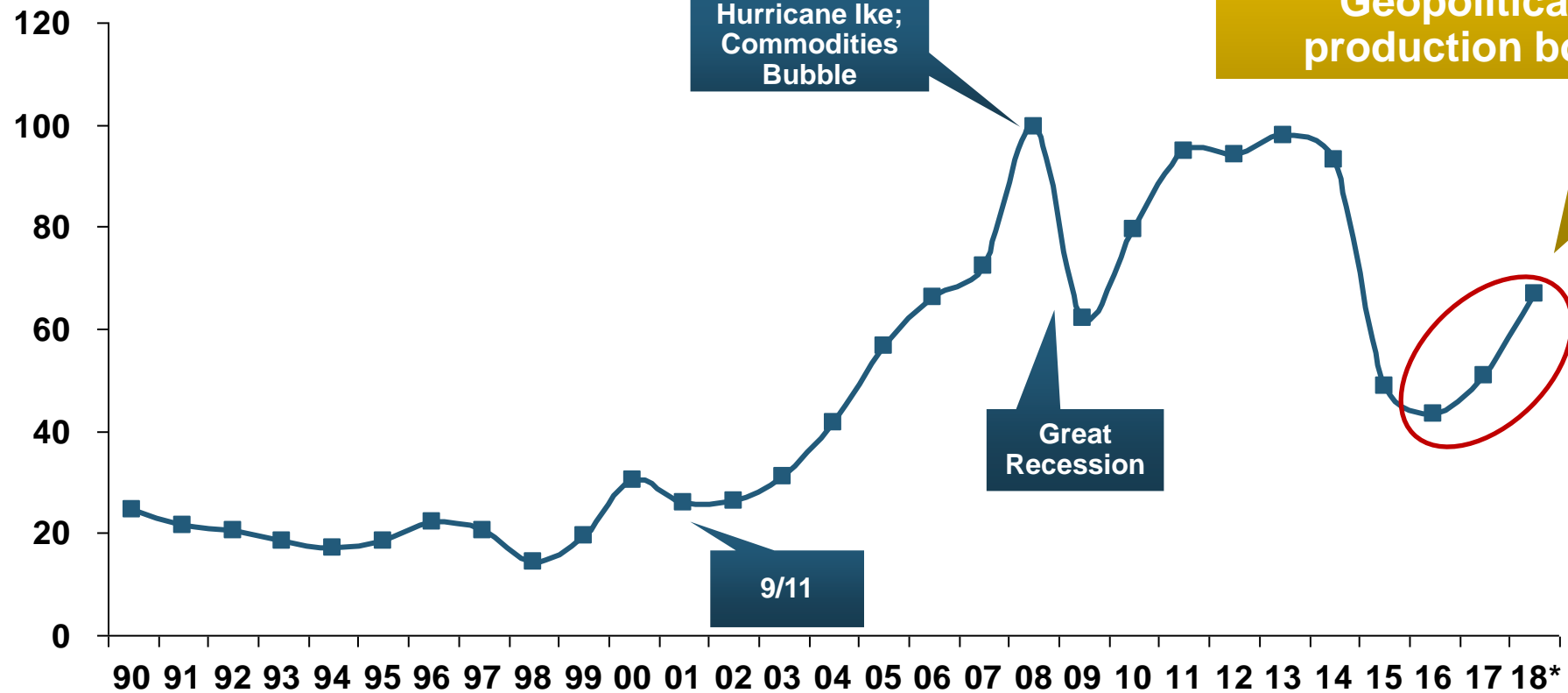


*Based on IEO2018 reference case.

Source: EIA, International Energy Outlook 2018

Crude Oil Prices: 1990 – 2018*

(\$ Per Barrel)

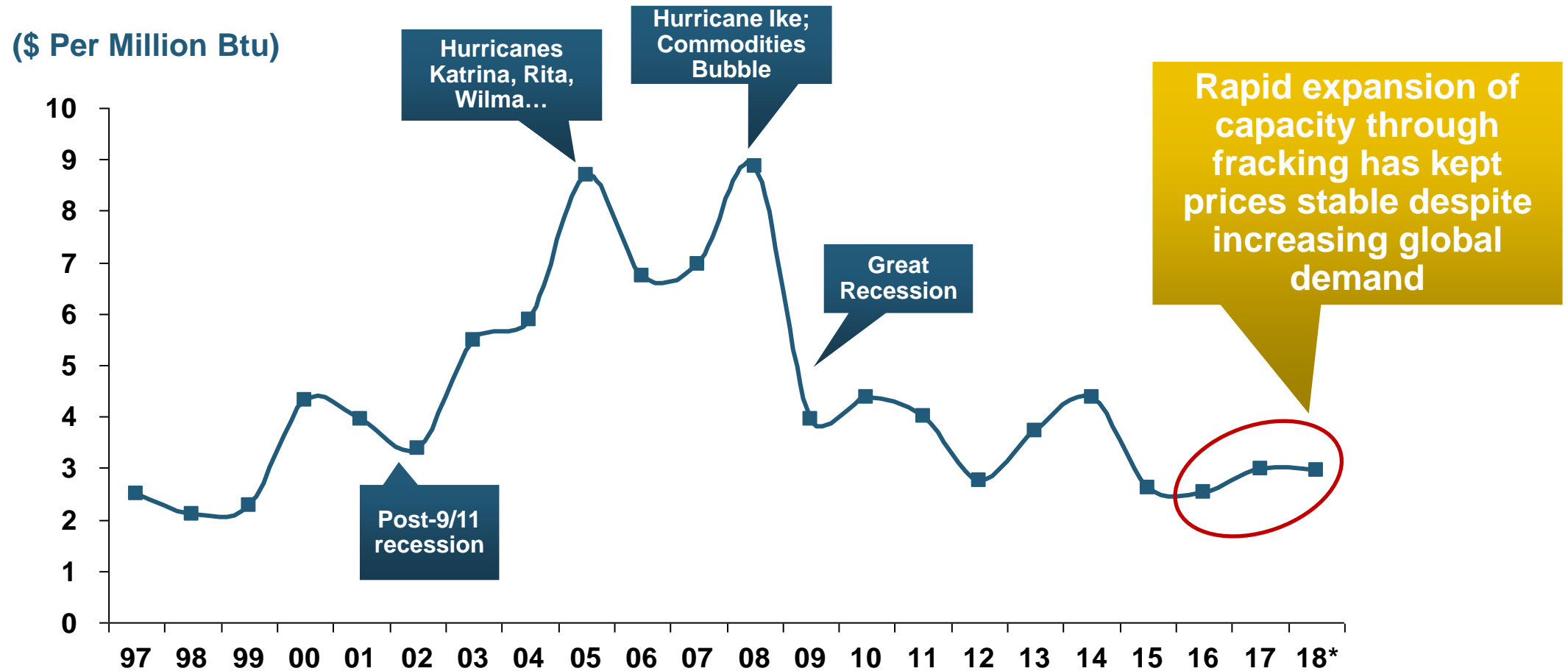


Crude Oil Pricing Remains Remarkable Volatile Despite Massive Increases in US Production

*West Texas Intermediate. 2018 figure is the average of monthly figures through September.

Source: US Energy Information Administration.

Natural Gas Prices: 1990 – 2018*

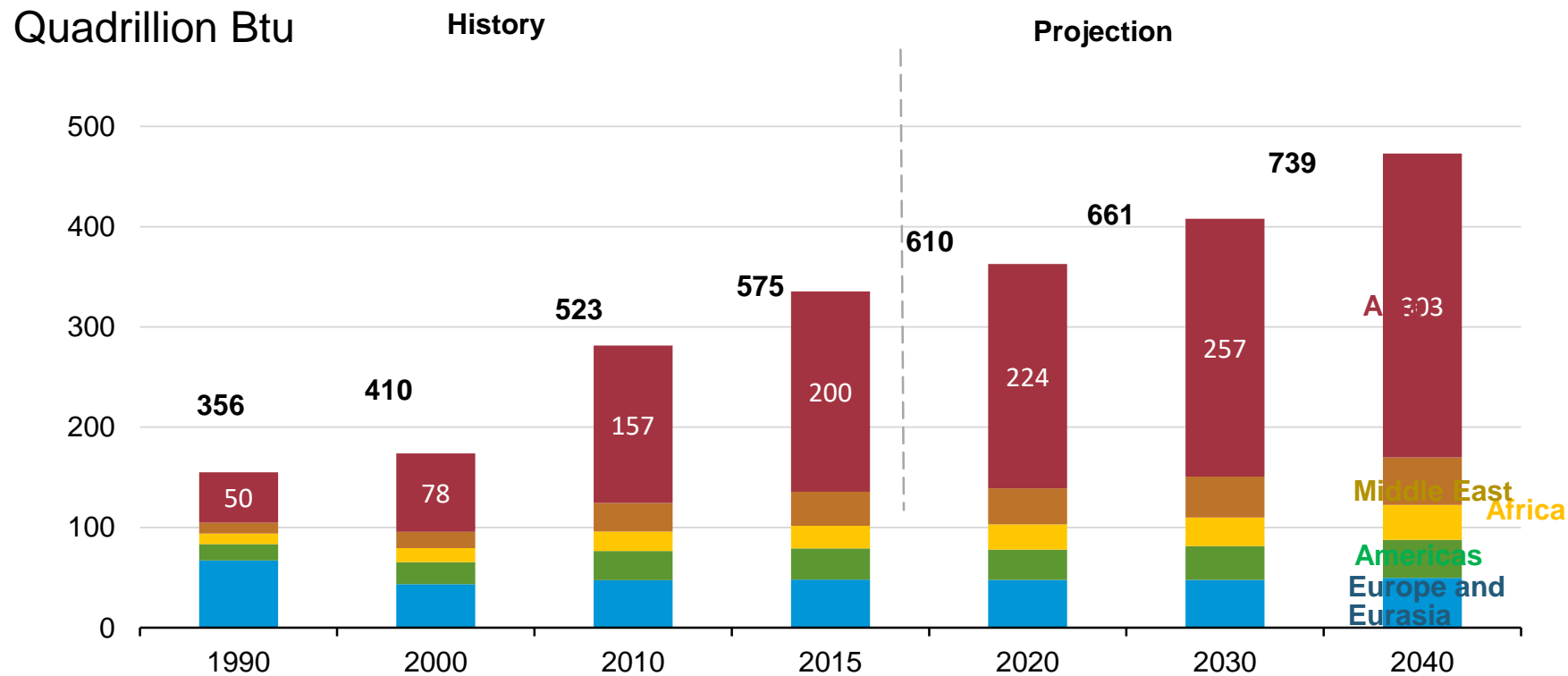


Natural Gas Prices Have Remained Quite Stable in Recent Years, in Contrast to Crude Oil Prices

*Henry Hub natural gas spot price. 2018 figure is the average of monthly figures through September.
Source: US Energy Information Administration.

Asia is Projected to Have the Largest Increase in Energy Use of non-OECD Regions

Non-OECD energy consumption, by region



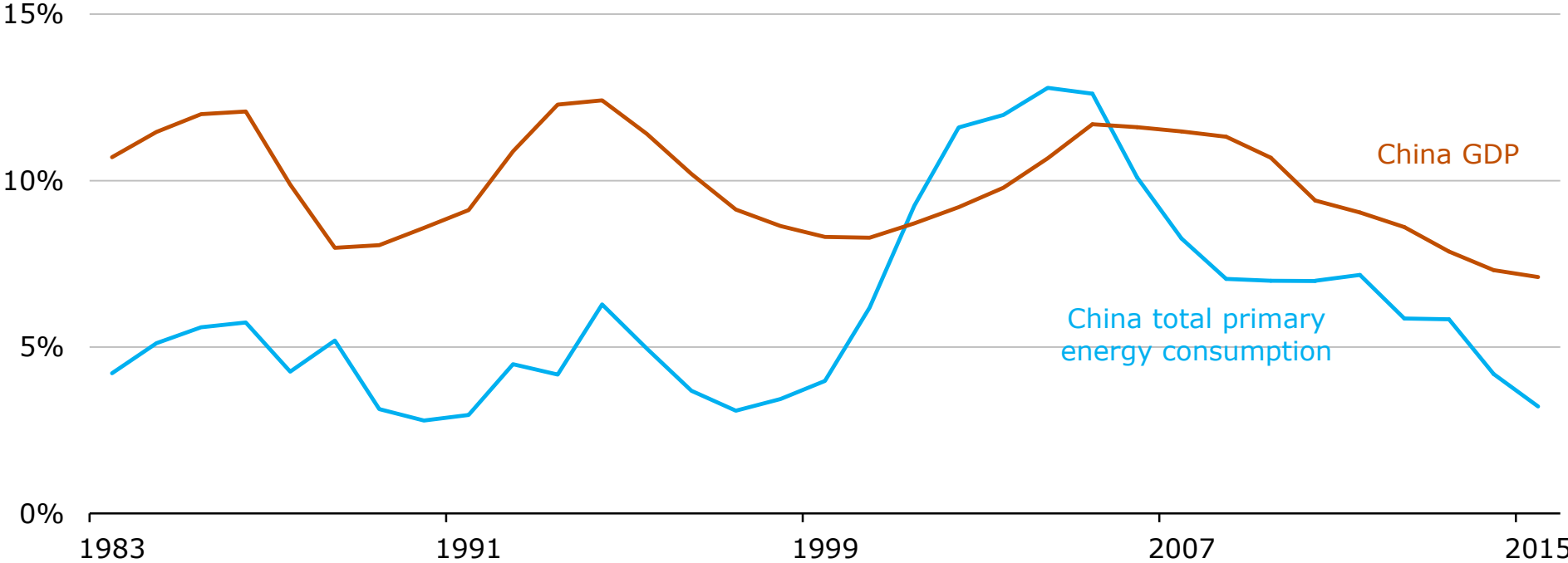
*Based on IEO2018 reference case.

Source: EIA, International Energy Outlook 2018

China's GDP and Energy Consumption Growth Have Slowed in Recent Years but Still Suggest Additional Capacity (and Shift from Coal)

Chinese GDP and energy consumption

(annual growth rate, 5-year moving average)



*Based on IEO2018 reference case.

Source: EIA, International Energy Outlook 2018

Energy Investment Trends

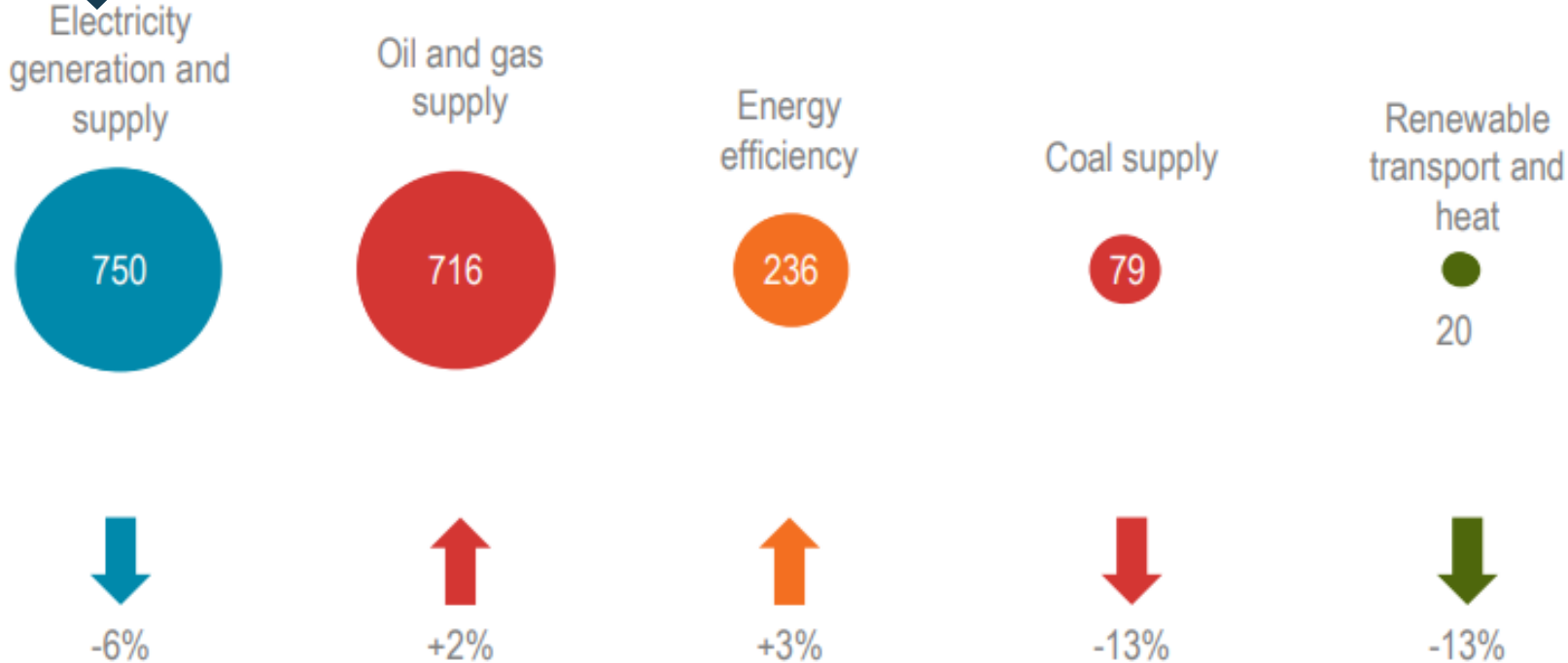
Energy Investment Drive Insurable Exposures

*Investment Trends Have Shown Some
Weakness in Recent Years, but Longer
Terms Trends Bode Well for Energy Insurers*

Global Energy Investment, 2017 (\$ Billions)

Electricity generation and supply invested the most in 2017, though investment was down by 6%

Global energy investment fell by 2% in 2017, the 3rd consecutive year of decline



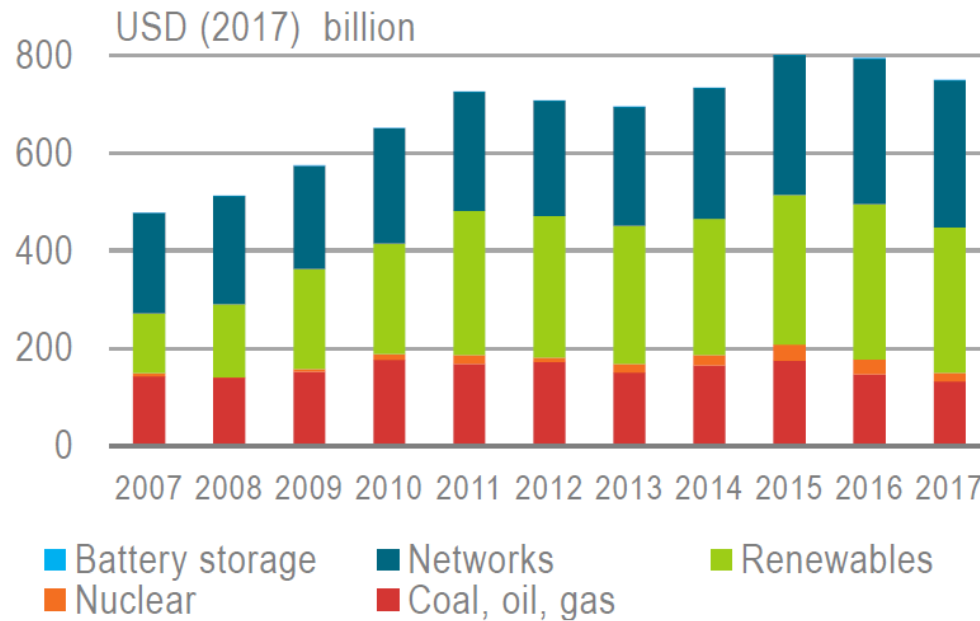
Source: International Energy Agency, *World Energy Investment 2018*, at: <https://www.iea.org/wei2018/>

Global Energy Investment, 2017 (\$ Billions)

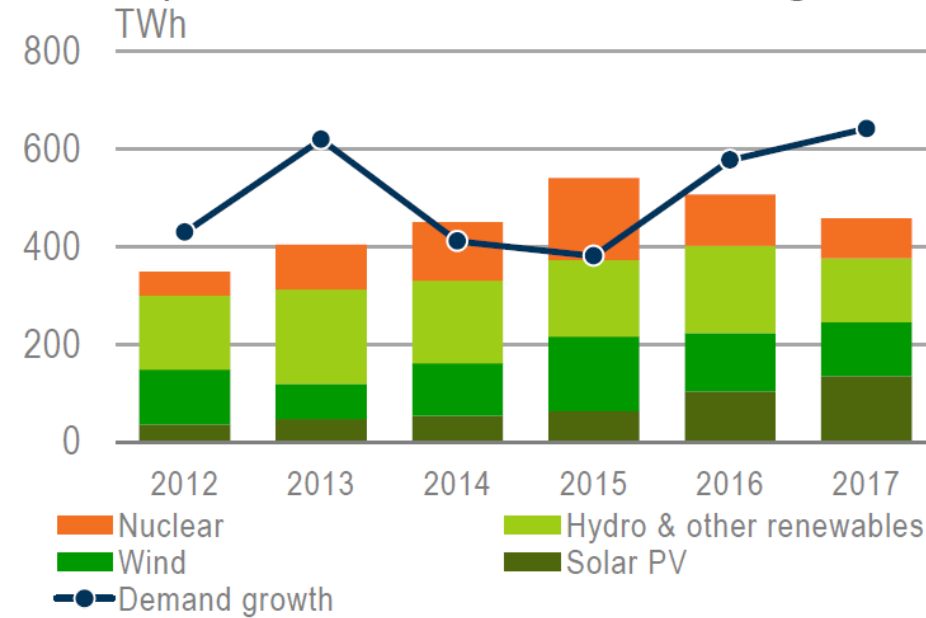
Renewables and networks/grid investments are increasing as carbon-based investments decline proportionately

Low carbon generation is actually falling largely due to decommissioning of numerous nuclear facilities

Global power sector investment



Expected generation from low-carbon power investments vs demand growth



Source: International Energy Agency, *World Energy Investment 2018*, at: <https://www.iea.org/wei2018/>

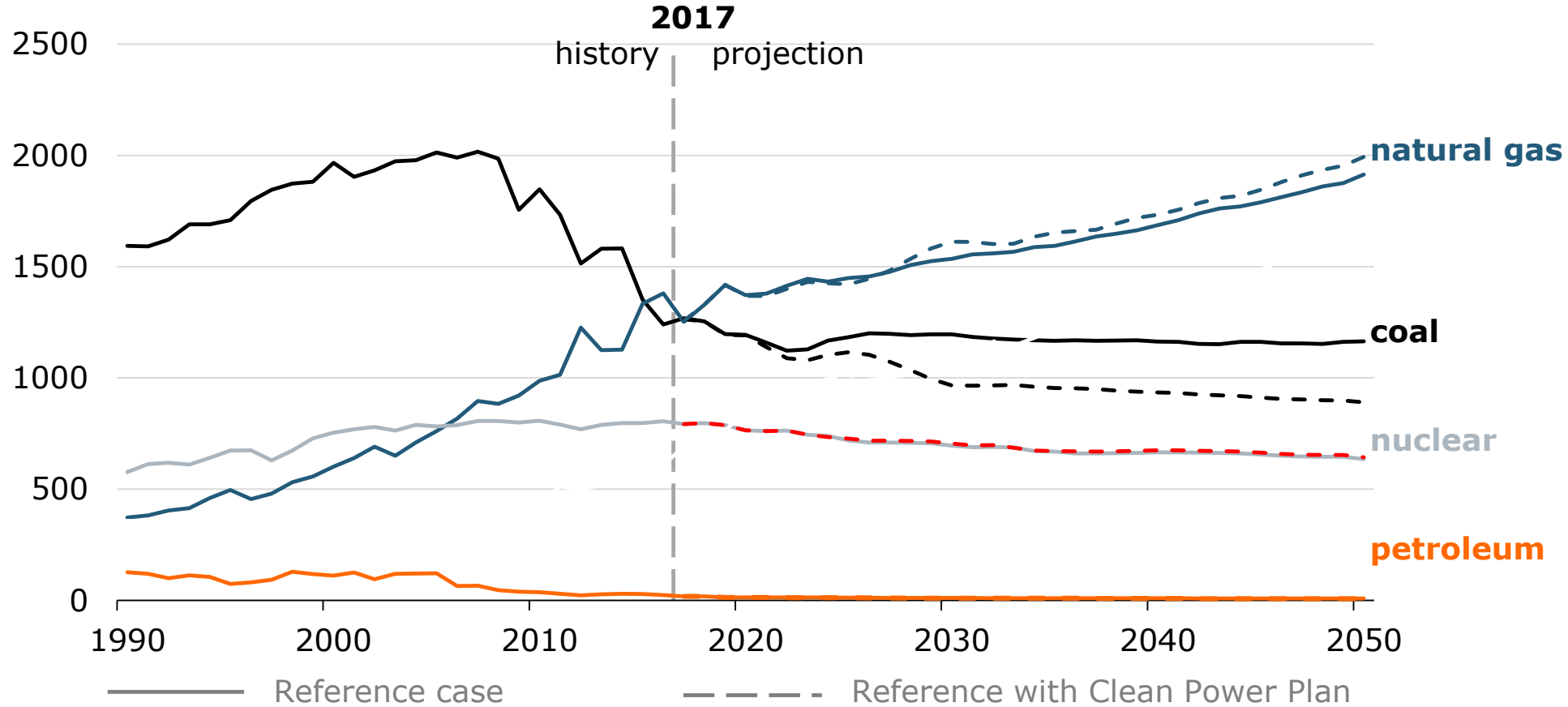
Energy Supply: The Transformation Continues

**Economics, Technology, Politics and
Regulation Will Reshape Energy Supply,
Generation and Transmission for Decades
to Come**

A Peek into the Industry at Mid-Century

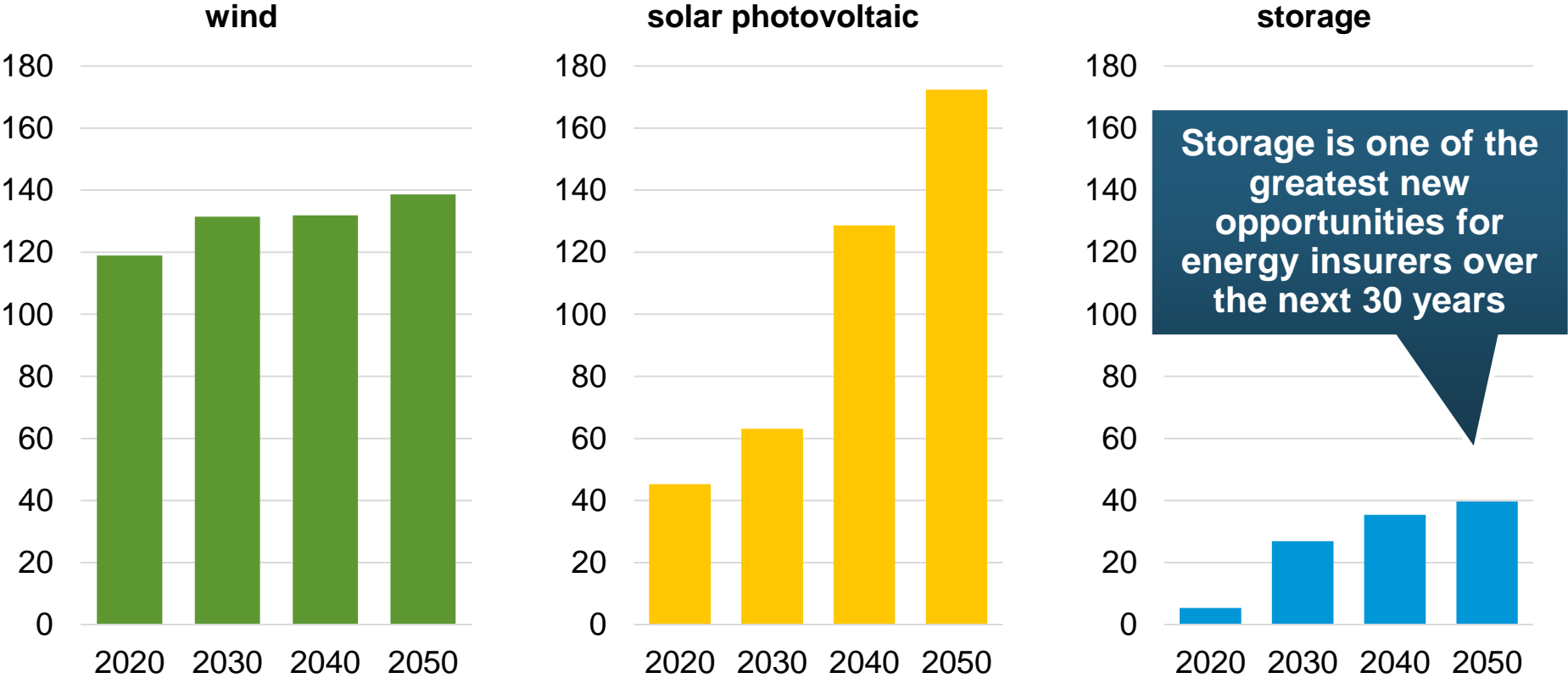
Utilities: Net Electricity Generation from Select Fuels

Net electricity generation from select fuels
billion kilowatthours



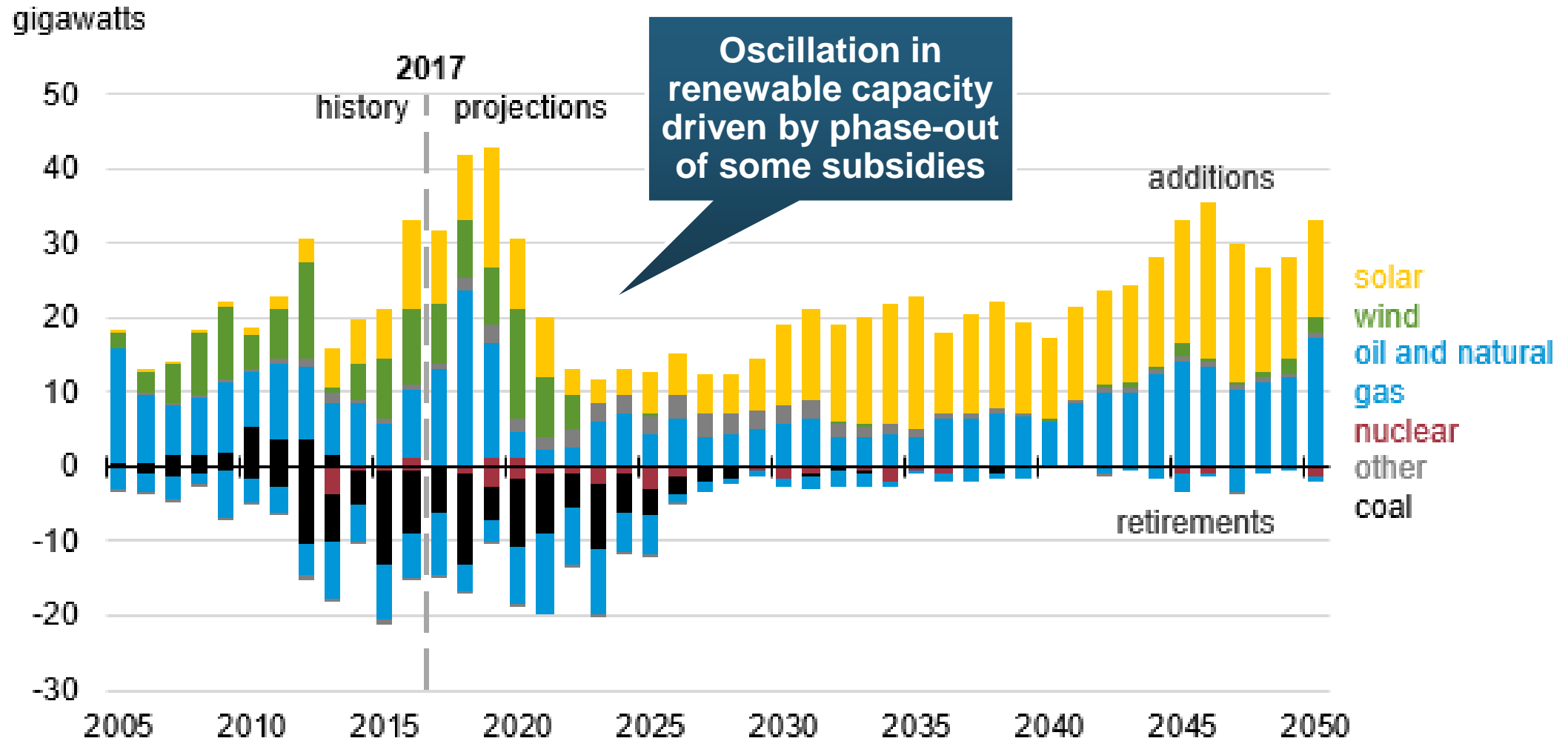
Increasing Wind and Solar Capacity Additions...Necessitates More Storage Investment

Utility-scale wind, solar, and storage operating capacity gigawatts



Source: Energy Information Administration, Annual Energy Outlook 2018 at www.eia.gov/aeo

Renewables and Natural Gas Comprise Most of the Generation Capacity Additions through Mid-Century



Summary

- **The Long-Run Growth Outlook for the Global Energy Sector is Favorable**
- **Suggests that (Re)Insurers Will Benefit as the Property and Casualty Exposures Base Expands**
- **Geopolitical Risks Are Elevated but this Is Unavoidable in the Energy Sector**
- **Nationalism, Populism, Protectionism Threats Are Elevated Too, but Remain Manageable**



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and your attention!*

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