Shifting Sands and Silk Roads: Global Energy Markets, Geopolitical Risk and Insurance in the Middle and Far East

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Overview

- The Global Economy, Energy and Insurance
  - Growth, Emerging market challenges
- Populism, Trade Wars and Energy
  - Recent issues and developments in the energy producing world
  - Consequences for insurers
- Energy Nationalism
  - The combustible mixture of energy, influence and politics
- Energy and Insurance Market Overview and Outlook
  - Energy market supply, demand, investment opportunities and threats
- China's Ambitious Belt and Road Initiative
  - Energy investment and insurer opportunities
- Q&A

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

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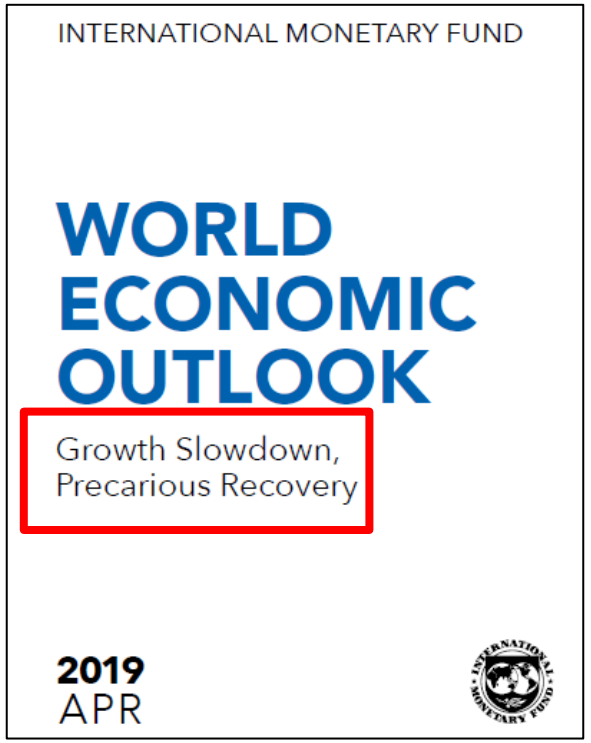
Global Growth Concerns: Energy and Insurance Market Impacts

- 2019 began with significant concerns about the strength of the global economy
- Major indices related to manufacturing, international trade, consumer and business confidence and financial market volatility turned adverse in late 2018/early 2019
- Consider the following:
  - 70% of the global economy is expected to decelerate in 2019
  - Global real GDO growth will fall to 3.3% in 2019 from 3.6% last year and 3.9% in 2017
  - US-China trade tensions are running high and trade volumes are falling
  - Industrial production and investment are weak globally
  - Geopolitical uncertainty remains high throughout much of the MENA region, in the US (Trump policies) and UK (Brexit) and parts of Latin America (Venezuela)

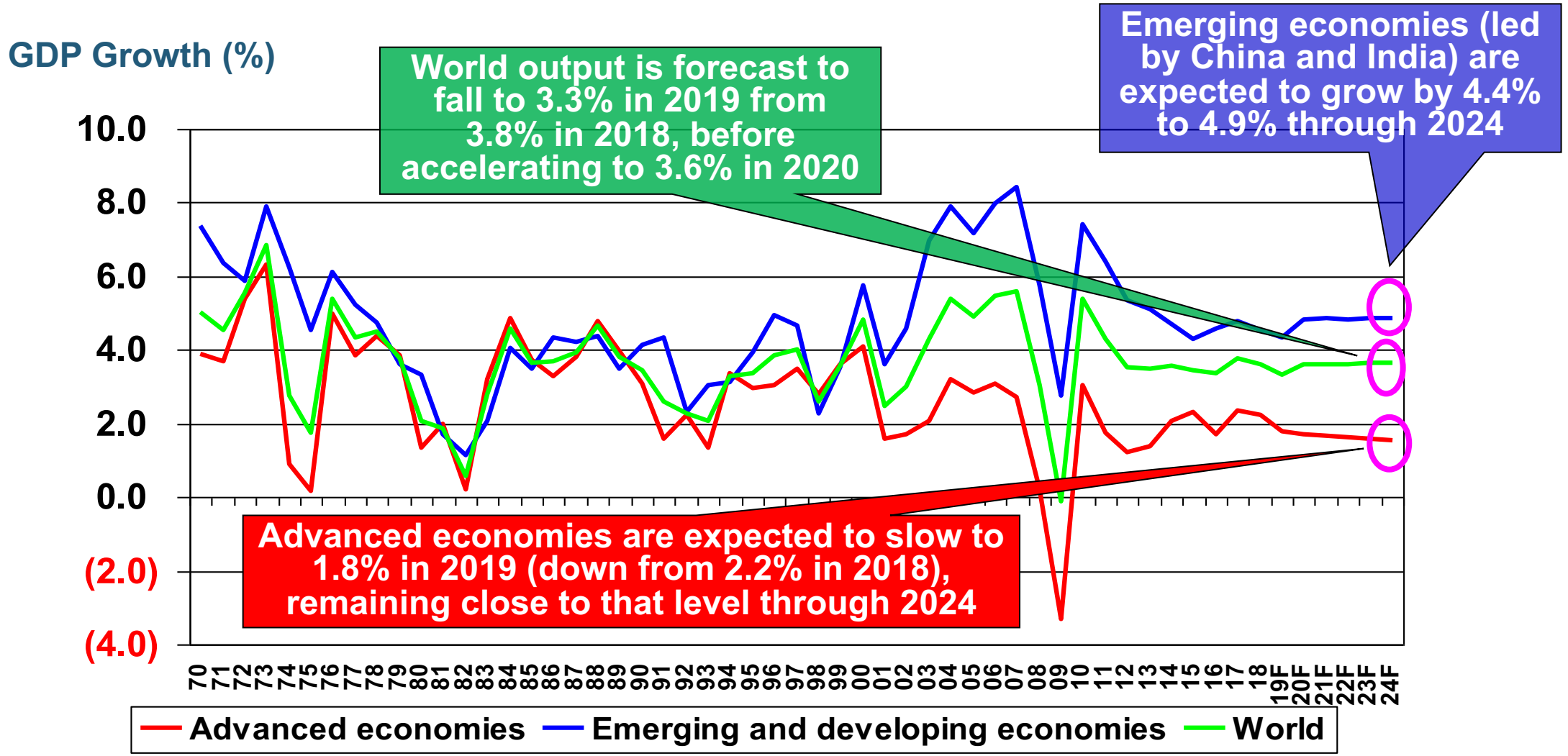


Global Growth Concerns: Energy and Insurance Market Impacts

- **There are major implications for Energy and Insurance markets alike**
  - **Supply**
  - **Demand**
  - **Price**
  - **Investment (Upstream and Downstream)**
  - **Regulatory Environment**
  - **Geopolitical Implications**

- **But to understand the many implications, we need to understand the underlying drivers and the associated geopolitical environment**

GDP Growth: Advanced & Emerging Economies vs. World, 1970-2024F



Source: International Monetary Fund, *World Economic Outlook*, Apr. 2019;
Univ. of South Carolina, Risk and Uncertainty Management Center.

Global Growth Concerns: Where Are the Weaknesses and Why?

- **Weaknesses are widespread but are focused on "Advanced Economies"**

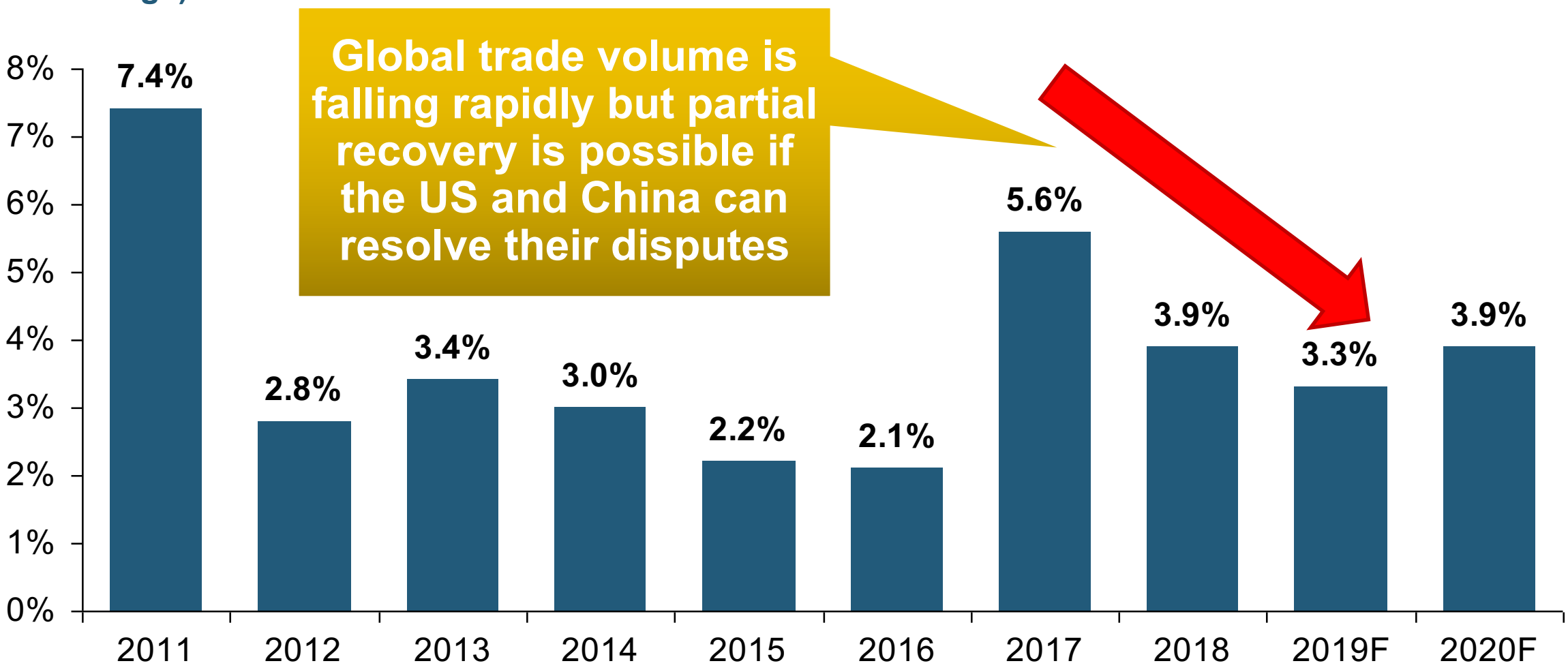
Five Major Sources of Weakness

1. **US – China Trade Tensions and Protectionism in General**
2. **Disruptions in German Auto Sector**
3. **Tightening of Credit Standards in China**
4. **Normalization of Monetary Policy in Larger Advanced Economies**
5. **Macroeconomic Distress in Turkey and Argentina**

Notably: ***Rising energy prices, particularly for crude oil, are not (yet) among the top factors holding back growth—but this could change.***

Growth in Global Merchandise (Goods)Trade : 2011 – 2019F

(Annual Change)



Source: IMF, *World Economic Outlook*, April 2019.

REGIONAL ECONOMIC REVIEW AND OUTLOOK

Focus on MENA, Emerging and Developing Asia, Sub-Saharan Africa

Contrasts to Major "Advanced" Economies

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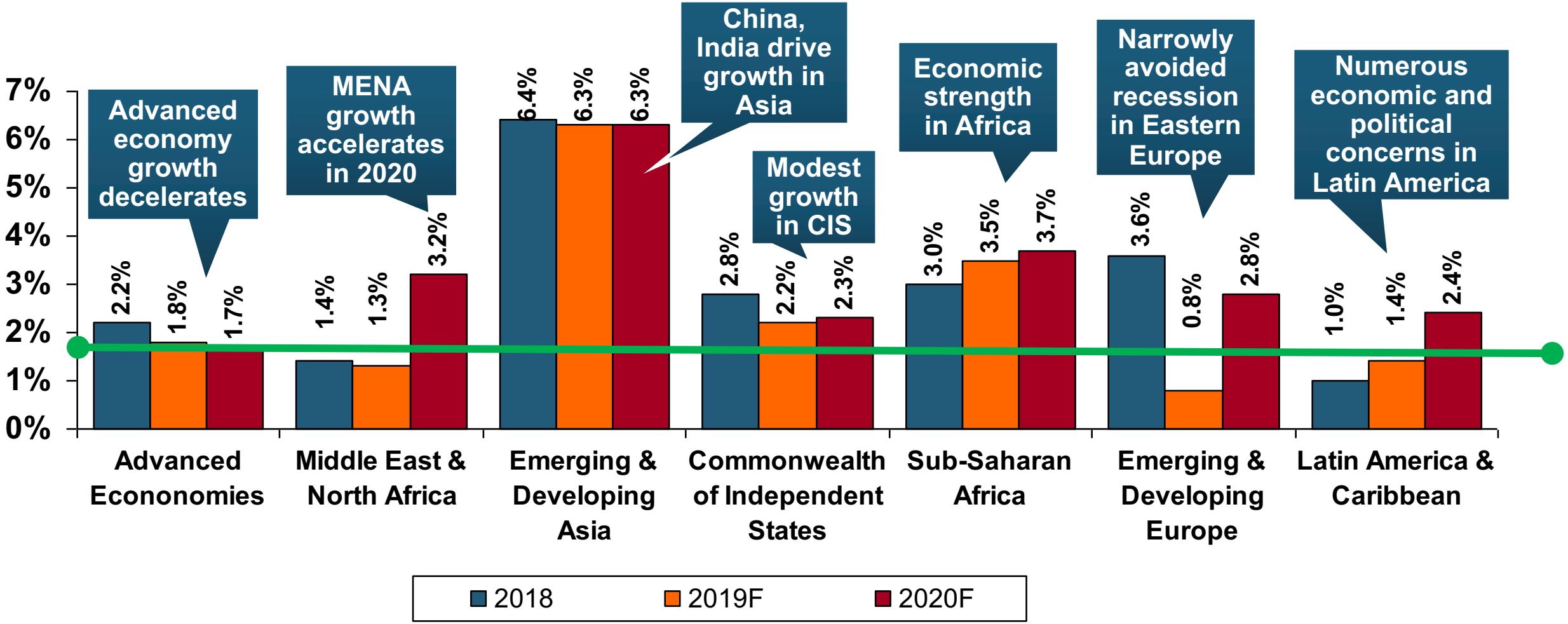
Real GDP Growth Forecasts: Major Regions: 2018 – 2020F

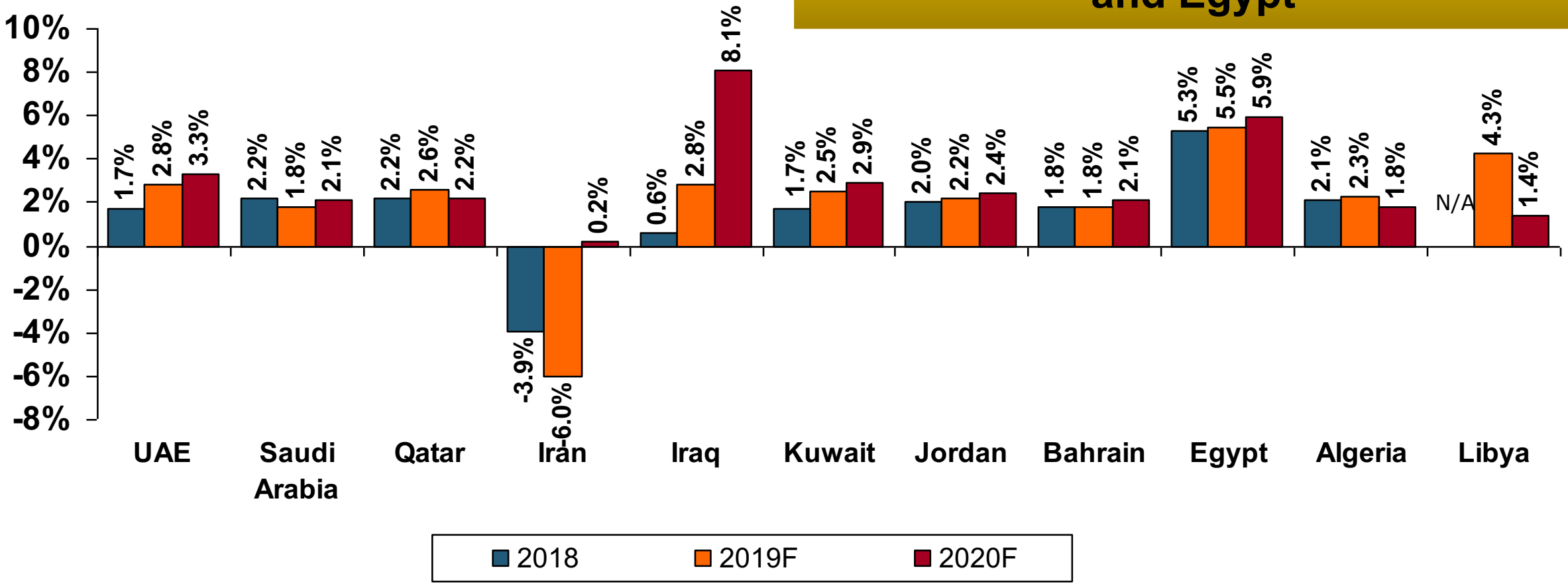


Global Growth Prospects Vary Widely by Region but by 2020 Are Universally Stronger Outside the "Advanced Economies"

Source: International Monetary Fund, *World Economic Outlook*, Apr. 2019, Table A1; Univ. of South Carolina, Risk and Uncertainty Management Center.

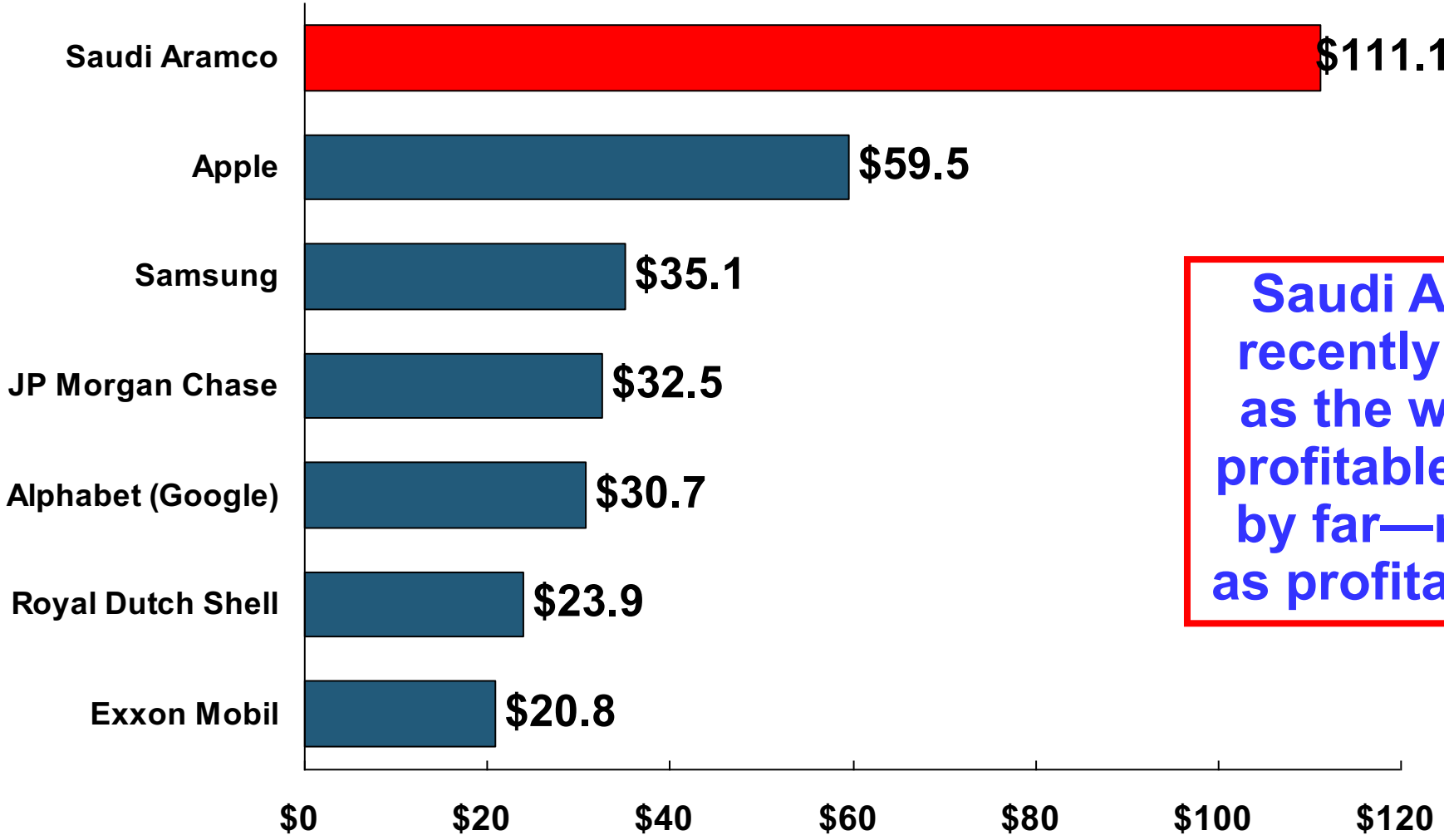
Real GDP Growth Forecasts, Key MENA Countries: 2018 – 2020F

GDP growth is fairly consistent across the MENA region, with some notable exceptions, including Iran, Iraq, Libya and Egypt



Source: International Monetary Fund, *World Economic Outlook*, Apr. 2019, Table A4; Univ. of South Carolina, Risk and Uncertainty Management Center.

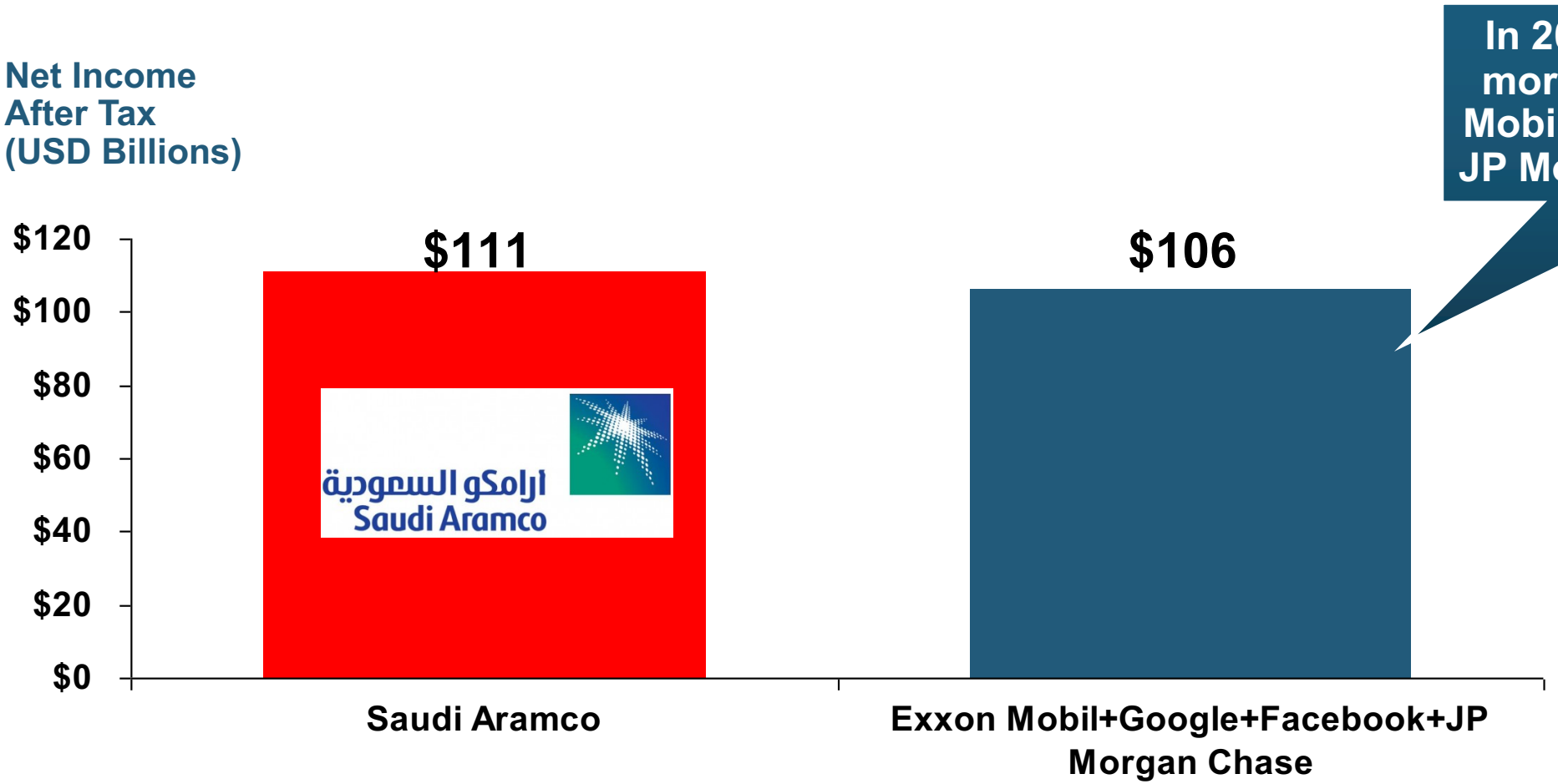
World's Most Profitable Companies, 2018
Saudi Aramco Leads the Way* ($ Billions USD)



Saudi Aramco was recently recognized as the world's most profitable company—by far—nearly twice as profitable as Apple

*Net income after tax
Sources: Bloomberg; University of South Carolina, Risk and Uncertainty Management Center.

Saudi Aramco's Profits Exceed those of Many of World's Largest Companies—Combined!



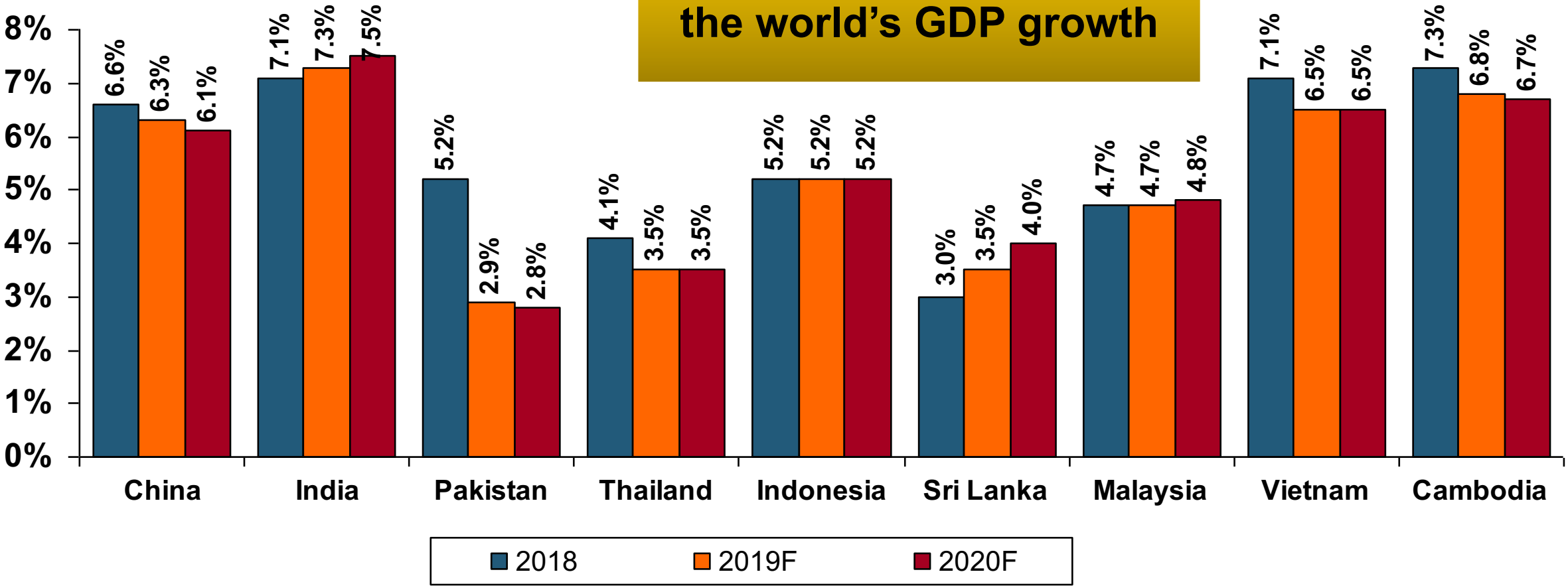
Saudi Aramco's financial were revealed ahead of its first-ever debt offering. The $10B offering drew $30B in demand and an A1 rating from Moody's

*Net income after tax

Sources: Bloomberg; University of South Carolina, Risk and Uncertainty Management Center.

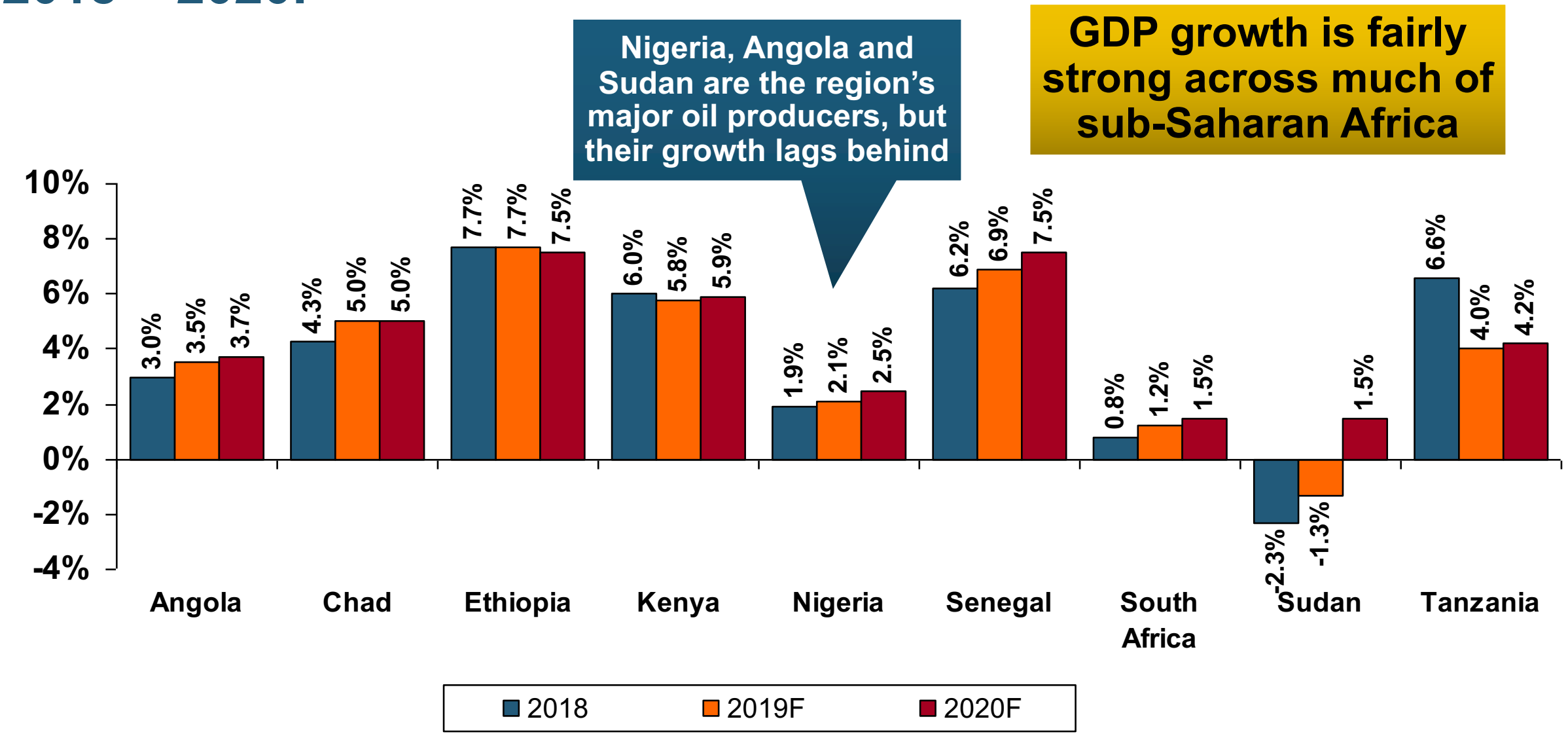
Real GDP Growth Forecasts, Emerging & Developing Asia: 2018 – 2020F

Emerging and Developing Asia account for most of the world's GDP growth



Source: International Monetary Fund, *World Economic Outlook*, Apr. 2019, Table A4; Univ. of South Carolina, Risk and Uncertainty Management Center.

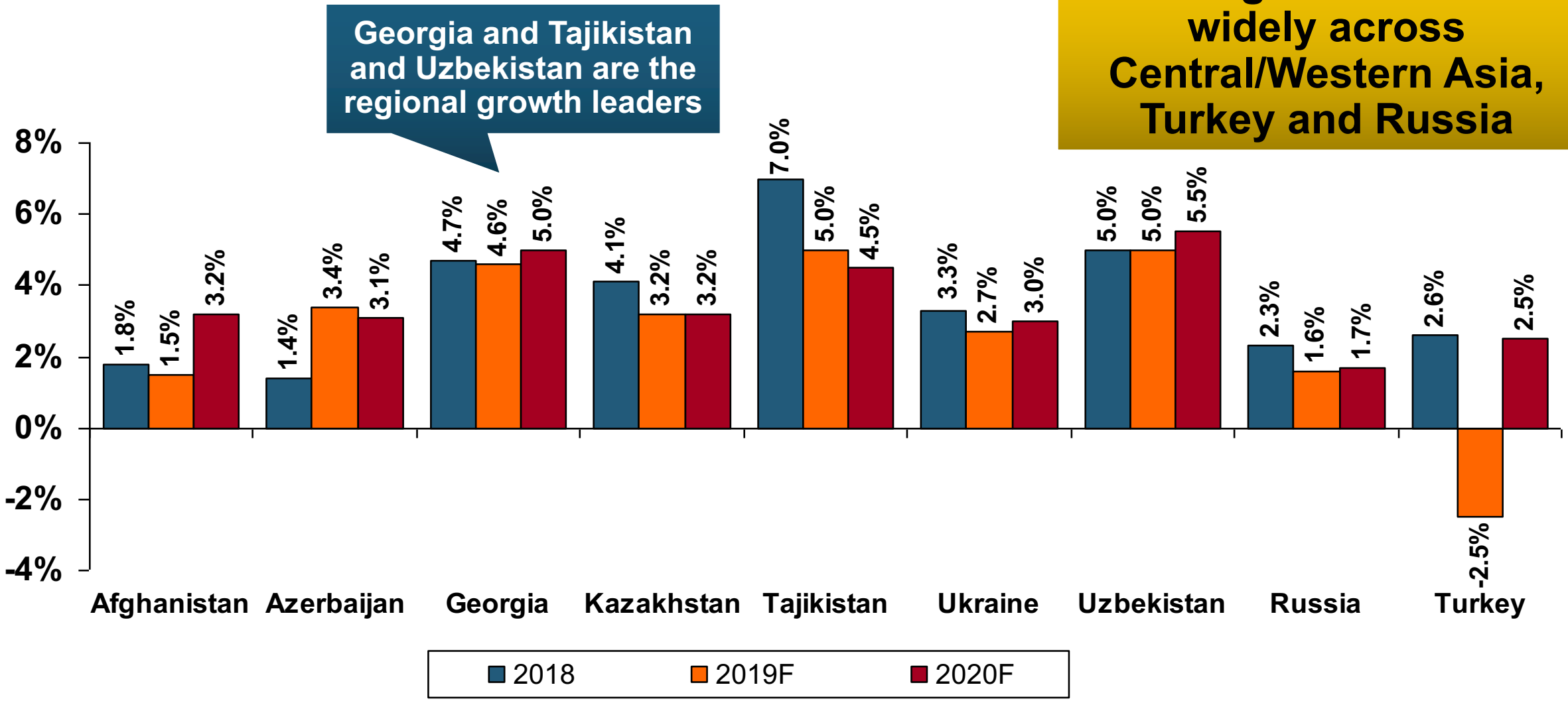
Real GDP Growth Forecasts, Sub-Saharan Africa & Sudan: 2018 – 2020F



Source: International Monetary Fund, *World Economic Outlook*, Apr. 2019, Table A4; Univ. of South Carolina, Risk and Uncertainty Management Center.

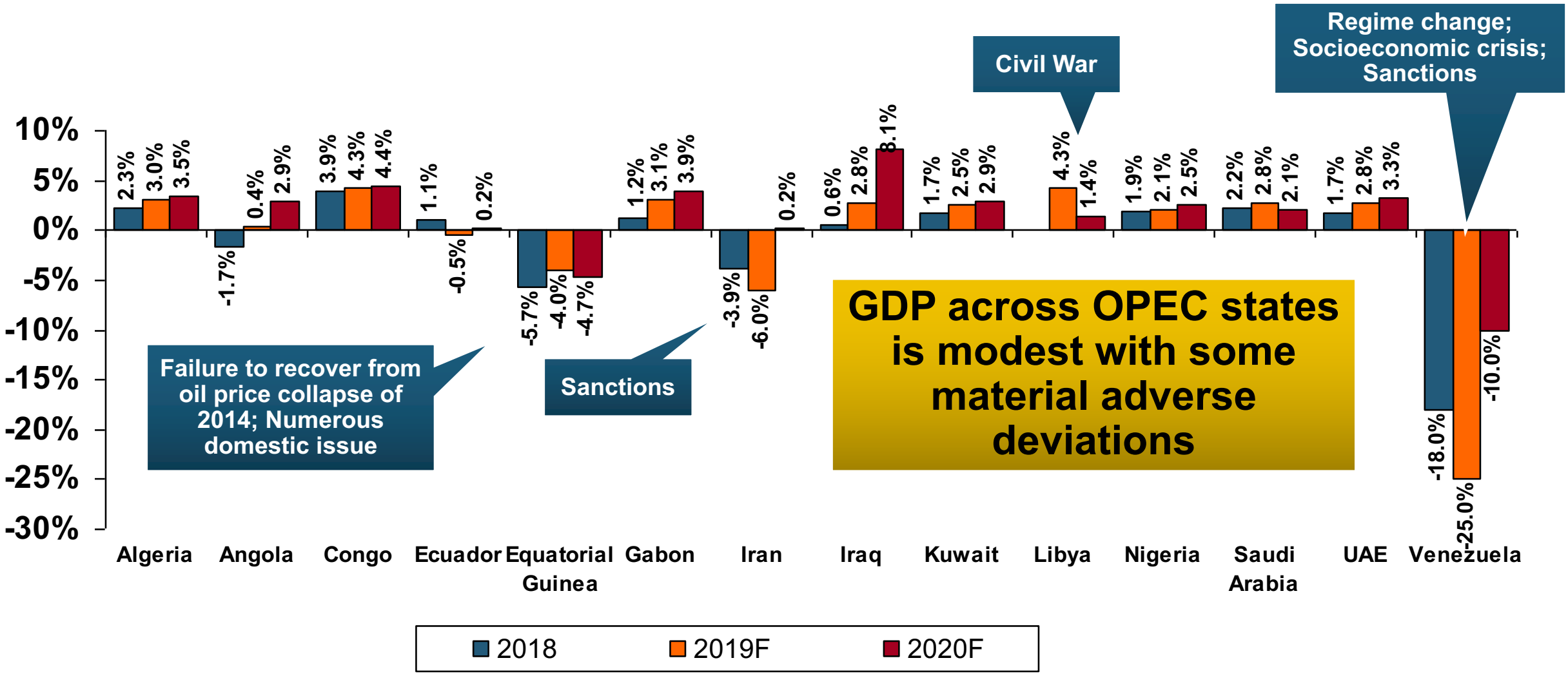
Real GDP Growth Forecasts, Central/Western Asia, Turkey & Russia: 2018 – 2020F

GDP growth varies widely across Central/Western Asia, Turkey and Russia



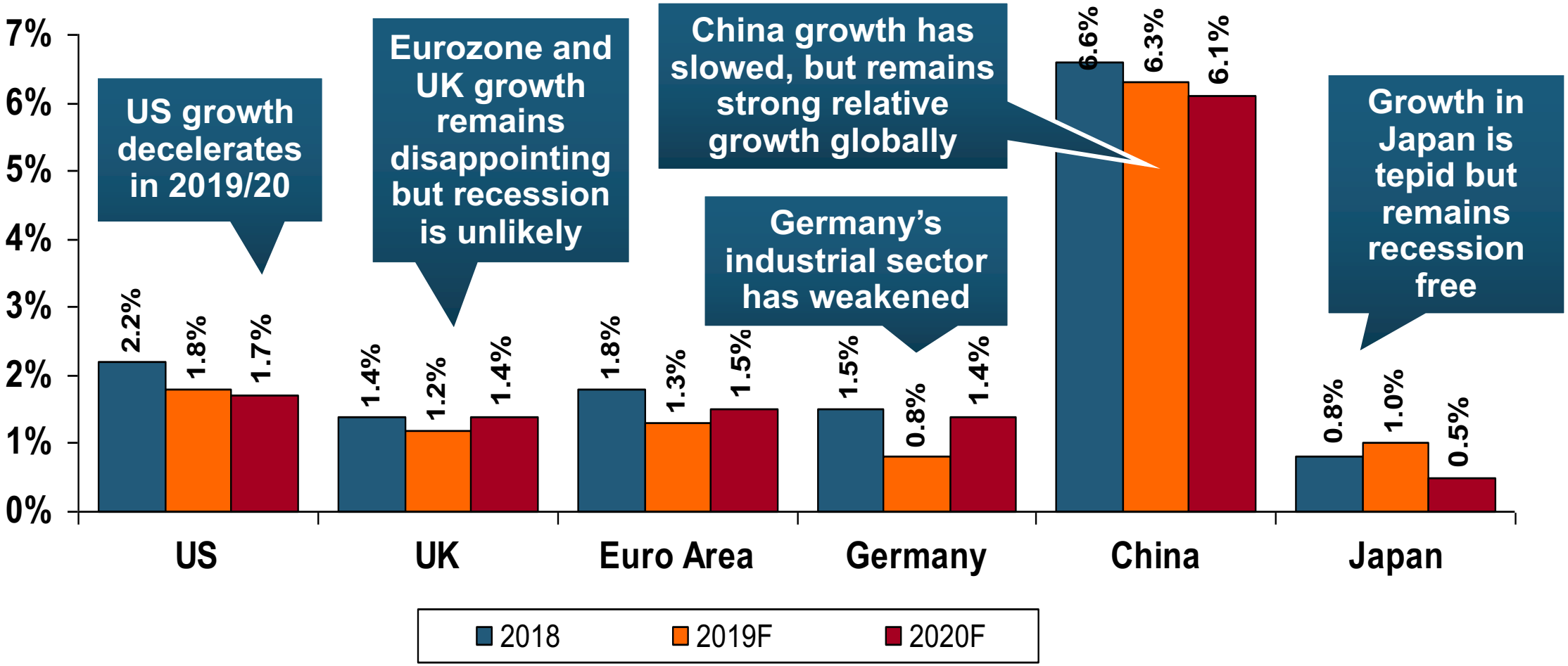
Source: International Monetary Fund, *World Economic Outlook*, Apr. 2019, Table A4; Univ. of South Carolina, Risk and Uncertainty Management Center.

Real GDP Growth Forecasts, OPEC States: 2018 – 2020F



Source: International Monetary Fund, *World Economic Outlook*, Apr. 2019, Table A4; Univ. of South Carolina, Risk and Uncertainty Management Center.

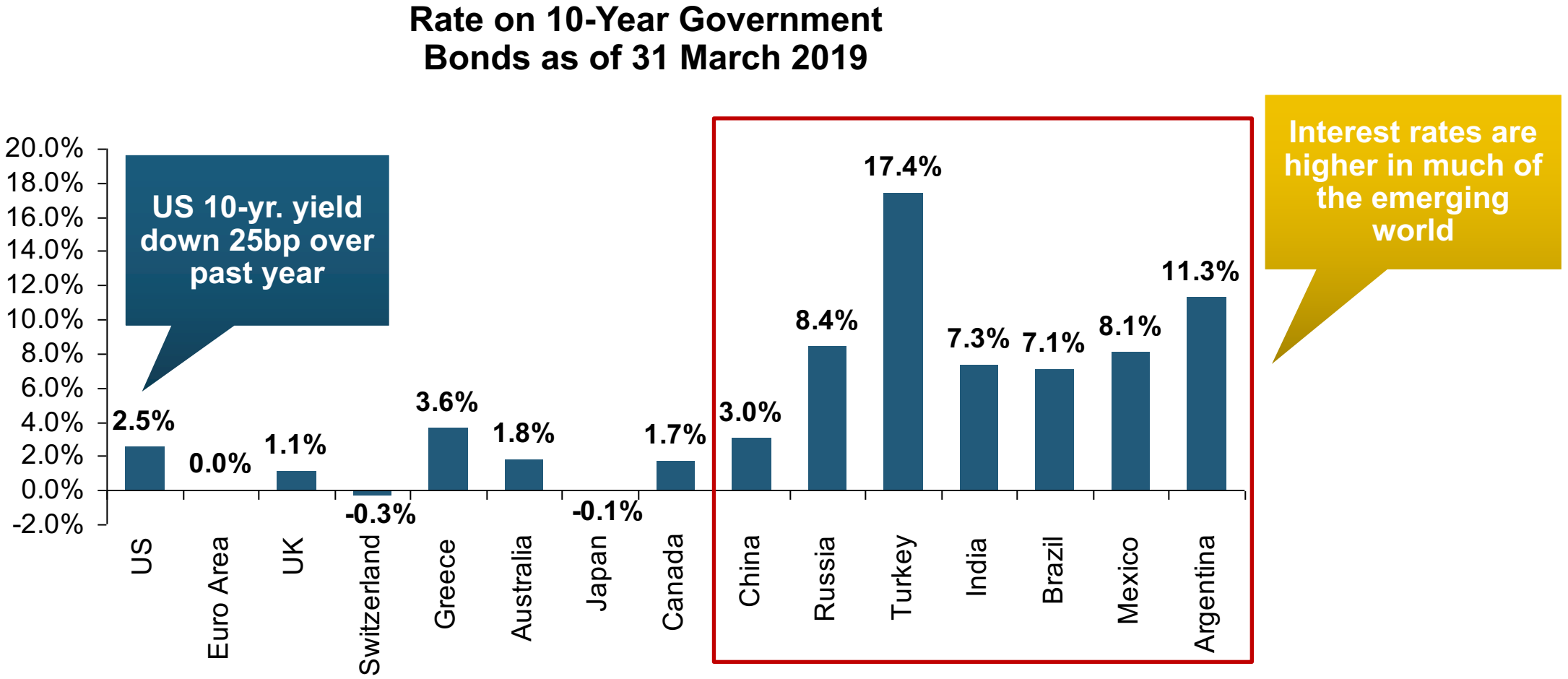
Real GDP Growth Forecasts: "Advanced Economies": 2018 – 2020F



Growth Prospects Among "Advanced Economies" Has Weakened While China Continues to Lead Among "Emerging Economies"

Source: International Monetary Fund, *World Economic Outlook*, Apr. 2019, Table A4; Univ. of South Carolina, Risk and Uncertainty Management Center.

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



Source: The Economist, 6 Apr. 2019; Univ. of South Carolina Center for Risk and Uncertainty Management.

GEOPOLITICS, POPULISM AND ECONOMICS IN THE ENERGY PRODUCING WORLD

Geopolitics and Populist Movements Are Impacting Global Energy Hubs Around the World

Insurers, Energy Industry Will Be Impacted

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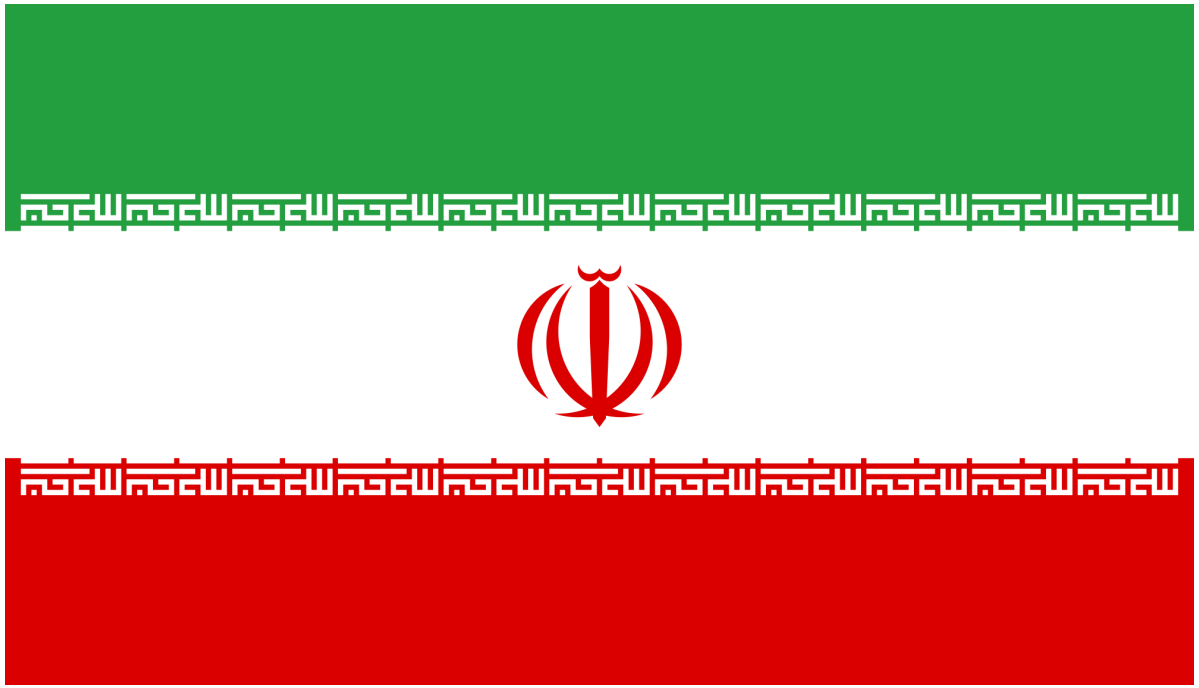
Geopolitics and Uncertainty in the Energy Producing World

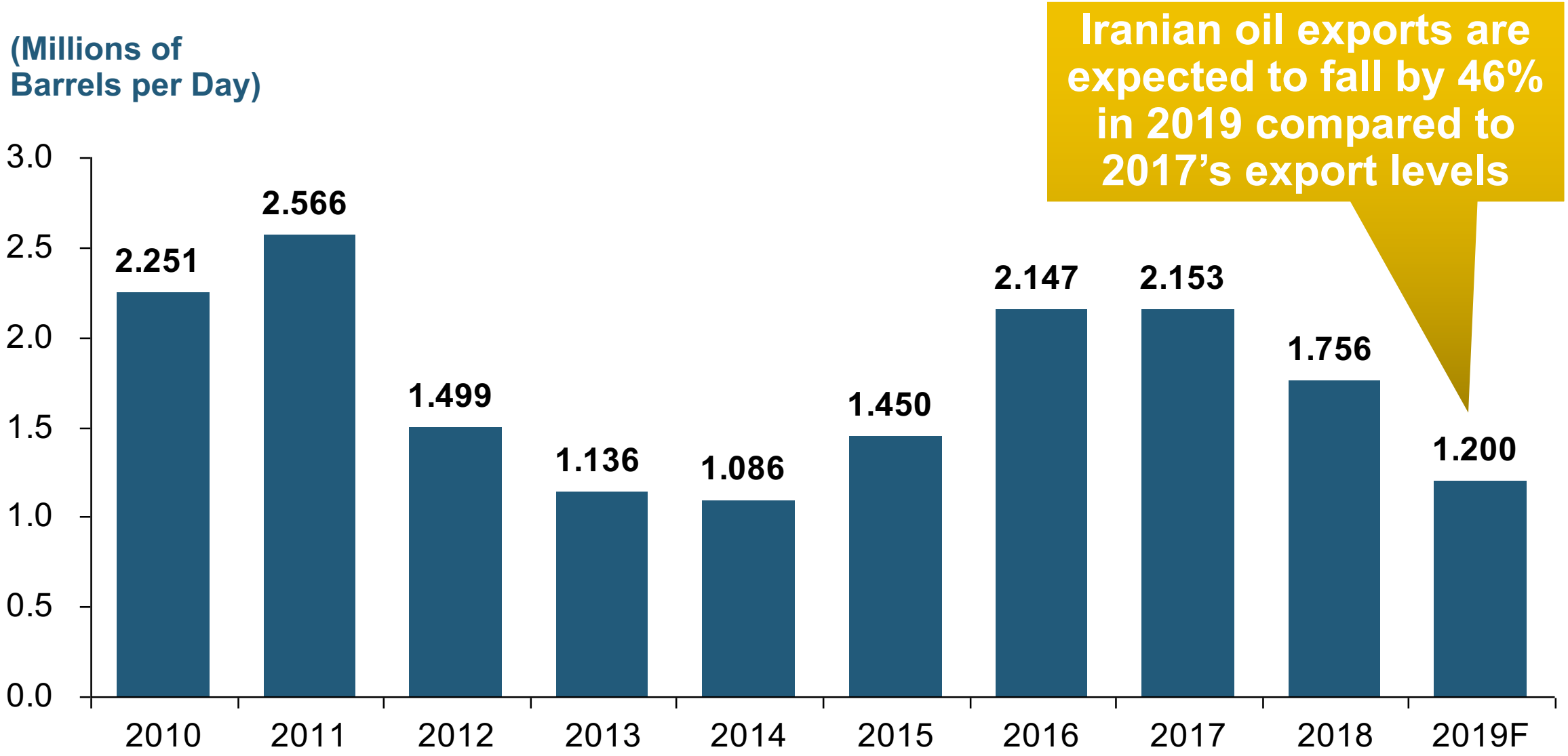
There is no shortage of geopolitical uncertainty in the energy producing world, impacting global supply and price for oil and gas. Arguably, the most meaningful implications today arise from Iran, Venezuela and Libya.

Geopolitics and Uncertainty in the Energy Producing World: Iran



- International sanctions are the primary stressor in Iran, the most important of which restrict the importation of Iranian oil and petrochemicals
- The Iranian economy has suffered as a result:
  - Real GDP growth was -3.9% in 2018 and -6.0% in 2019 (IMF est.)
  - Inflation is running 30%+ per yr.
  - Collapse in the Iranian rial, reaching record lows
- Oil exports are falling, though waivers to the importation of oil for some countries continue

Iranian Oil Exports, 2010 – 2019F



Source: IMF

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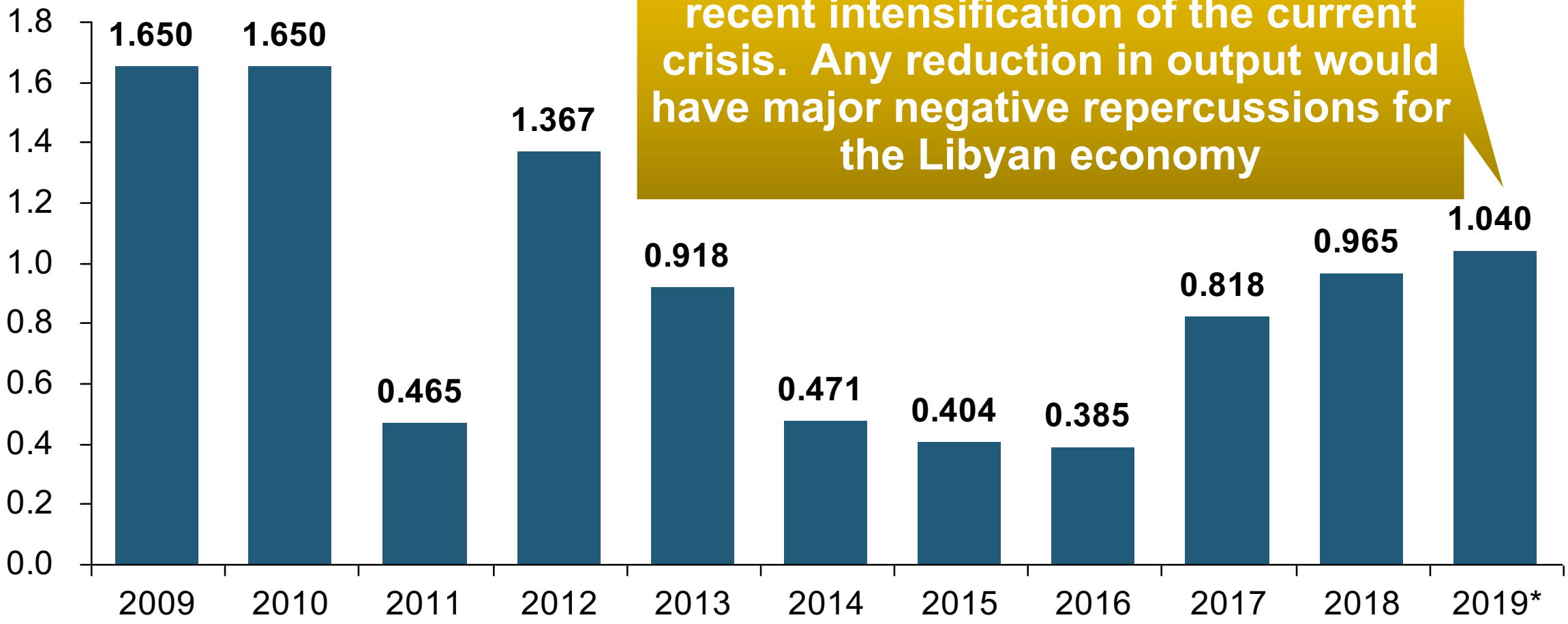
Geopolitics and Uncertainty in the Energy Producing World: Libya

- Libya has effectively been a bifurcated state since the collapse of the Gadaffi regime amid the "Arab Spring" uprisings in 2011, with rival factions in the east and west
  - The current status is often described as a civil war
- Currently, Tripoli is under siege as the forces of Gen. Khalifa Haftar, who controls much of eastern Libya
- 60% of Libya's GDP stems from oil production
- The economy collapsed after 2011 as oil production collapsed
  - Inflation is running at 25%+

Libyan Oil Production: 2009 – March 2019

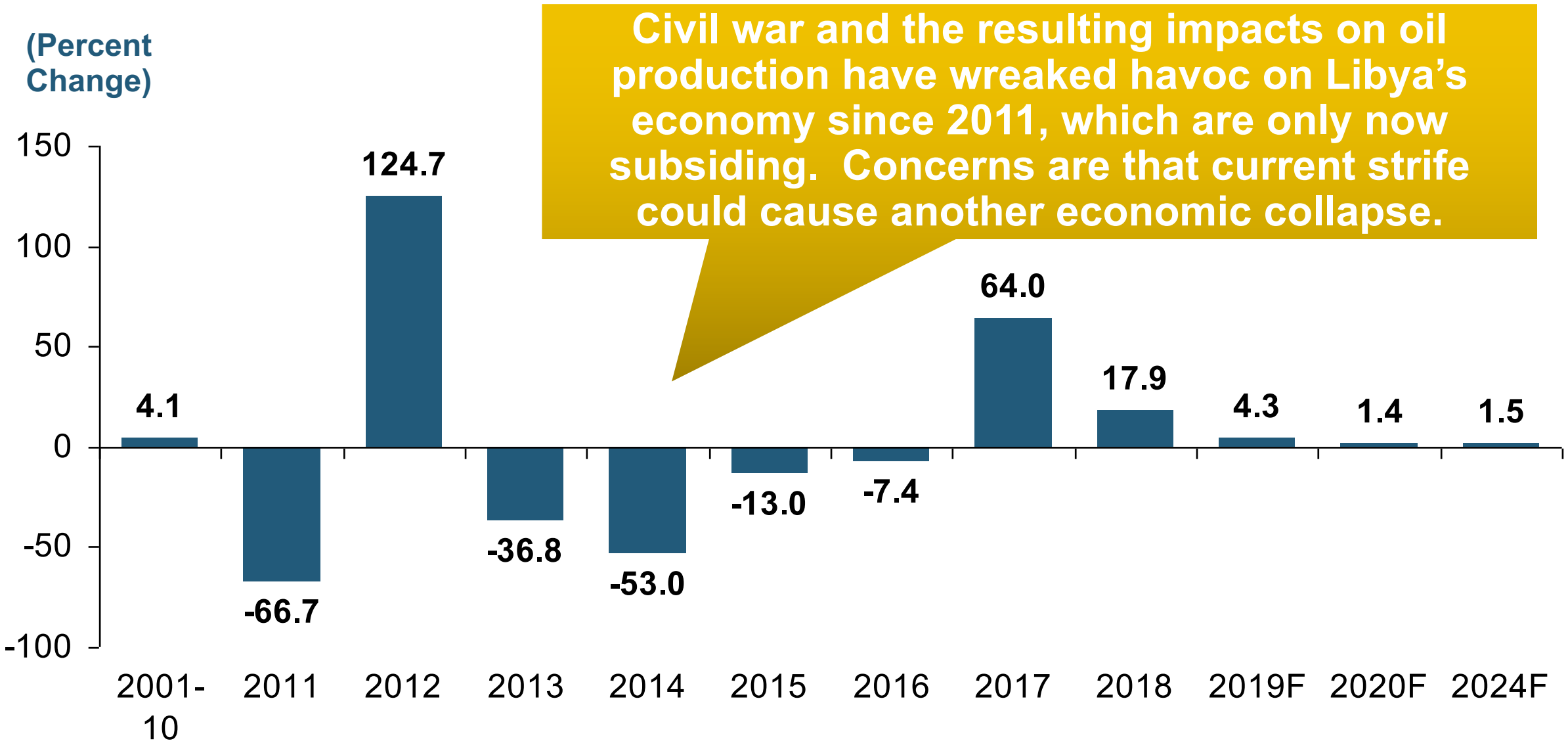
(Millions of Barrels per Day)



Despite civil war and OPEC caps, Libyan oil production is rising, though the trend is in jeopardy given the recent intensification of the current crisis. Any reduction in output would have major negative repercussions for the Libyan economy

Source: US Energy Information Administration accessed at: https://www.eia.gov/opendata/qb.php?category=1039874

Libyan Real GDP Growth (% Change): 2011 – 2024F



Source: IMF

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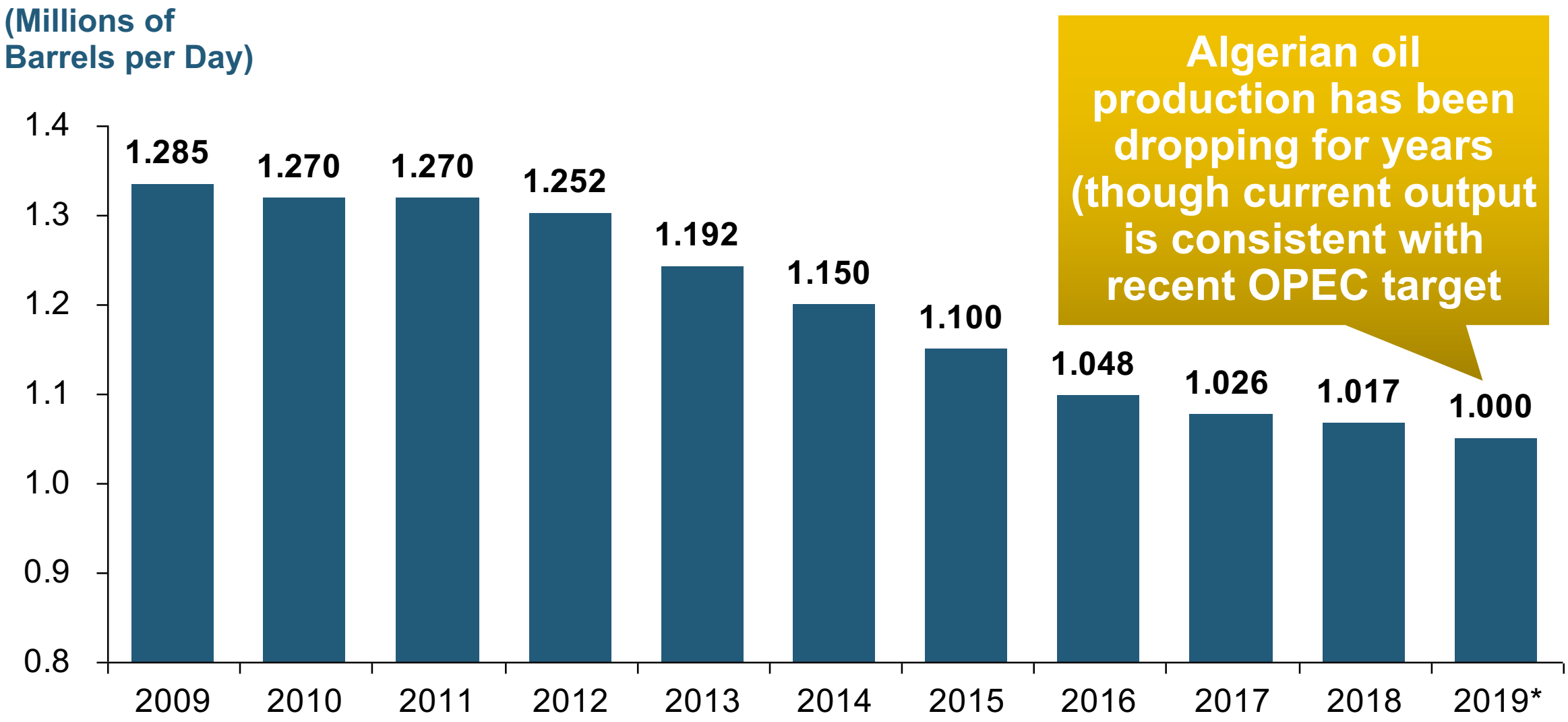
Geopolitics and Uncertainty in the Energy Producing World: Algeria

- Through early 2019, frequent protests against the government erupt
- On 1 April, long-time President Abdelaziz Bouteflika resigns after 20 years in power
- Constitution requires and election within 90 days
  - Want to avoid situations such as an in neighboring Libya or Egypt in 2011
- Algerian oil…
- Algerian economy…

Algerian Oil Production: 2009 – March 2019



*As of March 2019.

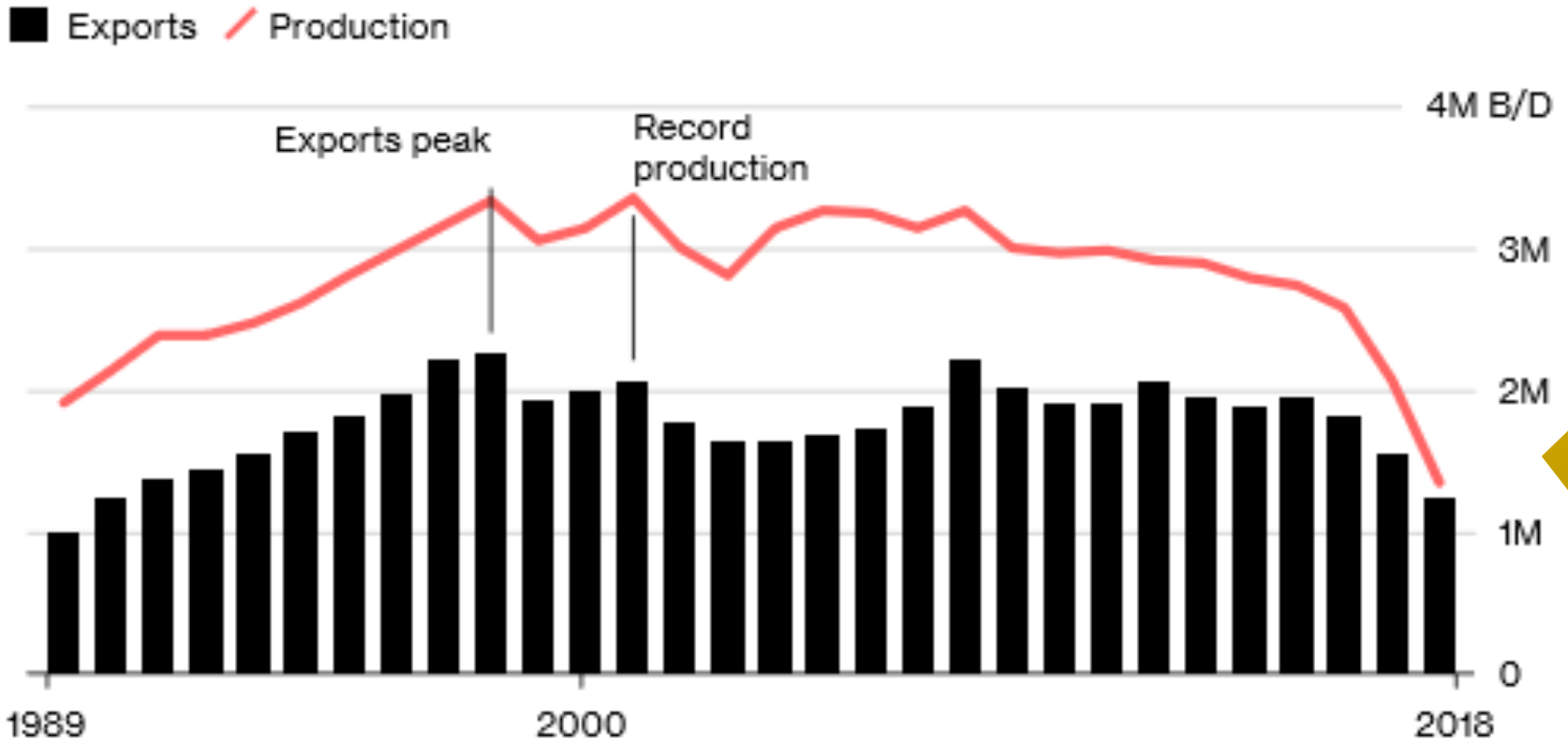
Source: US Energy Information Administration accessed at: https://www.eia.gov/opendata/qb.php?category=1039874

Geopolitics and Uncertainty in the Energy Producing World: Venezuela

- The regime of Nicolas Maduro is being challenged by rival Juan Guaido, each of whom views themselves as the legitimate leader of the country
- Venezuela has been hit with heavy sanctions, largely focused on stifling its oil industry.
- The economy is in freefall:
  - Real GDP growth was -18% in 2018 and -25% in 2019 (IMF est.)
  - Hyperinflation has taken hold, with prices rising at an annual pace of 1 million percent
- Oil exports are nearing 30-year lows

Venezuelan Oil Exports and Production, 1989 – 2018

(Millions of Barrels per Day)



Amid a domestic political and humanitarian crisis, mounting sanctions and decades of neglect of the nation's energy infrastructure, Venezuela's oil production and exports are falling rapidly, contributing to higher global prices

Source: Bloomberg, Venezuela Oil Exports Slump to 28-Year Low, 2 Jan. 2019 accessed at: https://www.bloomberg.com/news/articles/2019-01-02/venezuela-oil-exports-slump-to-28-year-low-on-falling-output

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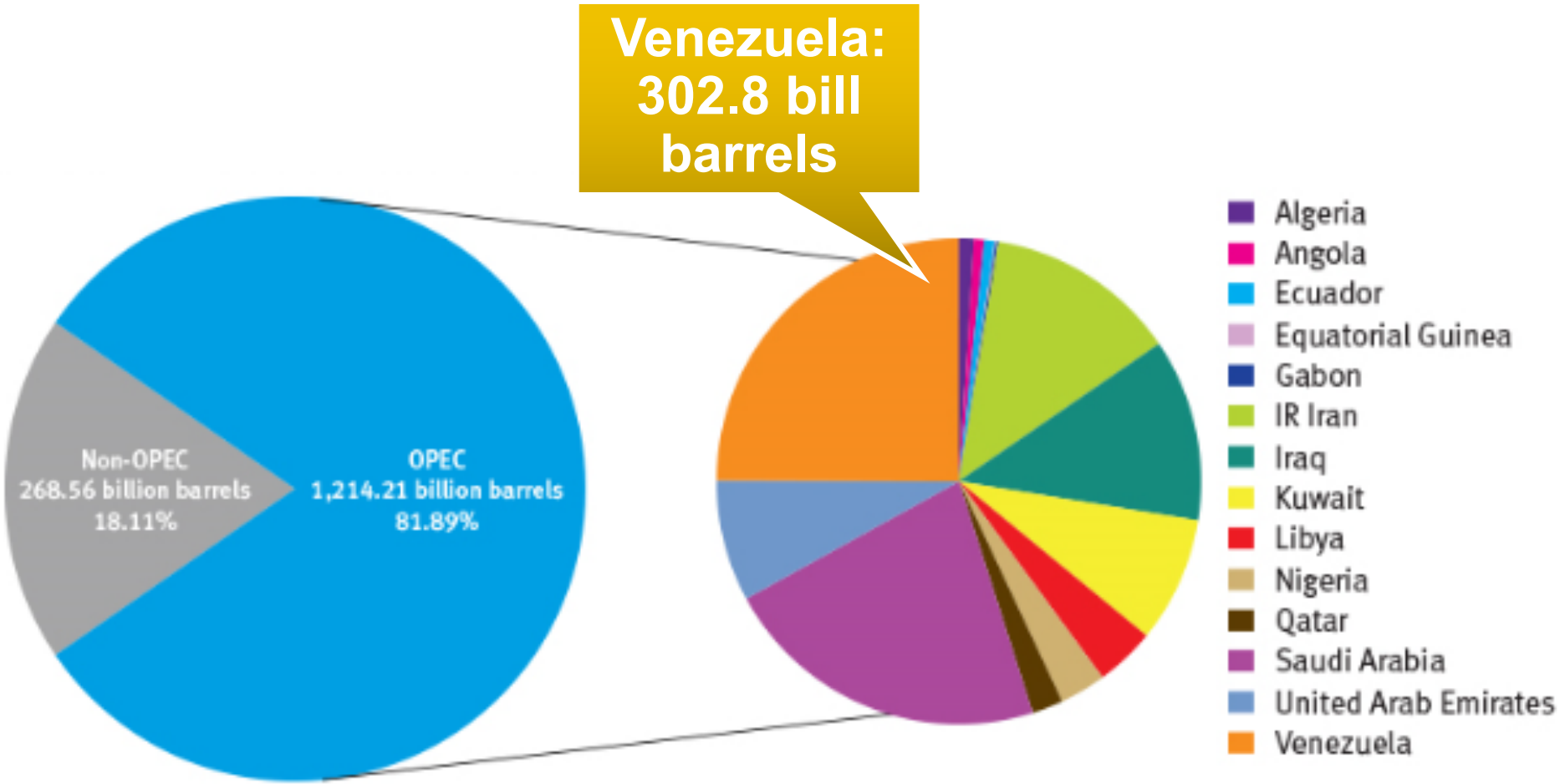
Venezuela's Proven Crude Oil Reserves Are the Largest Among OPEC States



Global Proven Reserves

OPEC Proven Reserves

Venezuela's proven reserves at 302.8 billion barrels (24.9% of OPEC's total) are large enough to have a major impact on global supply (and price) if the country can overcome its domestic political and economic challenges

Source: OPEC, accessed 10 April 2019 at: https://www.opec.org/opec_web/en/data_graphs/330.htm.

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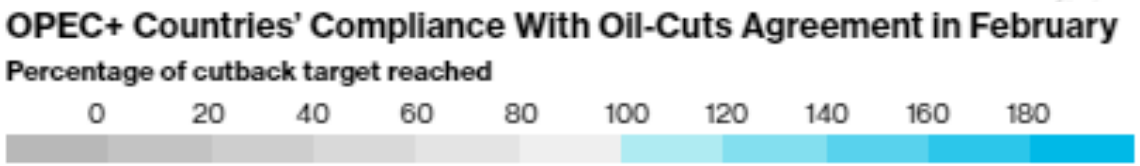
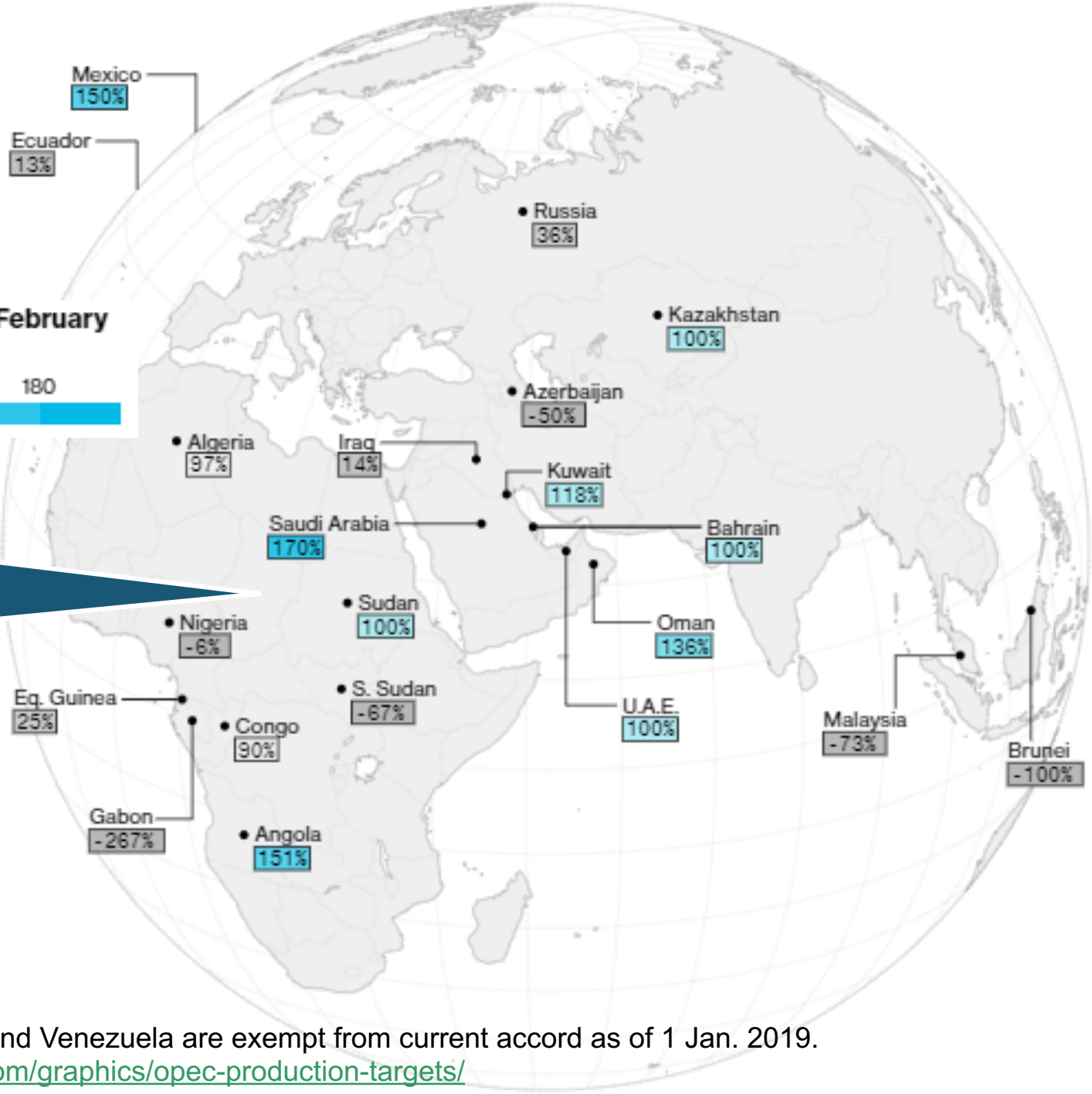
Geopolitics and Uncertainty in the Energy Producing World: Sudan

- Popular uprisings began in December 2018 against Sudanese leader Omar al-Bashir
  - Bashir seized power in a military coup in 1989
- On 11 April, Sudan's military seized power from Bashir, placing him under arrest
  - Military says it will remain in power for two years
  - Constitution suspended
  - Government and parliament dissolved
- Economy is in poor condition
  - Real GDP growth was -2.1% in 2018, with expected growth of -2.3% and -1/3% in 2019 and 2020, respectively

OPEC+ Compliance with Oil Production Cuts Agreement (as of Feb. 2019)



Many Middle Eastern states have met or exceeded their agreed upon cuts, most outside of that region have not. But Saudi Arabia's cuts have far exceeded its agreed limit, thereby absorbing the burden of others



Note: Cuts are to be achieved in first half 2019. Iran, Iraq and Venezuela are exempt from current accord as of 1 Jan. 2019.
Source: Bloomberg accesses at: https://www.bloomberg.com/graphics/opec-production-targets/

OPEC+ Compliance with Oil Production Cuts Agreement
(as of Feb. 2019, 1st Half 2019 Target Achievement)

OPEC Countries

Country ▼	Reference Output	Pledged Cut	Output Target	Feb. 2019	Jan. 2019
Algeria	1,057	-32	1,025	1,026	1,024
Angola	1,528	-47	1,481	1,457	1,435
Congo	325	-10	315	316	317
Ecuador	524	-16	508	522	517
Eq. Guinea	127	-4	123	126	112
Gabon	187	-6	181	203	197
Iraq	4,653	-141	4,512	4,633	4,702
Kuwait	2,809	-85	2,724	2,709	2,723
Nigeria	1,738	-53	1,685	1,741	1,731
Saudi Arabia	10,633	-322	10,311	10,087	10,172
U.A.E.	3,168	-96	3,072	3,072	3,075
Total OPEC	**26,749**	**-812**	**25,937**	**25,892**	**26,005**

-3%

Non-OPEC Countries

Azerbaijan	797	-20	777	807	794
Bahrain	217	-5	212	212	212
Brunei	115	-3	112	118	117
Kazakhstan	2,028	-40	1,988	1,988	2,012
Malaysia	698	-15	683	709	724
Mexico	1,993	-40	1,953	1,933	1,863
Oman	1,003	-25	978	969	978
Russia	11,747	-230	11,517	11,665	11,705
South Sudan	124	-3	121	126	126
Sudan	74	-2	72	72	73
Total Non-OPEC	**18,796**	**-383**	**18,413**	**18,599**	**18,604**
Total OPEC+	**45,545**	**-1,195**	**44,350**	**44,491**	**44,609**

-2%

Total cuts are just under 2 M/BD or 2.7% of OPEC+ output

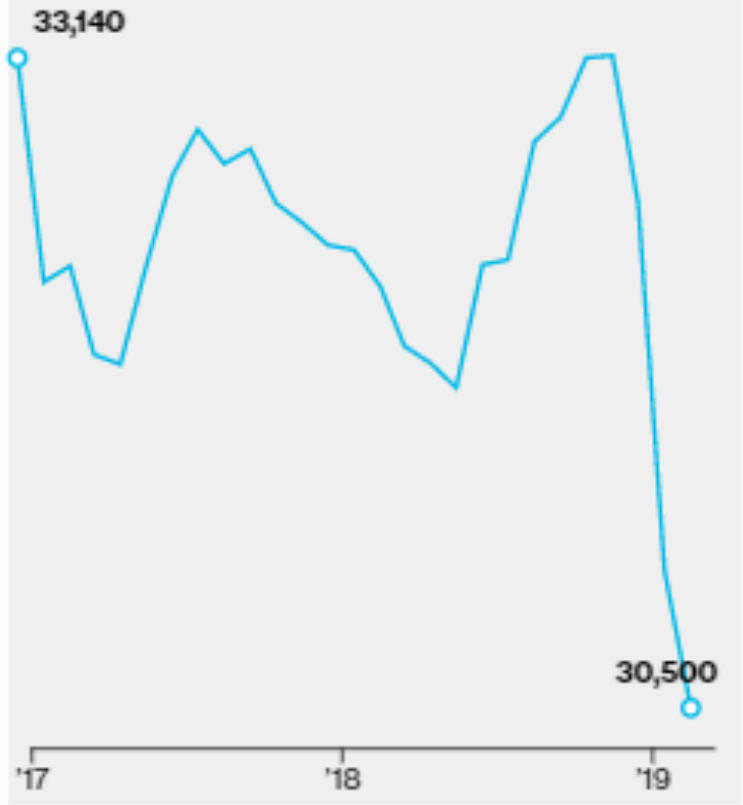
-2.7%

Source: Bloomberg

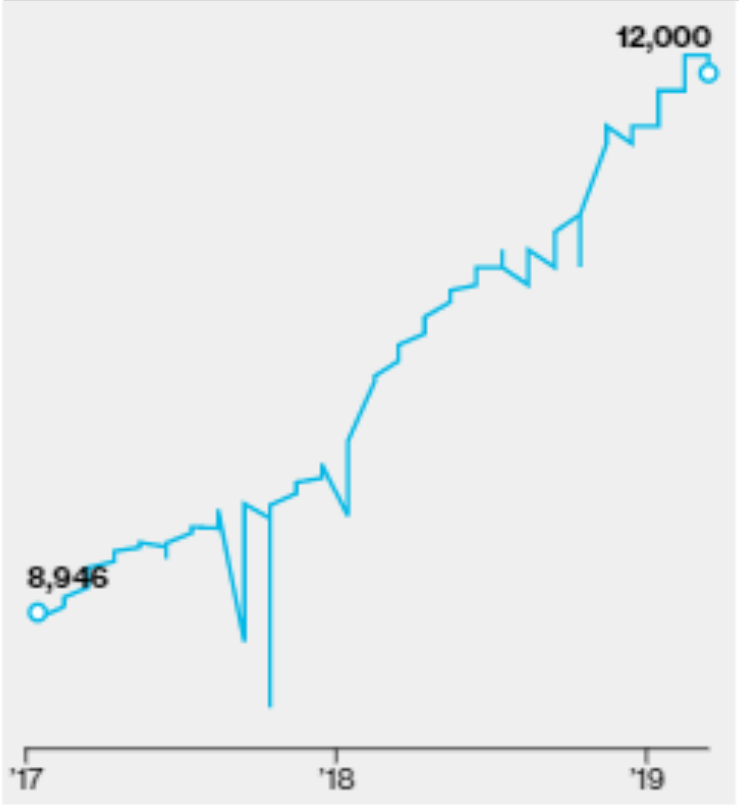
But OPEC+ Efforts Confront US Production Headwinds

Brent Crude Oil Price

OPEC Total Production (000s B/D)



US Total Production (000s B/D)



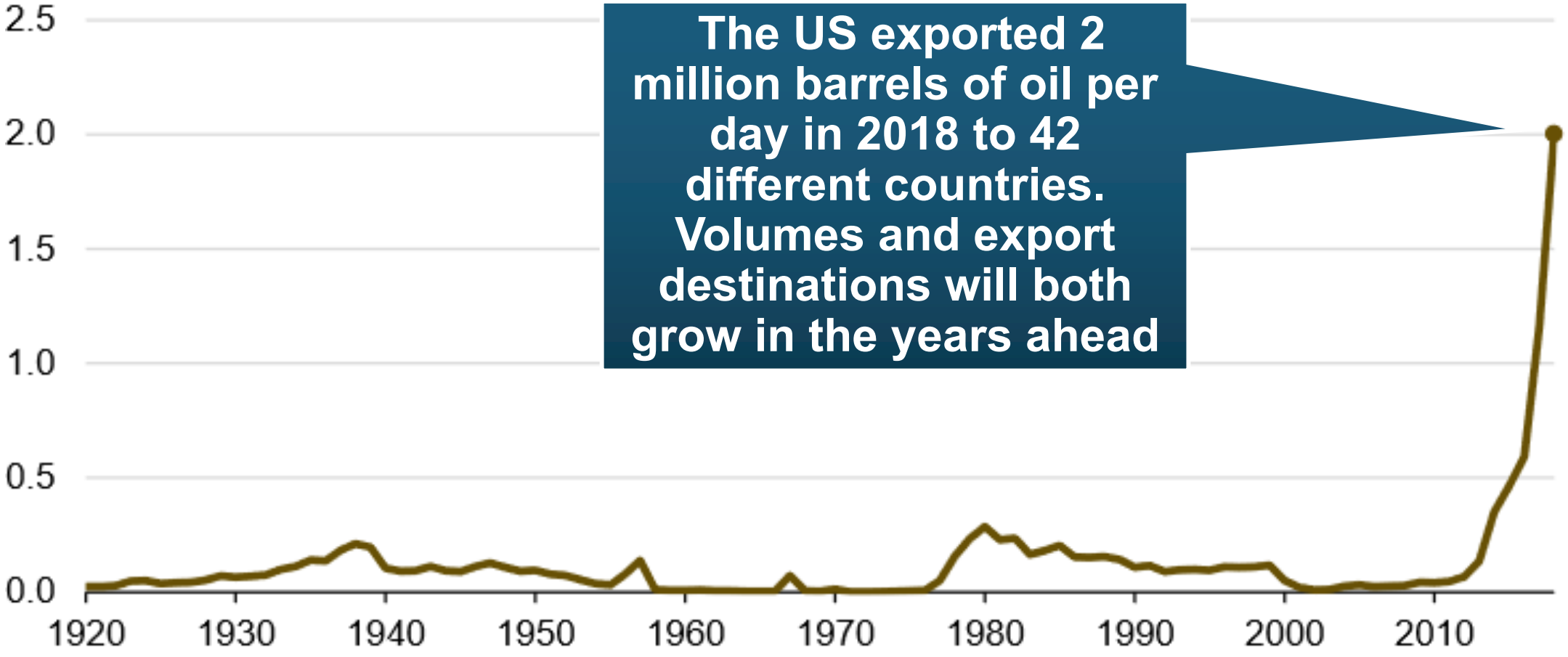
-3%

Total cuts are just under 2 M/BD or 2.7% of OPEC+ output

-2.7%

Source: Bloomberg

US Crude Oil Exports—One Century of History: 1920 – 2018



Source: US Energy Information Agency accessed 15 April 2019 at:
https://www.eia.gov/todayinenergy/detail.php?id=39072

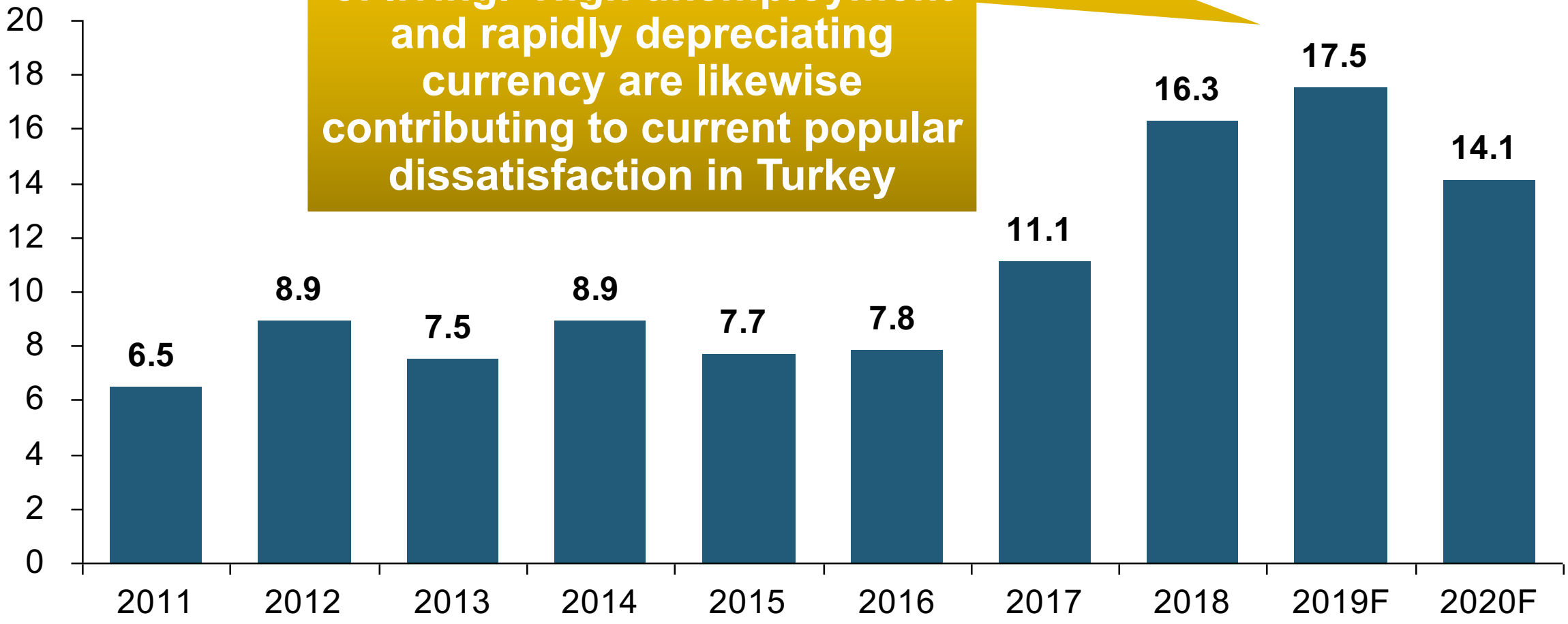
Geopolitics and Uncertainty: Turkey Adds to Uncertainty

- Turkish local elections on 30 March saw the party of President Tayyip Erdogan, the AKP, lose its hold on several key cities, including Istanbul and the capital, Ankara
  - The AKP will appeal the elections in both cities and is pushing for a recount in Istanbul
- The immediate driver of dissatisfaction is the poor state of the Turkish economy
  - Economy fell into recession this year, with GDP growth expected at -2.5%
  - Unemployment rate > 10%; >30% for young people
  - Inflation is approaching 20%
  - Turkish lira collapsed, down 28% in 2018 against USD

Turkish Inflation Rate: 2011 – 2020F

(Inflation Rate, %)

Persistently high inflation erodes incomes and standard of living. High unemployment and rapidly depreciating currency are likewise contributing to current popular dissatisfaction in Turkey



Source: IMF, *World Economic Outlook*, April 2019.

Populist Movements

Not Limited to Emerging Markets—With Additional Regional and Global Energy and Insurance Market Implications

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Populism Spans the Globe

Trumpeteers

Brexiteers

- 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

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; Cut back on oil imports
- **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)**
- **The US withdrew from the Paris Climate Accord**

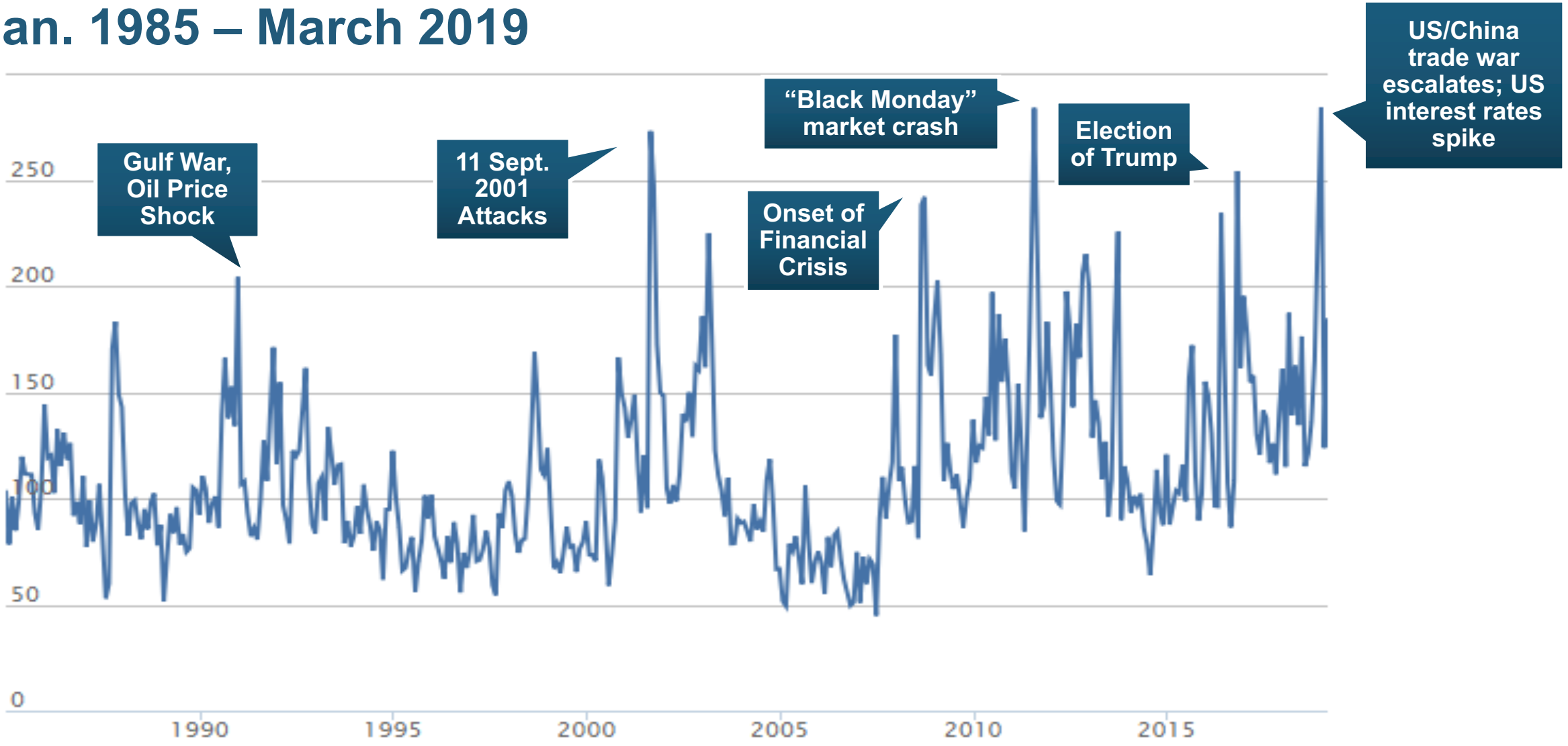
Brexit and Energy

- Brexit and the uncertainty it has brought to the UK, EU and world have unquestionably been a net economic negative
- Questionable whether a comprehensive deal can be reached by the new 31 October 2019 deadline
- That said, the consensus is that the impact of Brexit on the UK's energy markets should be less disruptive than on many other markets
- But concerns remain as the UK is a net importer of energy:
  - Ensuring ongoing investment (replacing EU investment)
  - Maintaining stable energy prices
  - Adhering to climate goals
  - Achieving the appropriate balance of support between climate and energy goals

Global Economic Policy Uncertainty Index: Global Economic Uncertainty Has Increased Significantly Since Trump's Election, Jan. 1997 – March 2019

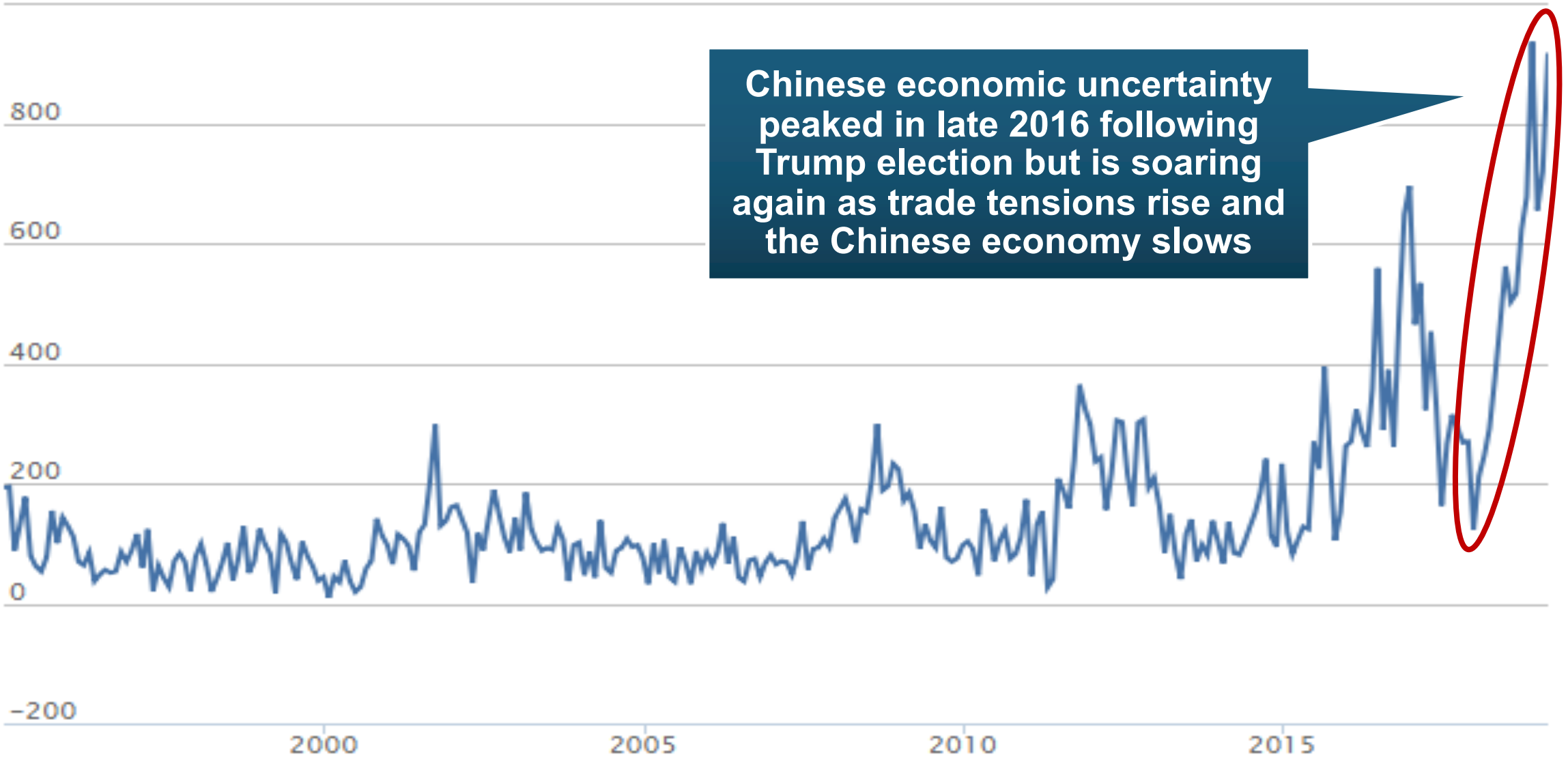
Source: *Economic Policy Uncertainty*, PolicyUncertainty.com accessed 12 Apr. 2019 at: http://www.policyuncertainty.com/index.html

US Economic Policy Uncertainty Index: US Has Been Elevated Since the Advent of the Global Financial Crisis, Jan. 1985 – March 2019



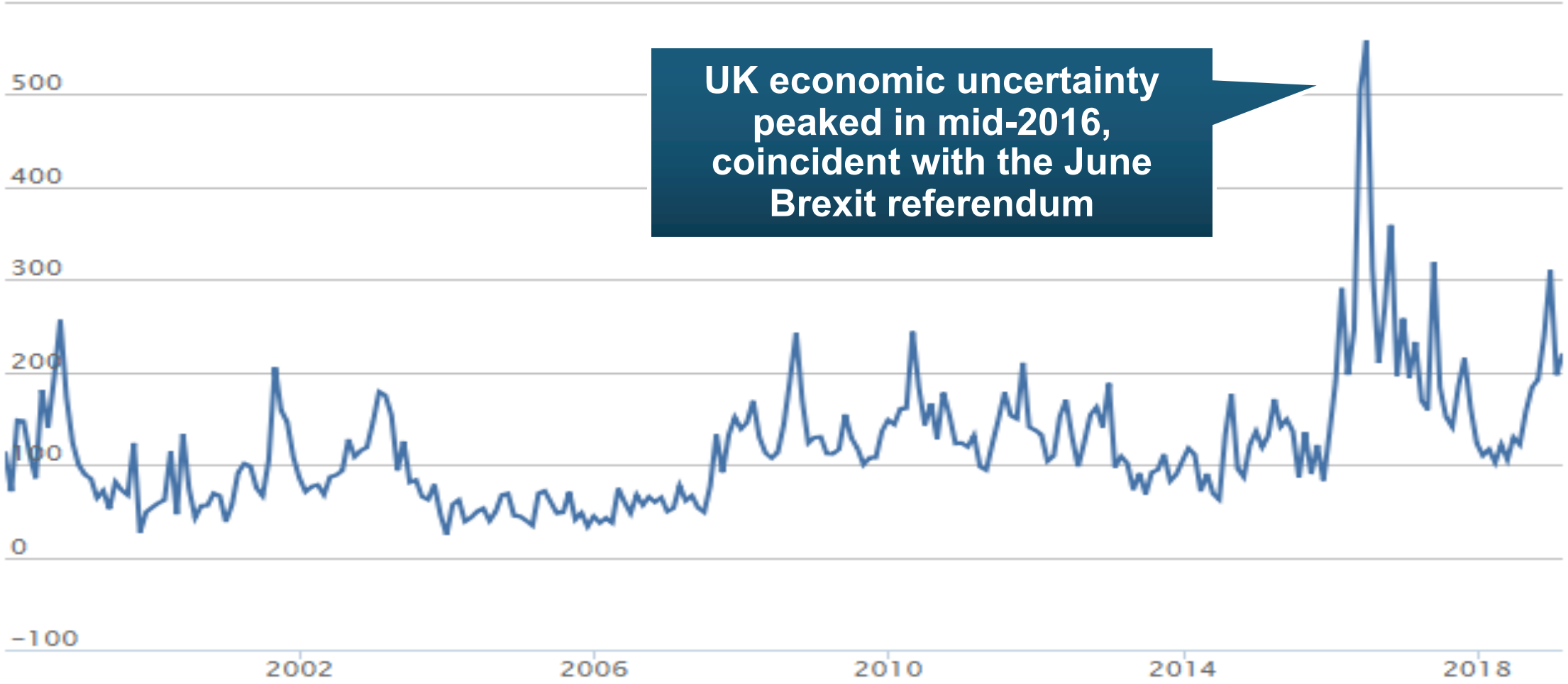
Source: *Economic Policy Uncertainty*, PolicyUncertainty.com accessed 12 Apr. 2019 at: http://www.policyuncertainty.com/index.html

China Economic Policy Uncertainty Index: Chinese Uncertainty Tied to Escalating Trade War, Jan. 1995 – March 2019



Source: *Economic Policy Uncertainty*, PolicyUncertainty.com accessed 12 Nov. 2019 at: http://www.policyuncertainty.com/index.html

UK Economic Policy Uncertainty Index: UK Uncertainty Tied to Brexit, Jan. 1998 – March 2019



Source: *Economic Policy Uncertainty*, PolicyUncertainty.com accessed 12 Apr. 2019 at: http://www.policyuncertainty.com/index.html

ENERGY NATIONALISM

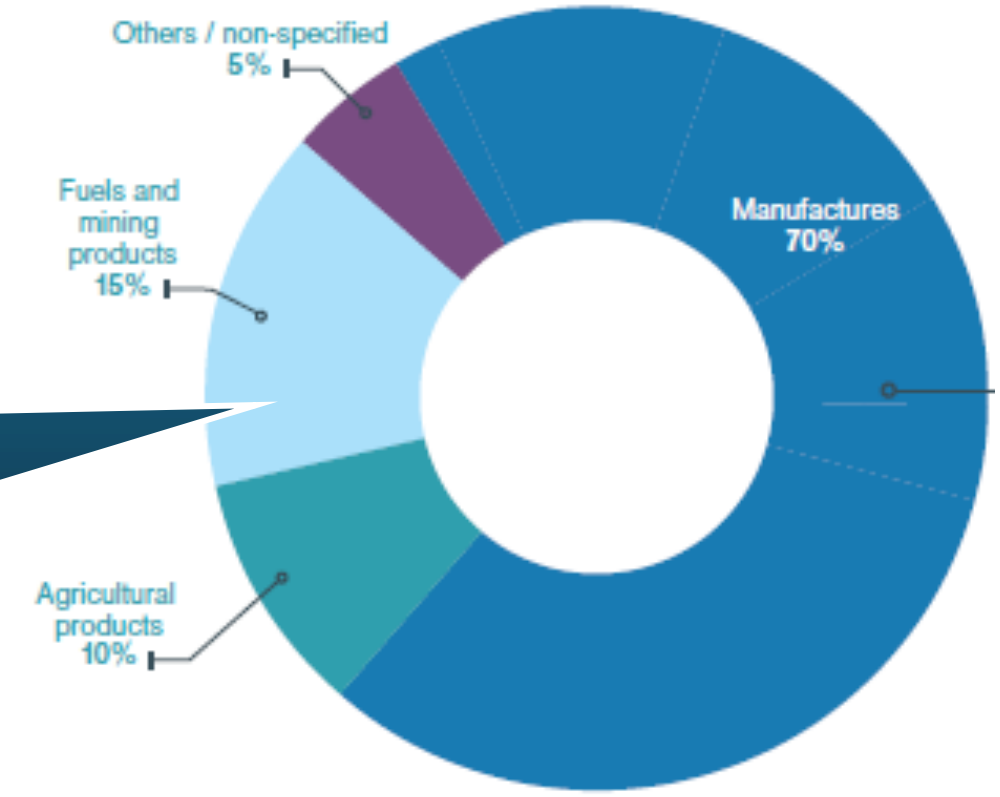
The Use of Energy Resources to Exert Political and Economic Influence Is on the Rise—But Is Not New

Nationalism and Energy Are a Volatile Combination

47

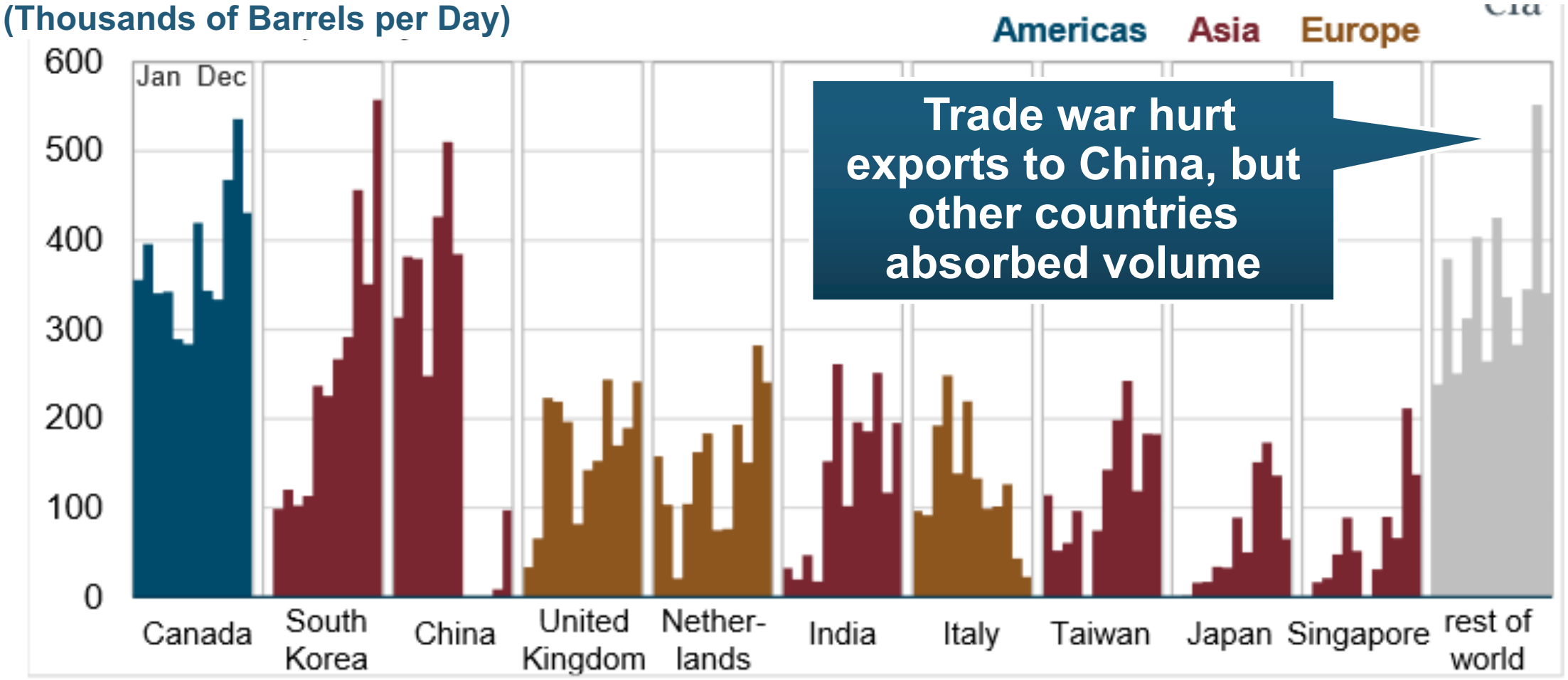
Energy Products (Fuels) Account for a Significant Share of Global Trade Volume, 2018

Fuels and mining products account for 15% of global trade; Insurers protect all of it—and the associated infrastructure



Source: World Trade Organization: https://www.wto.org/english/res_e/statis_e/wts2018_e/wts2018_e.pdf

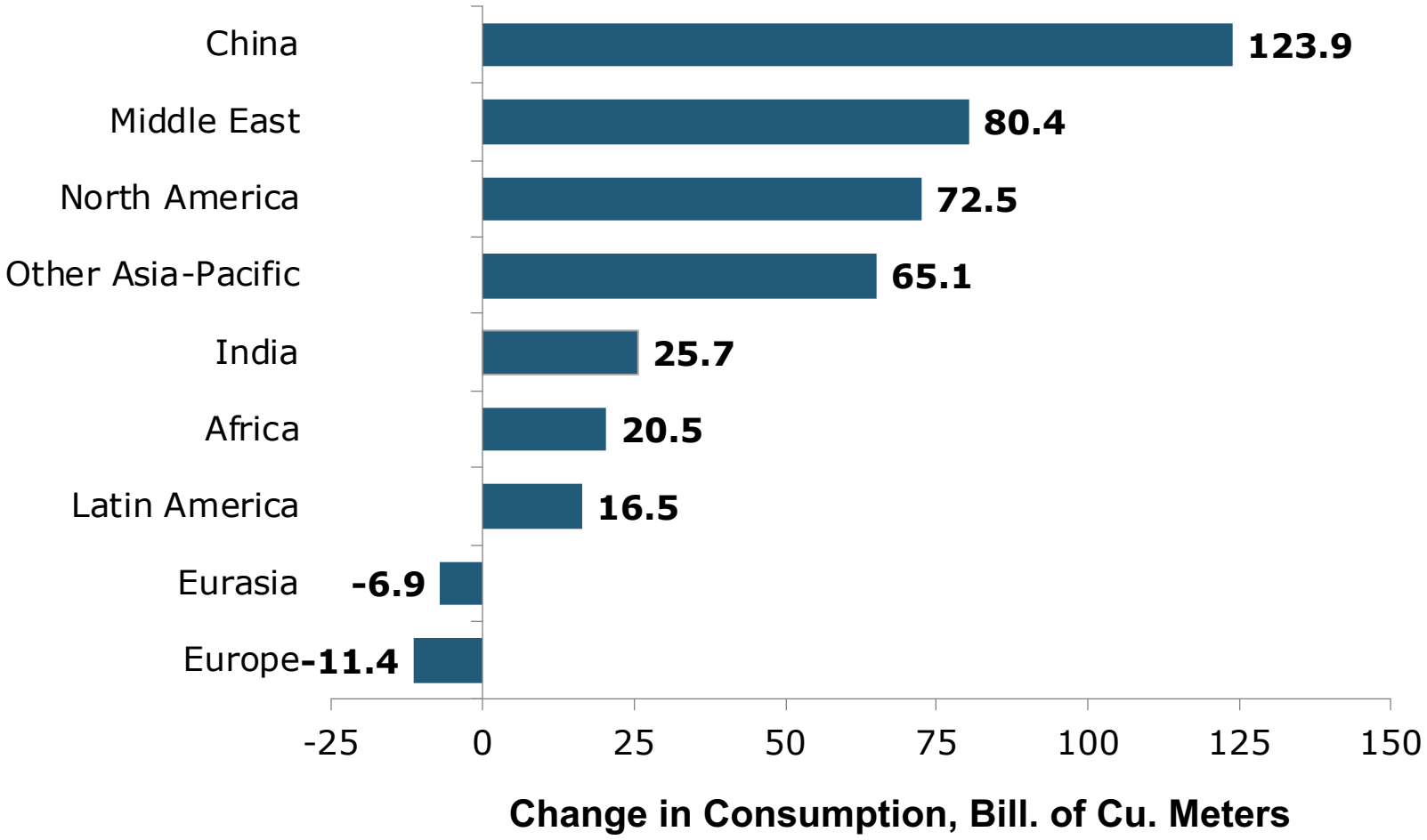
US Crude Oil Exports by Leading Destination, 2018



Source: US Energy Information Agency accessed 15 April 2019 at:
https://www.eia.gov/todayinenergy/detail.php?id=39072

Natural Gas Consumption Growth: 2017 – 2023

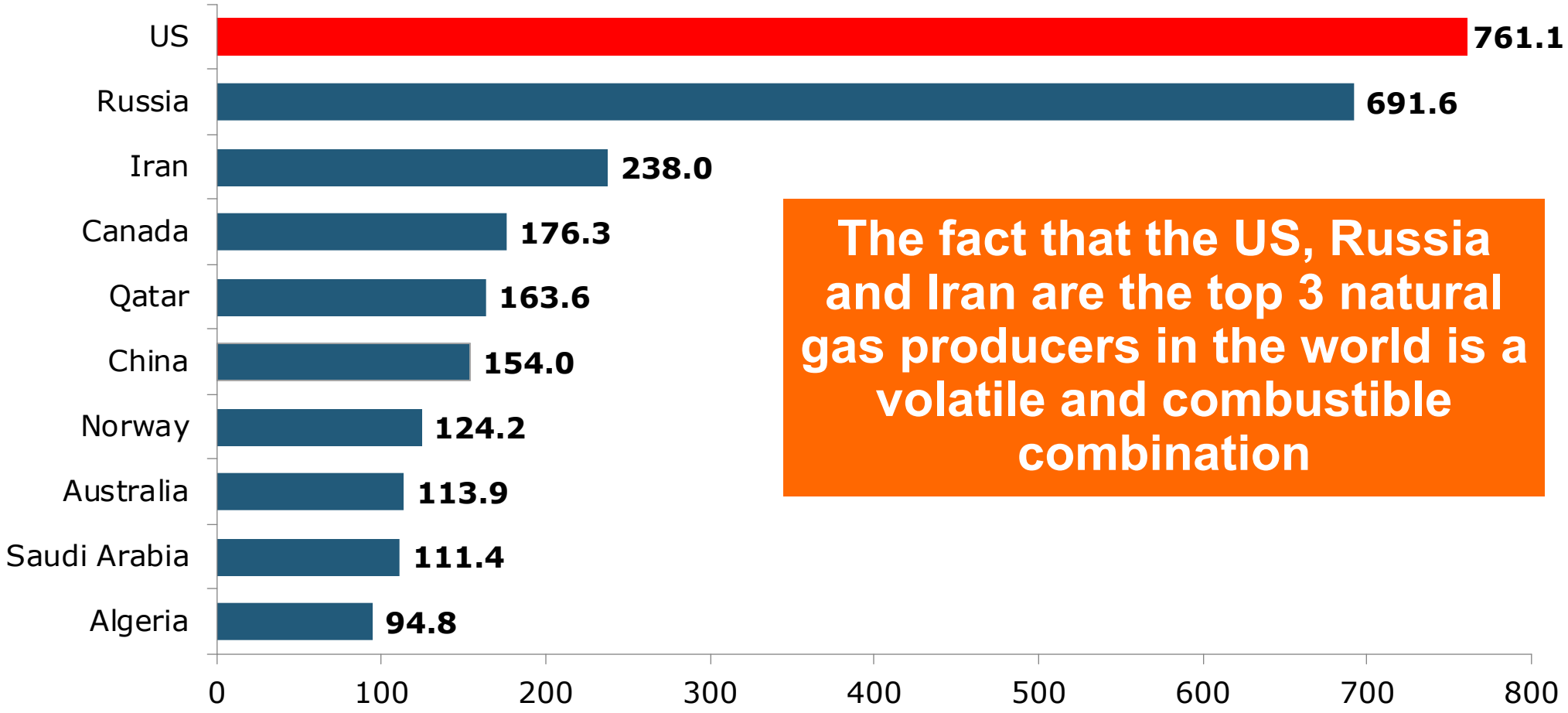
(Billions of Cubic Meters)



- China will account for the largest share of gas consumption growth through 2023
- Natural gas is becoming more globalized due to rising availability of shale gas and increasing supplies of LNG
- The globalization of gas, while positive overall, means that supply shocks in one region are more easily transmitted to other regions—as has been the case for oil for many decades

Source: International Energy Agency, accessed 4/12/19 at: https://www.iea.org/topics/naturalgas/ ; University of South Carolina Risk Management and Uncertainty Center.

Top 10 Producers of Natural Gas: 2017
(Billions of Cubic Meters)



The fact that the US, Russia and Iran are the top 3 natural gas producers in the world is a volatile and combustible combination

Source: Statista.com accessed 9/15/18 at:; https://www.statista.com/statistics/264771/top-countries-based-on-natural-gas-production/
University of South Carolina Risk Management and Uncertainty Center.

Energy Nationalism—Back Again

- **The United States is using is 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 MENA region**
- **Venezuela's problems adding to US/Russia and US/Cuba tensions**
- **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 interested 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

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
  - US sanctions against shipping of Venezuelan oil

Financial Market Volatility

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

Energy Nationalism: Insurance Industry Concerns

Energy Insurance Markets of the Future

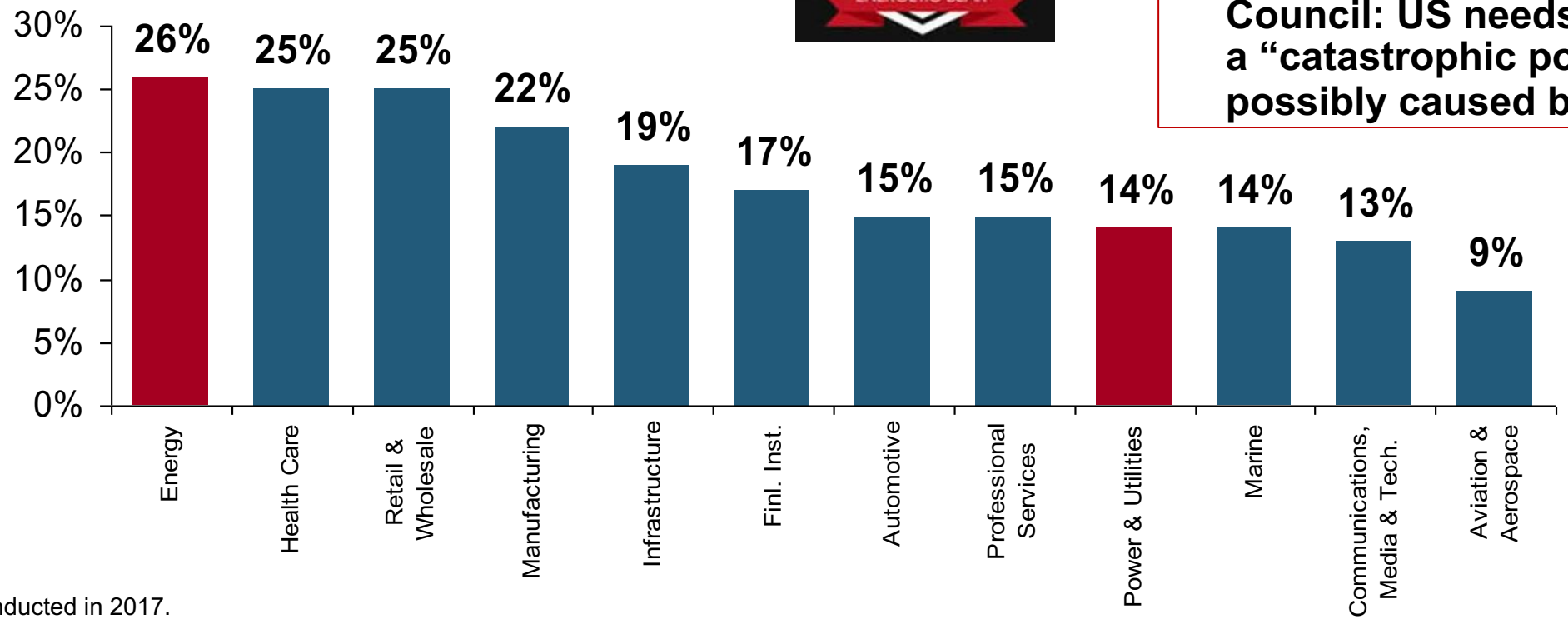
- Carbon vs. Renewables?
- Should insurers play an active role?

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*

The energy sector is a favorite target for cyber attacks, with more than 1-in4 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.

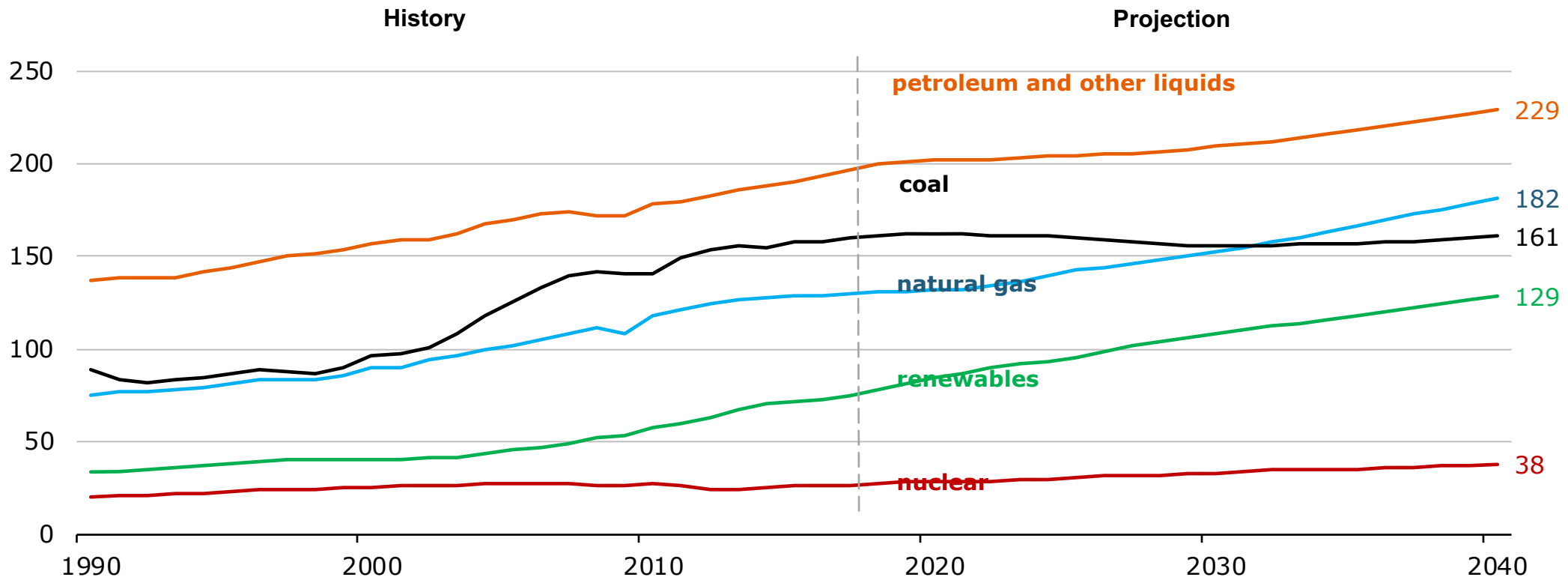
Global Perspective: We Live in an Energy-Hungry World

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

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

57

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

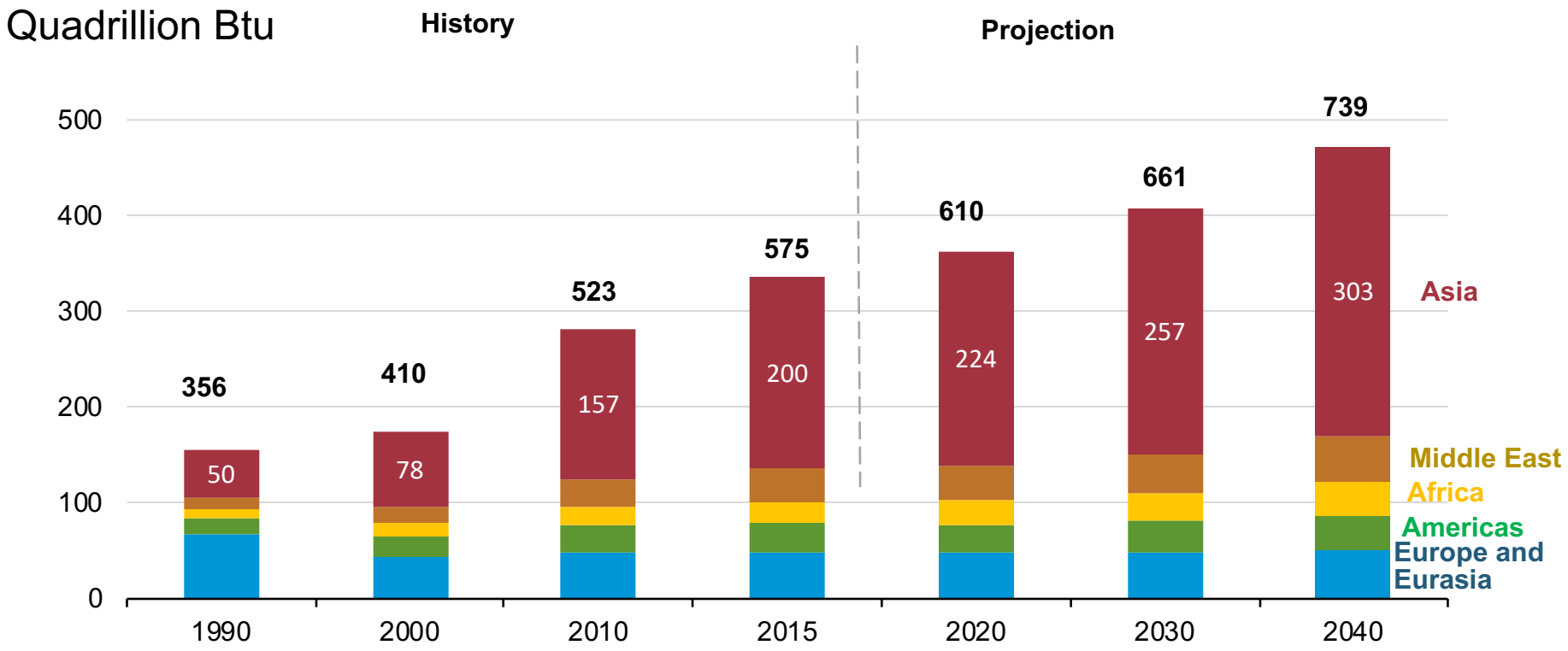


*Based on IEO2018 reference case.

Source: EIA, International Energy Outlook 2018

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

Energy Investment Trends

Energy Investment Drive Insurable Exposures

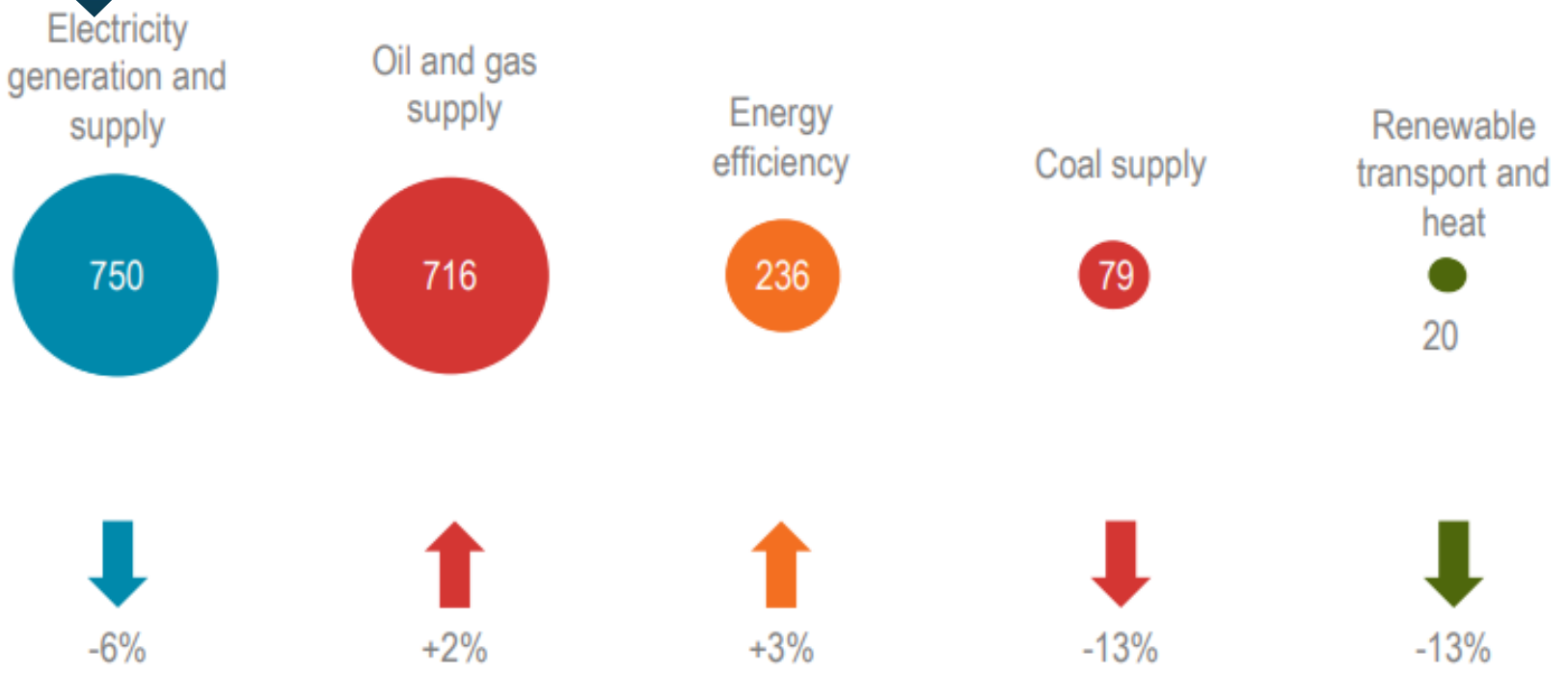
Investment Trends Have Shown Some Weakness in Recent Years, but Longer Terms Trends Bode Well for Energy Insurers

60

Global Energy Investment, 2017
($ Billions)

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

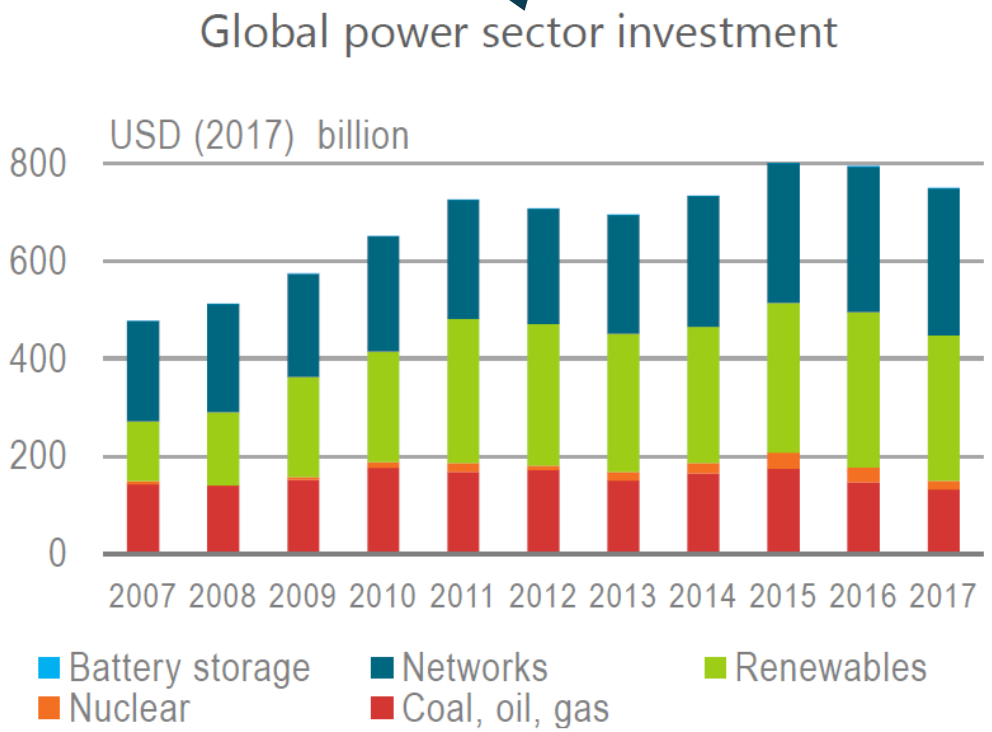
Global energy investment fell by 2% in 2017, the 3rd consecutive year of decline



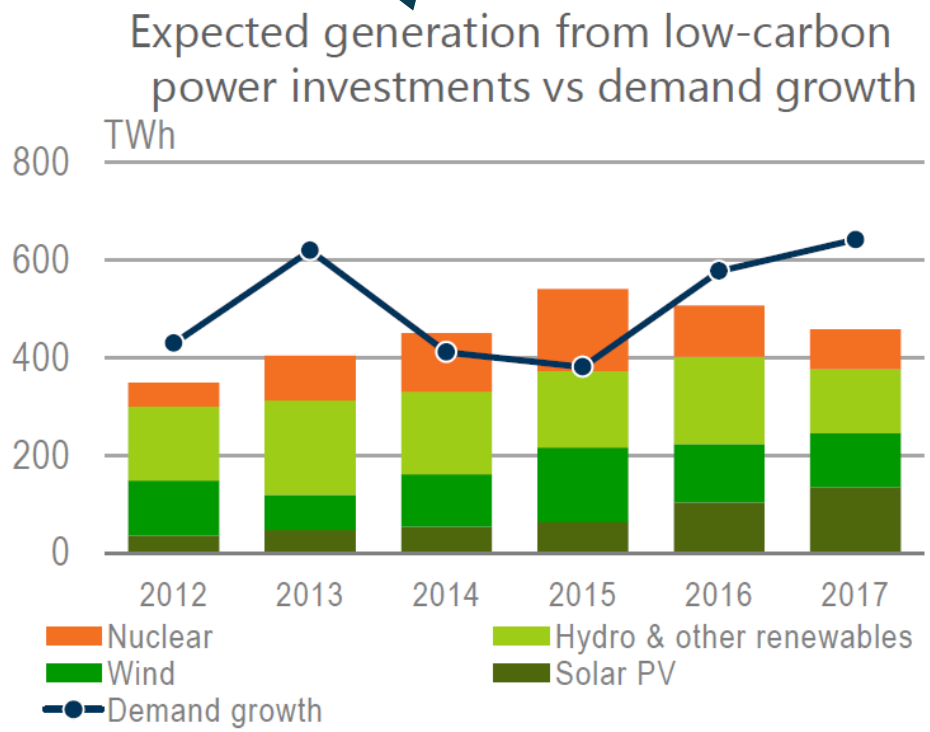
Source: International Energy Agency, *World Energy Investment 2018*, at: https://www.iea.org/wei2018/

Global Energy Investment, 2017
($ Billions)

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

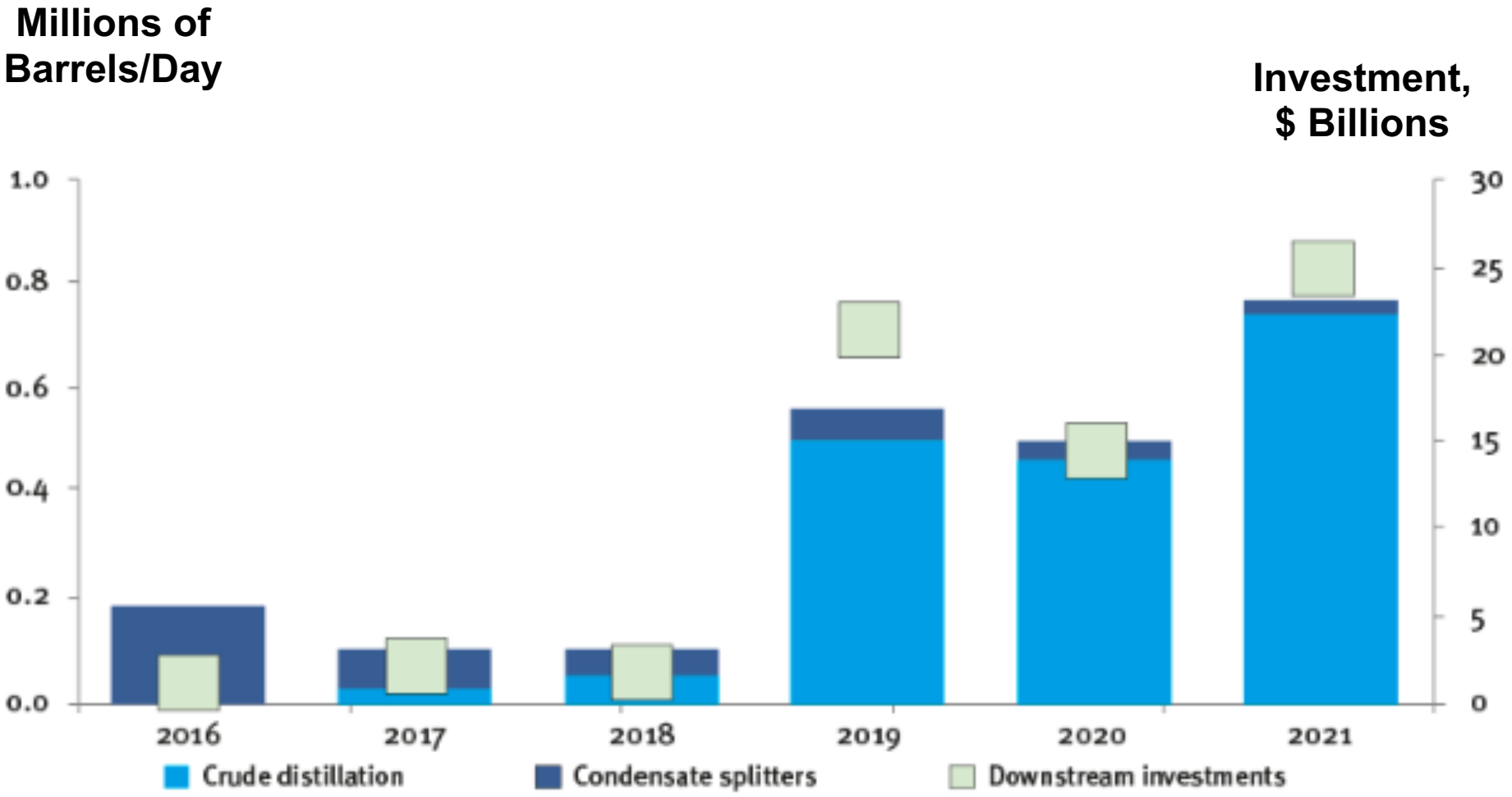


Low carbon generation is actually falling largely due to decommissioning of numerous nuclear facilities



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

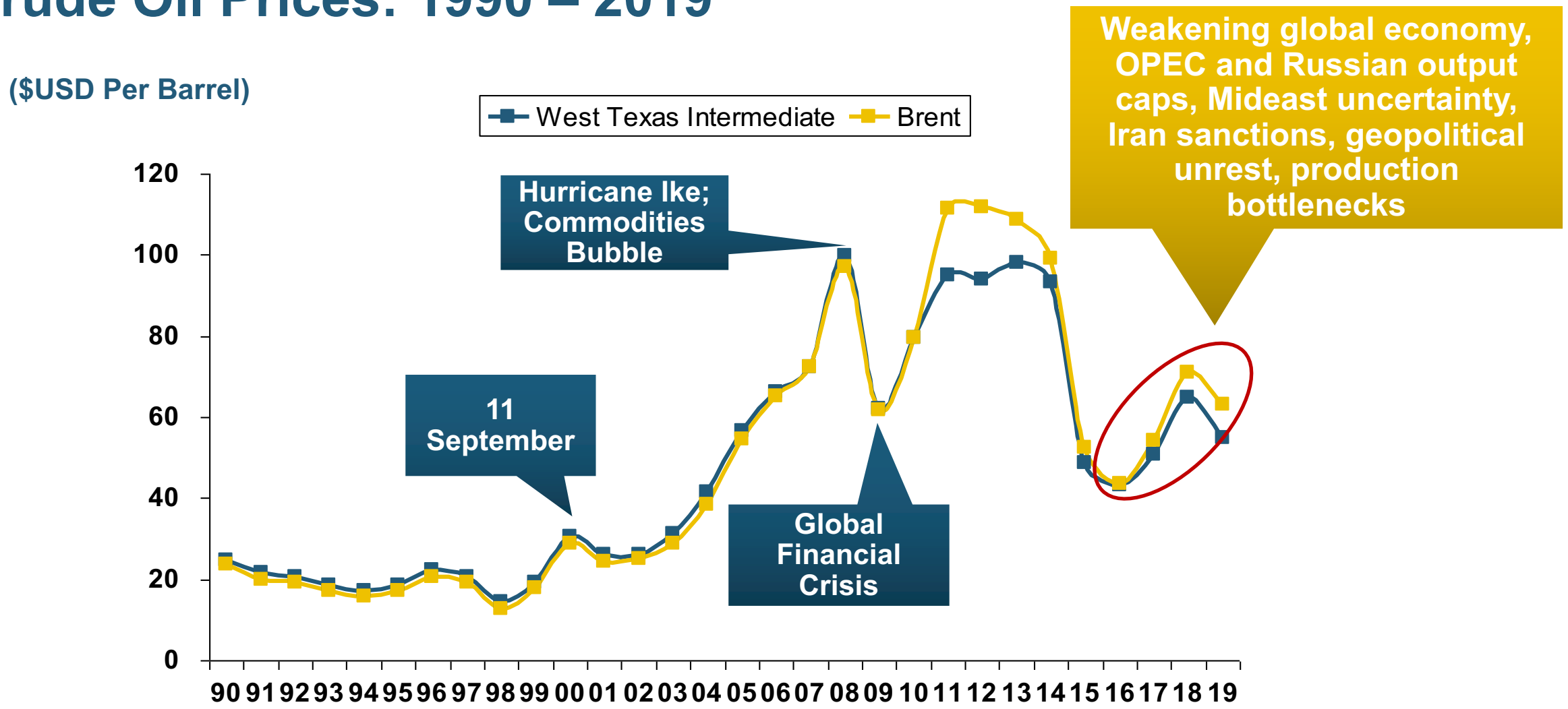
OPEC Downstream Investments and Capacity Additions, 2017 – 2021



Downstream investments in OPEC states are expected to rise in the years ahead

Source: OPEC, accessed 14 Apr. 2019 at: https://www.opec.org/opec_web/en/647.htm

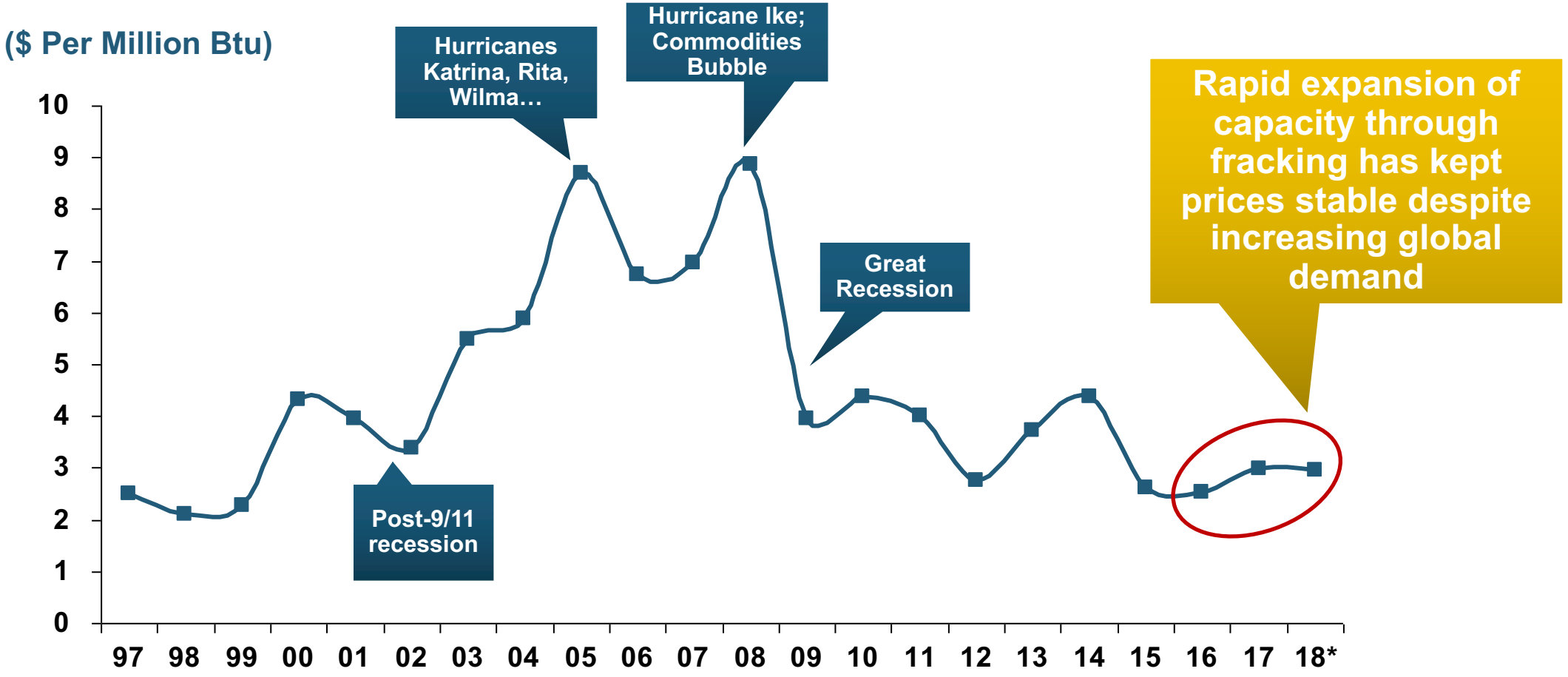
Crude Oil Prices: 1990 – 2019*



Crude Oil Pricing Remains Volatile—Impacted by US Capacity Additions, OPEC/Russia Supply Agreement, Economic, Political and Geopolitical Issues Among Some Major Producers

*2019 figure is the average of monthly figures through March 2019.
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.

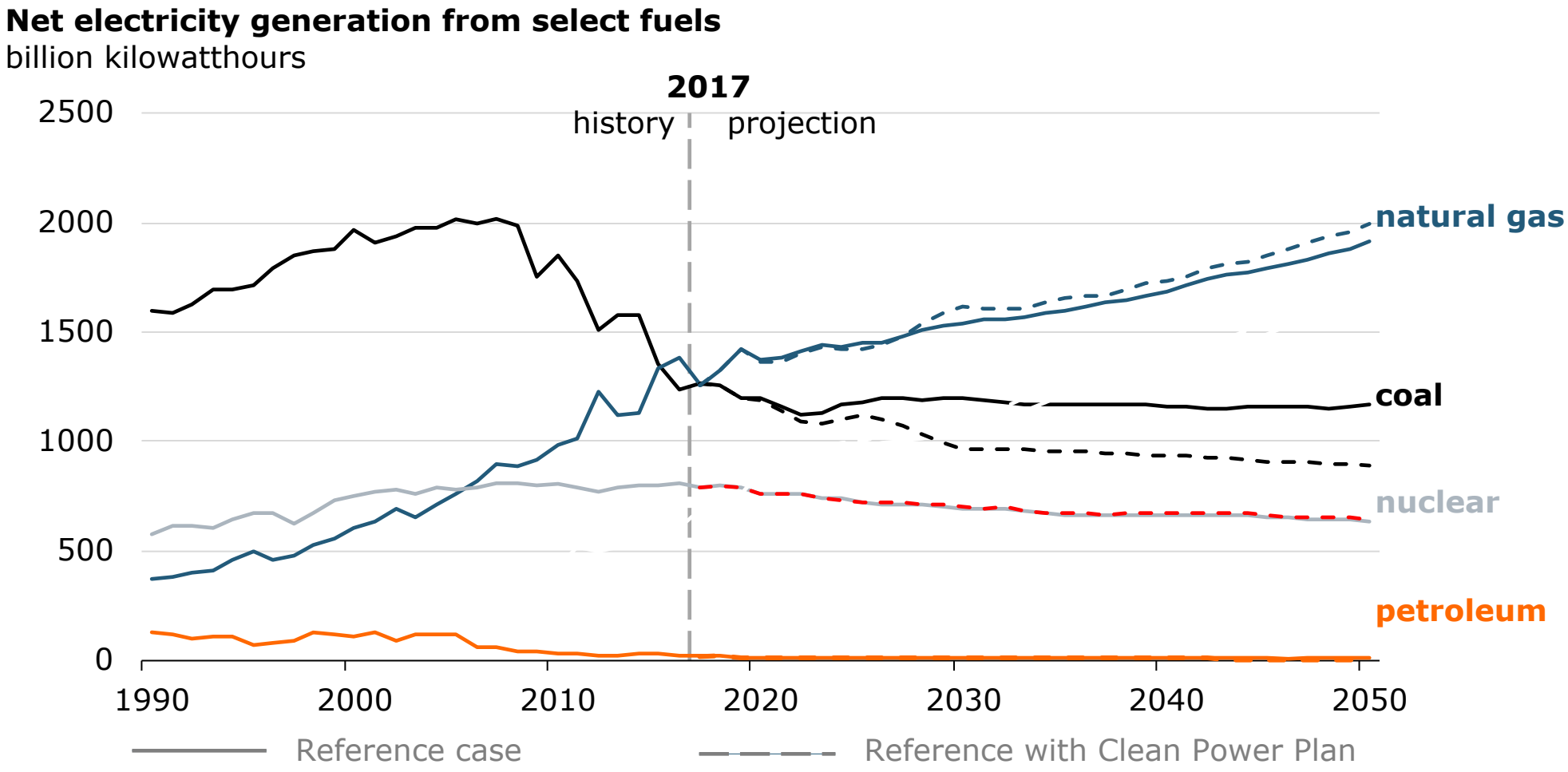
Energy Supply: The Transformation Continues

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

A Peek into the Industry at Mid-Century

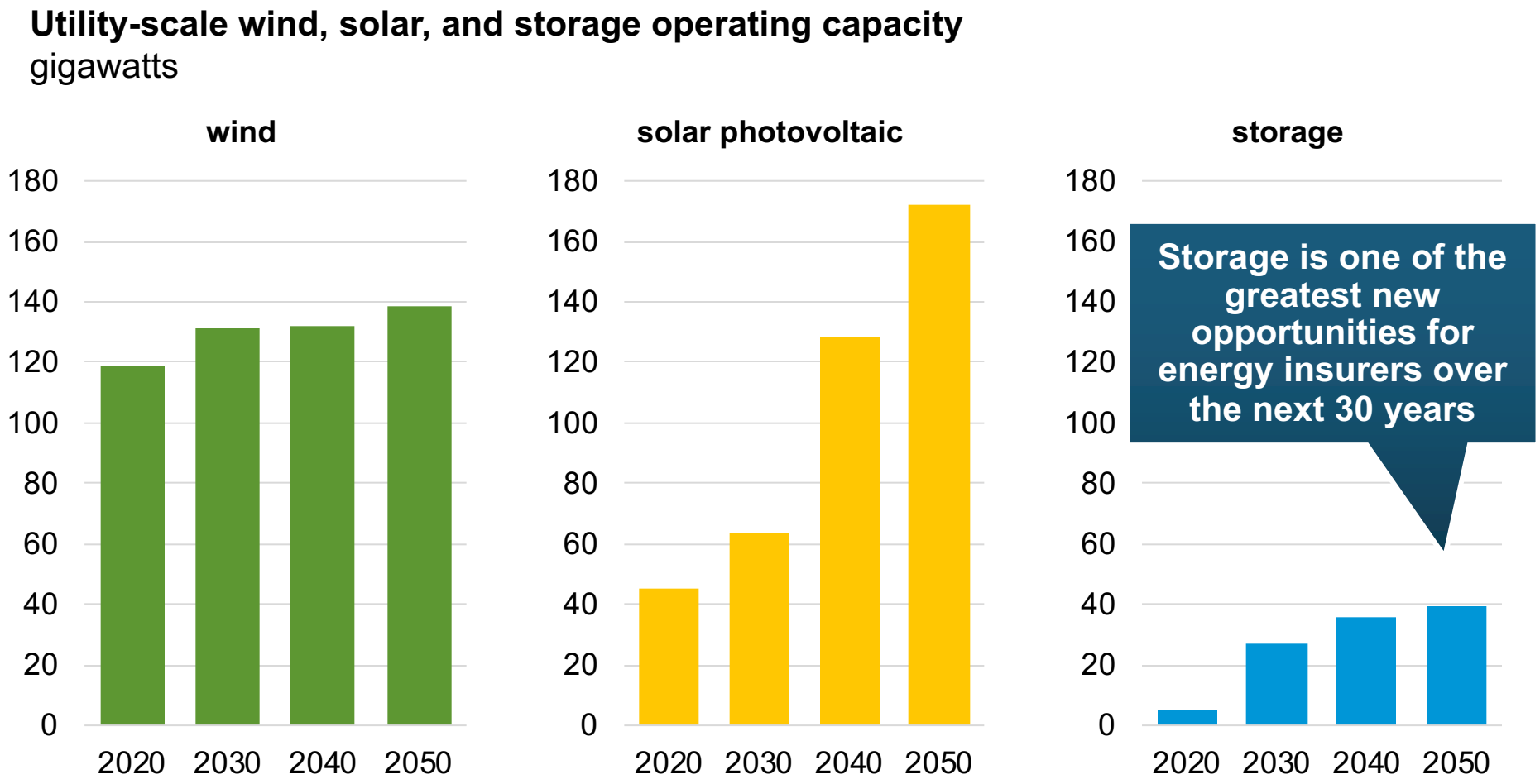
66

Utilities: Net Electricity Generation from Select Fuels



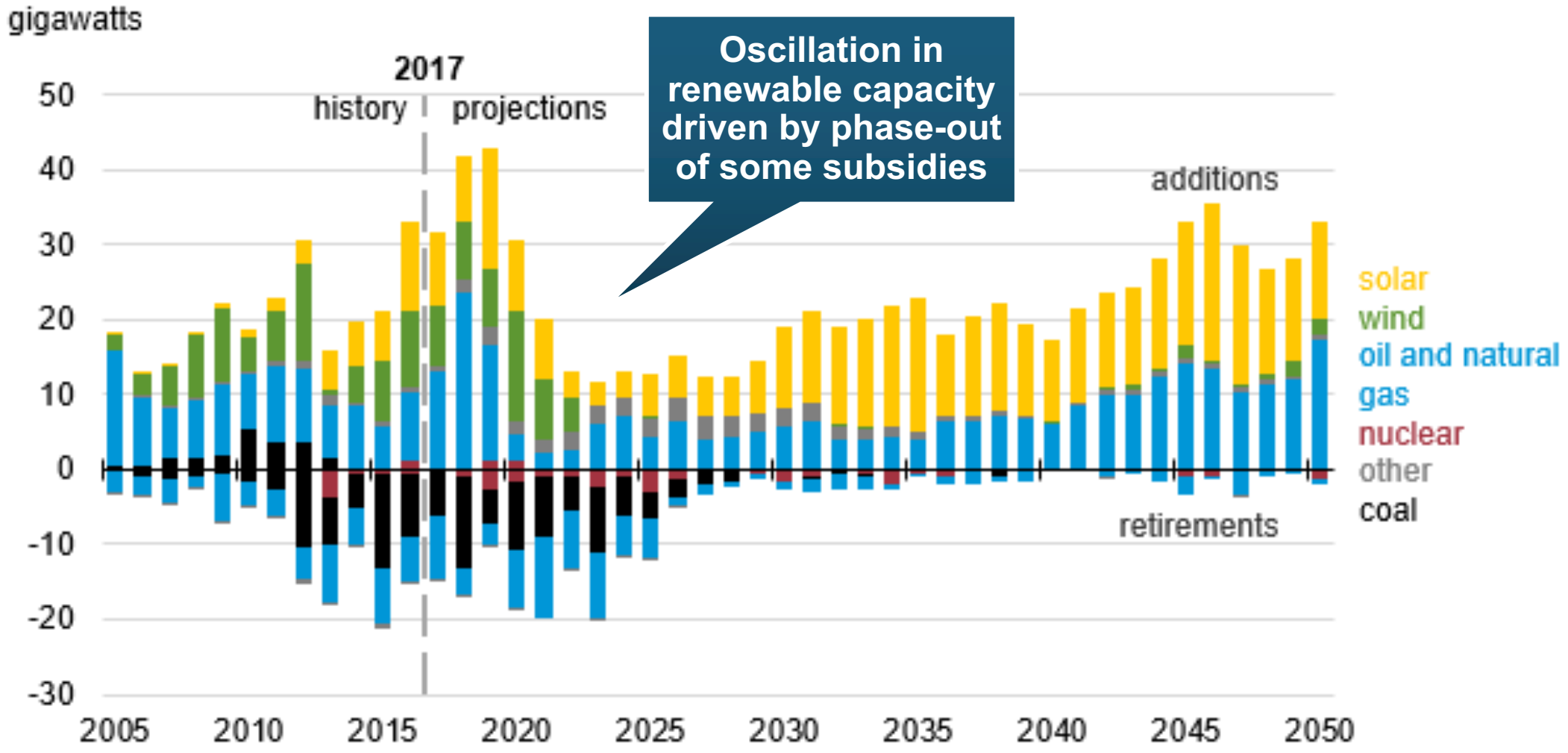
Source: Energy Information Administration, Annual Energy Outlook 2018 at www.eia.gov/aeo

Increasing Wind and Solar Capacity Additions…Necessitates More Storage Investment



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



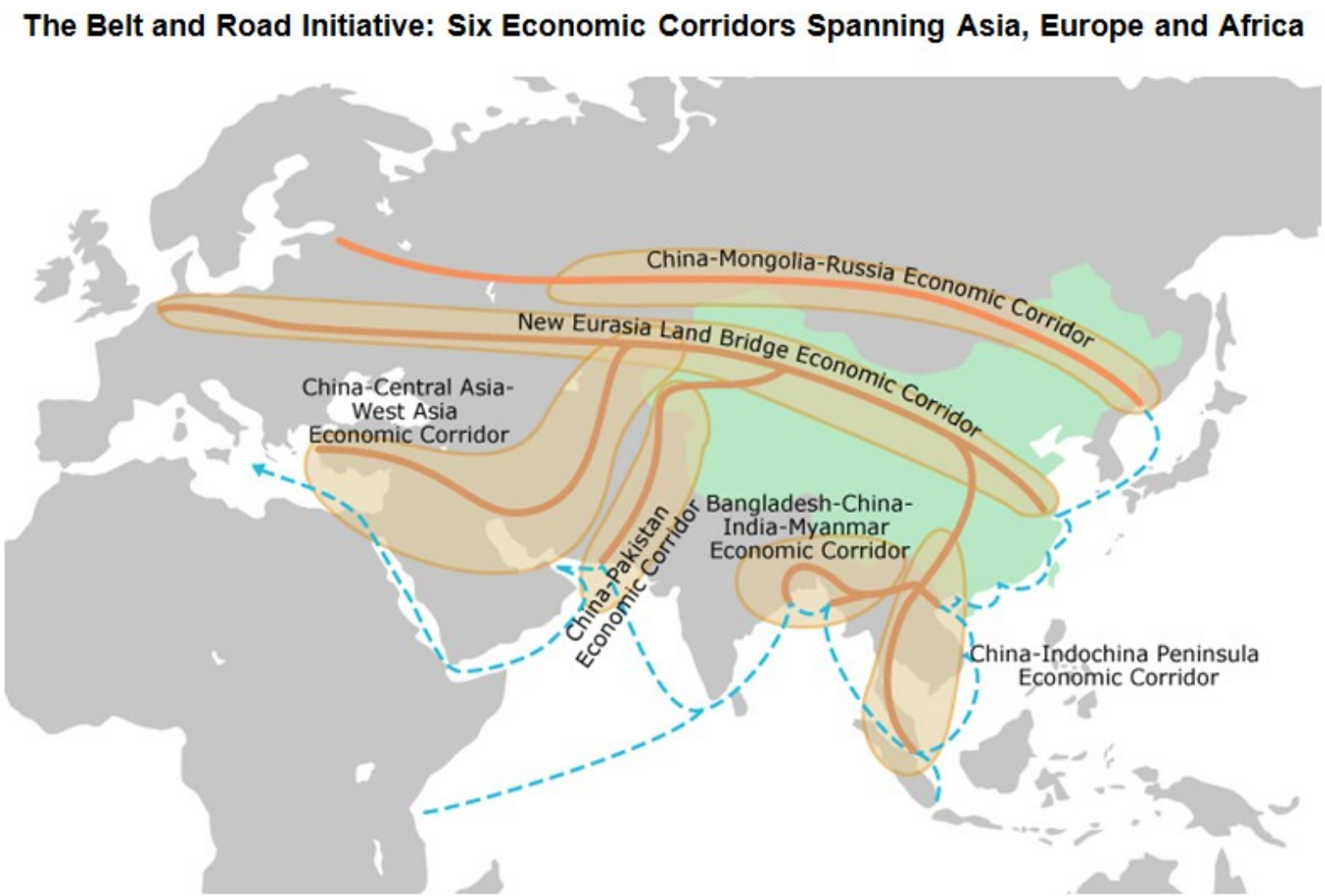
Source: Energy Information Administration, Annual Energy Outlook 2018 at www.eia.gov/aeo

The New Silk Road: China's Belt Road Initiative

China's Bold and Global Investment Initiative Has Major Implications for Energy Markets

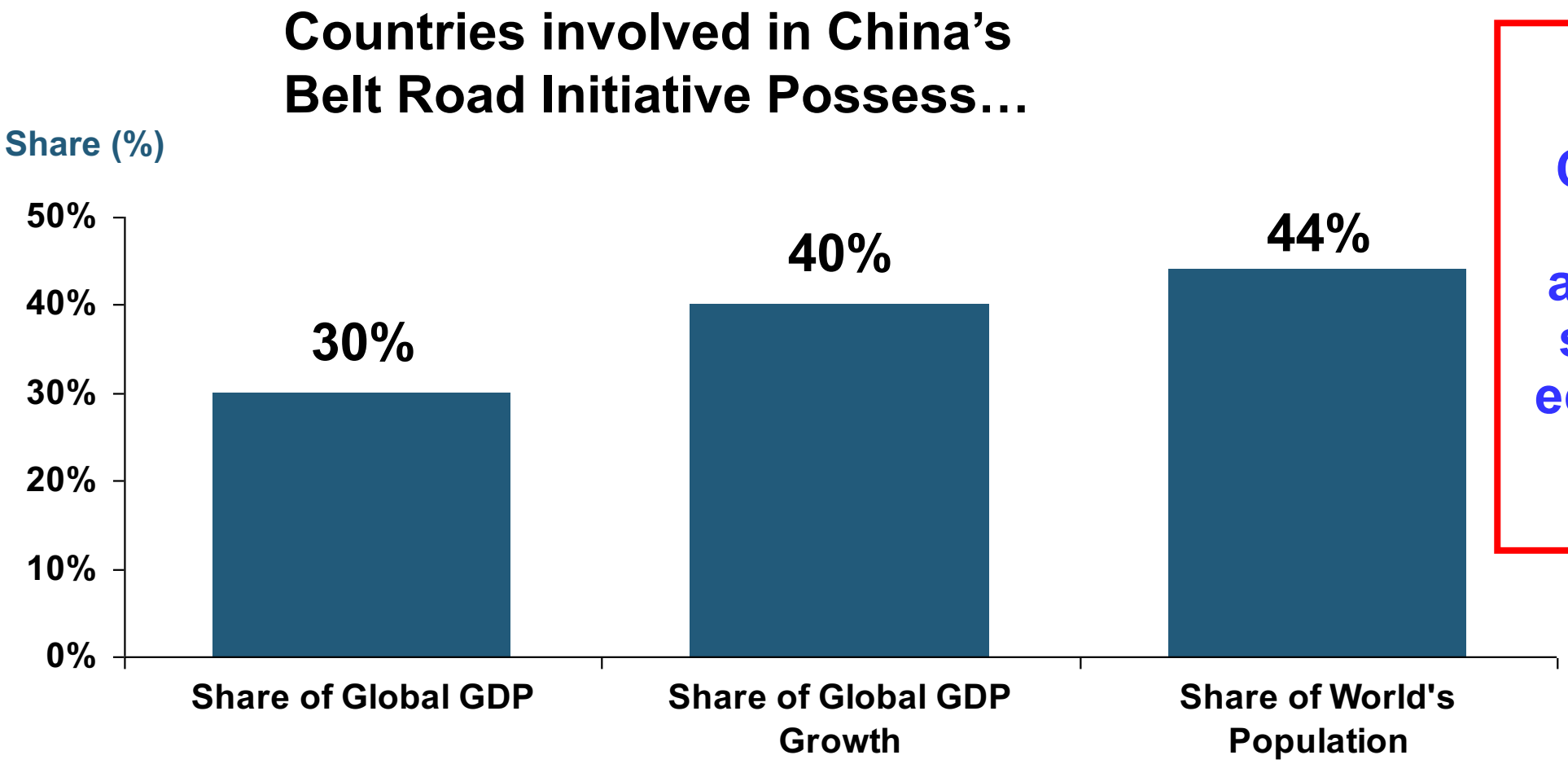
70

China's Belt and Road Initiative



- **China's Belt and Road Initiative**
  - Announced in Late 2013
  - 6 Economic Corridors
  - 70+ Countries in Asia, Africa and Europe
- **$1 Trillion+ Total Investment Envisioned by 2027**
- **Focused on Infrastructure Investments**
  - Roads and Railways
  - Ports and Airports
  - Pipelines and Power Plants

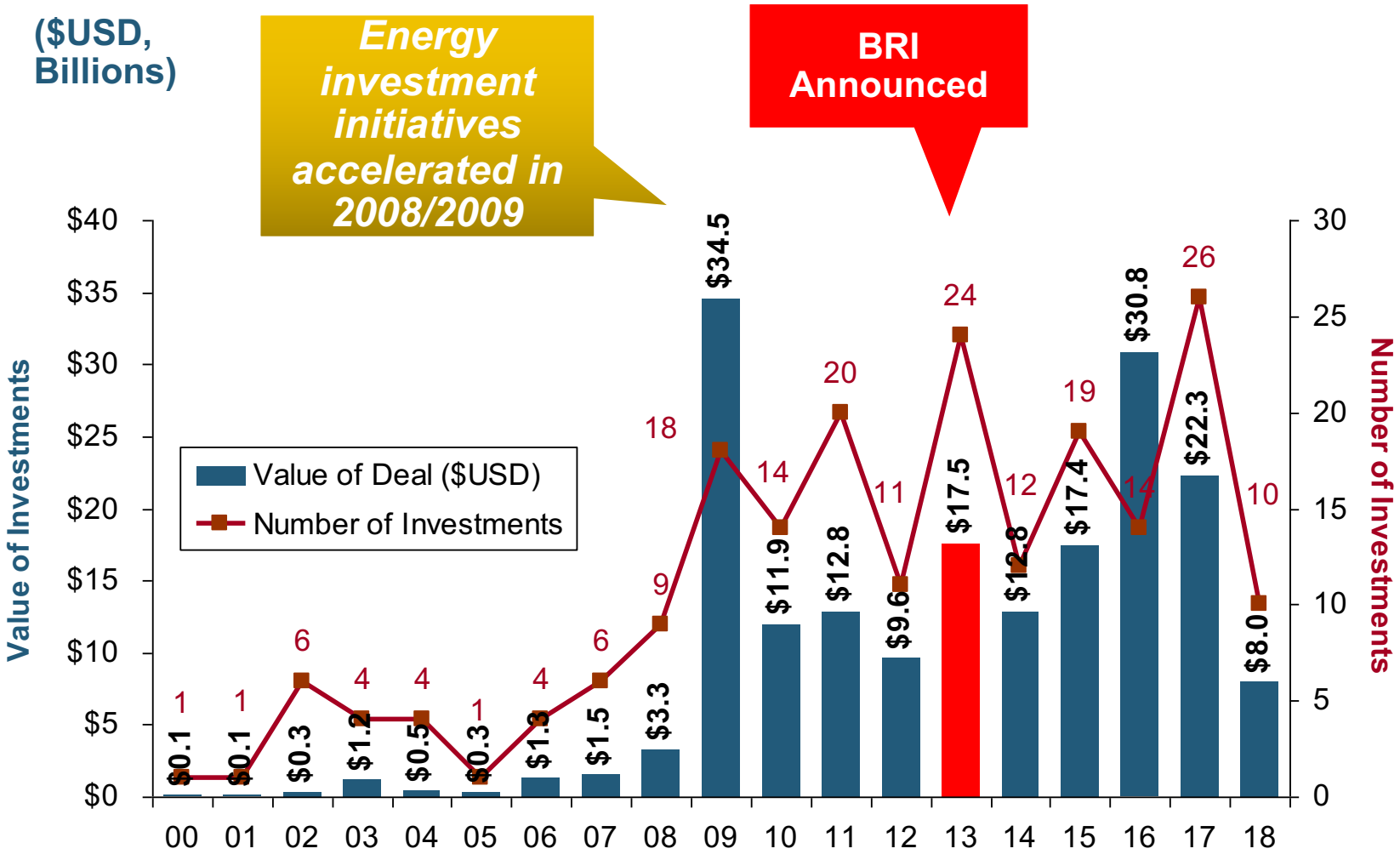
The Belt and Road Initiative's Economic Footprint is Enormous



Countries participating in China's Belt and Road Initiative account for large shares of global economic activity, growth and population

Sources: Morgan Stanley, *Inside China's Plan to Create a Modern Silk Road*, 14 March 2018 at: https://www.morganstanley.com/ideas/china-belt-and-road; University of South Carolina, Risk and Uncertainty Management Center.

China Foreign Energy Investment: Investment in BRI Countries, 2000 – 2018*

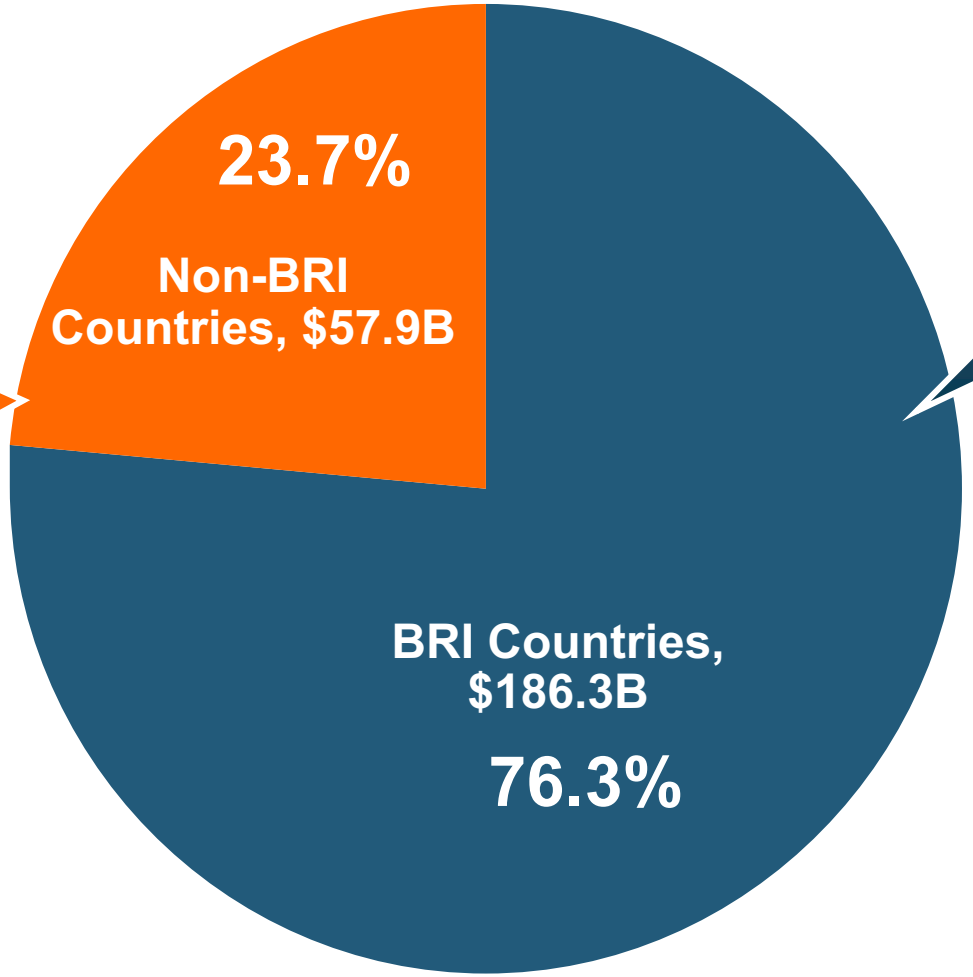


*Financing through Chinese Development Bank and the Export-Import Bank of China.

Source: Boston University, Global Development Policy Center: China's Global Energy Finance accessed 8 Apr. 2019 at https://www.bu.edu/cgef/#/2018/Country/Global; Risk and Uncertainty Management Center, University of South Carolina.

- **China has targeted foreign energy investment for nearly 20 years**
  - **Sharp increase in investment began in 2009, pre-dating 2013 BRI announcement by 4 years**
- **Belt and Road initiatives reflect continuation and "rebranding" of existing strategies, including:**
  - **Securing resources for domestic Chinese economy**
  - **Expanding economic and political influence**

Chinese Energy Investments: BRI Countries vs. Non-BRI Countries, 2000 – 2018*



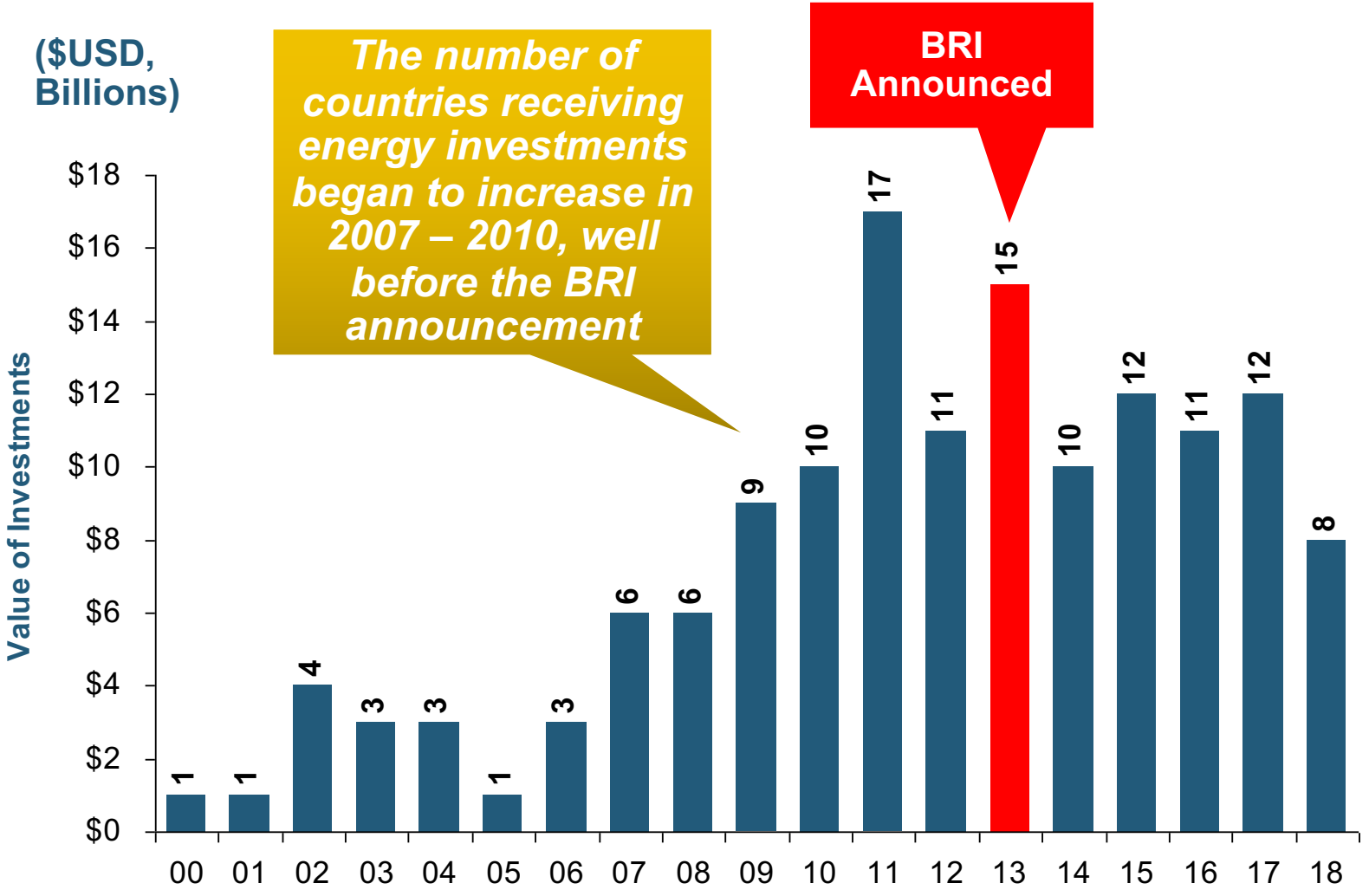
Non-BRI energy investments are concentrated in Latin and South America

Since 2000, BRI countries have accounted for more than 75% of China's energy investments. BRI largely represented a "rebranding" of existing strategy.

*Measured as a share of USD invested.

Source: National Association of Insurance Commissioners (NAIC) Annual Statement Database, via Highline Data LLC.

China Foreign Energy Investment: Number of BRI Countries Involved, 2000 – 2018*

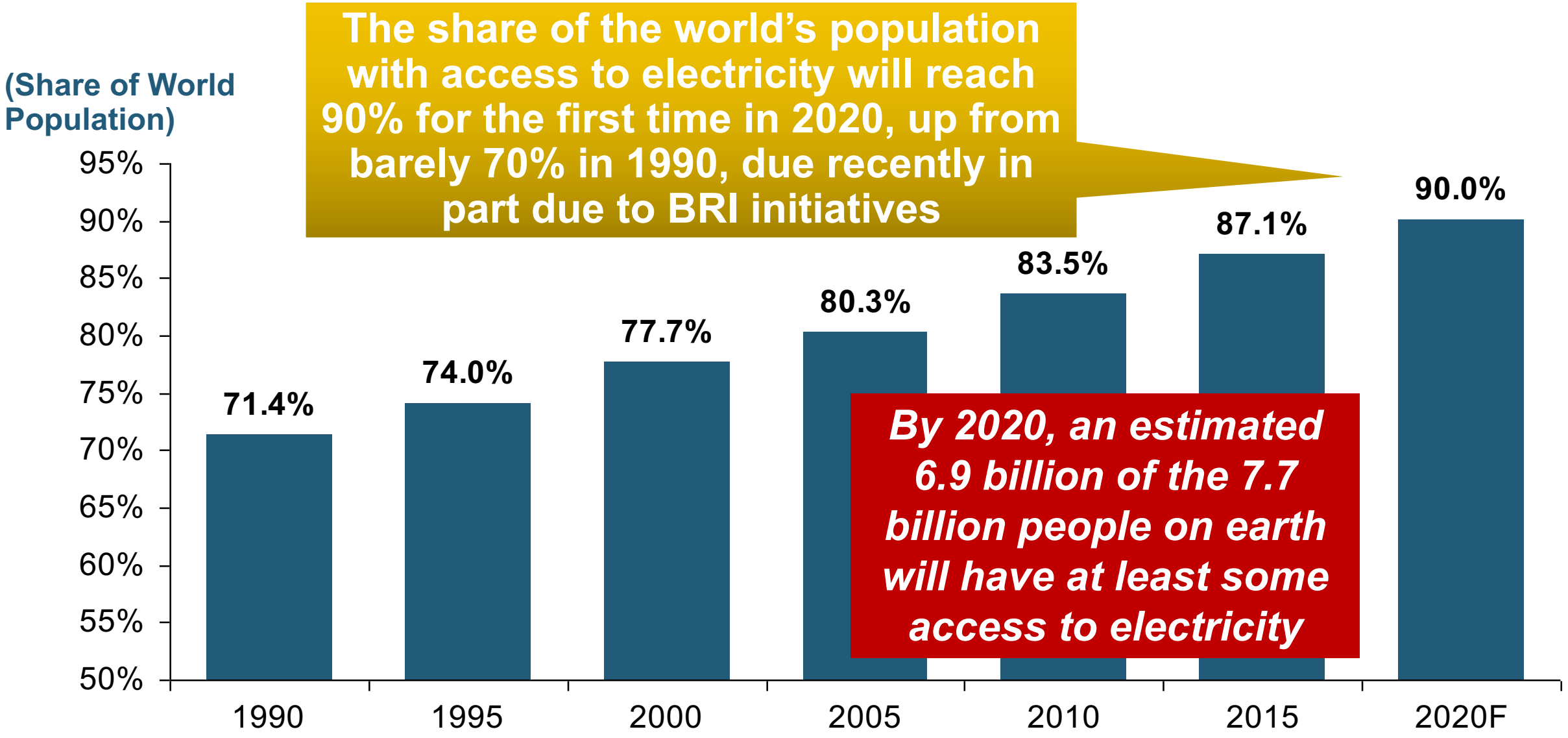


- China began to increase energy investments more than a decade ago
  - Sharp increase in investment began in 2009, pre-dating 2013 BRI announcement by 4 years
  - Since 2000, an average of 7.5 countries per year received Chinese energy investments
  - Since 2009, 11.5 countries per year receive energy investments (actual number is higher if non-BRI countries included)

*Financing through Chinese Development Bank and the Export-Import Bank of China.

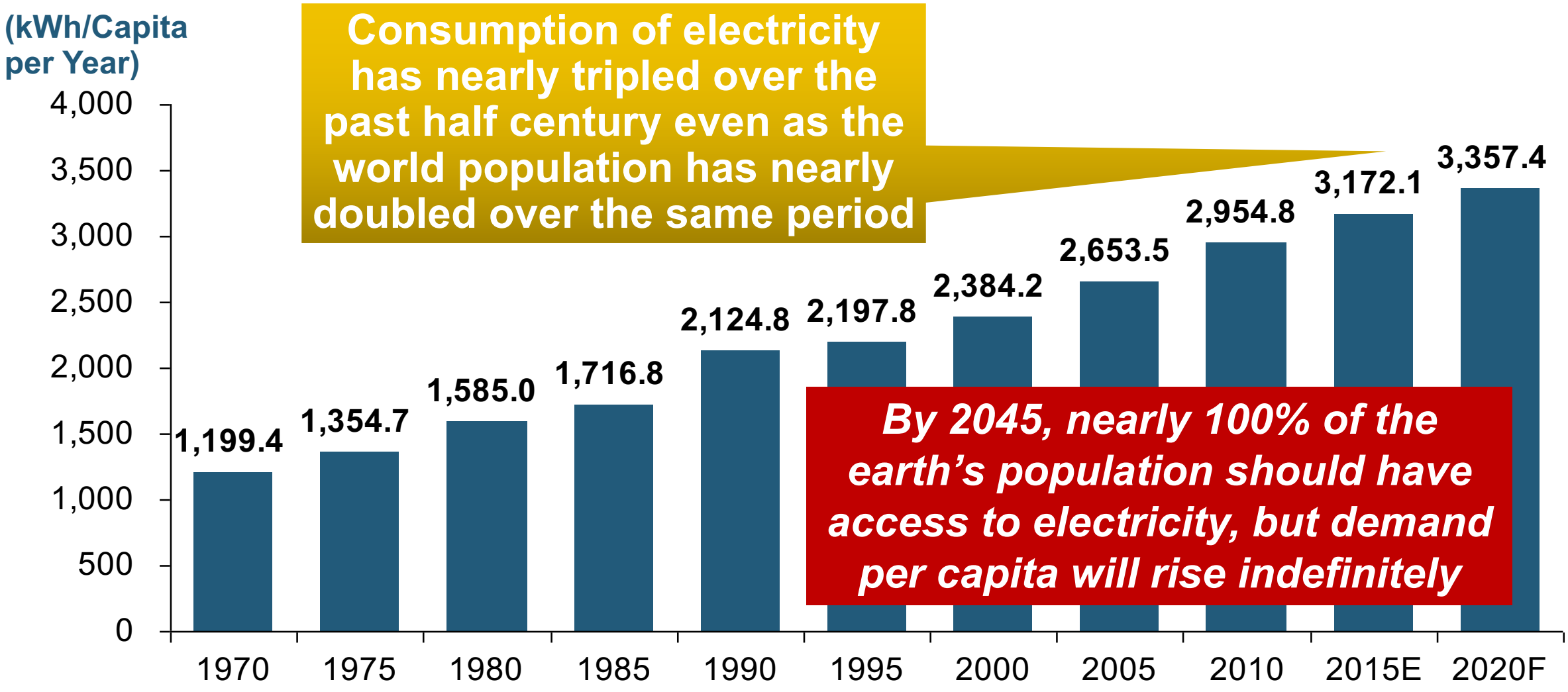
Source: Boston University, Global Development Policy Center: China's Global Energy Finance accessed 8 Apr. 2019 at https://www.bu.edu/cgef/#/2018/Country/Global; Risk and Uncertainty Management Center, University of South Carolina.

Access to Electricity: Percent of World Population,1990 – 2020F



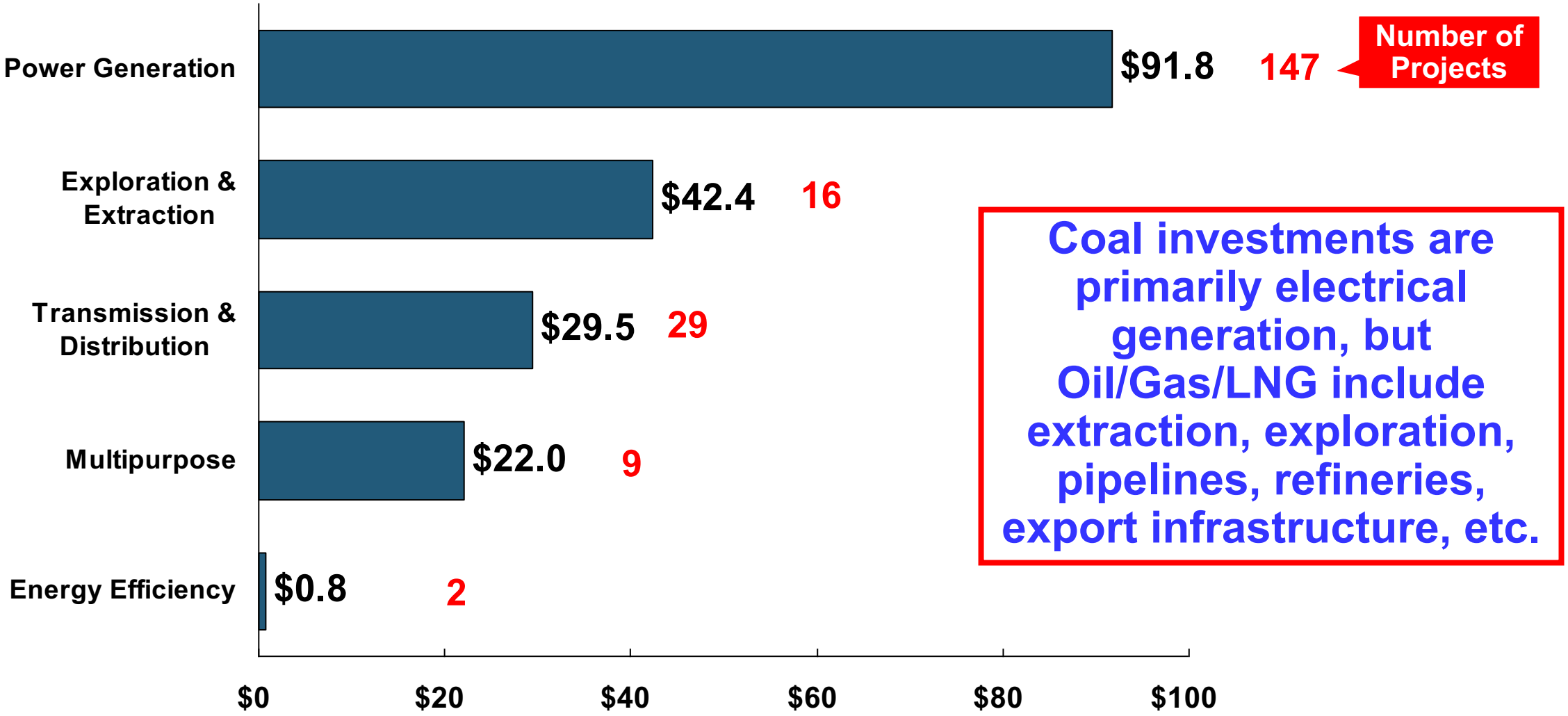
Source: World Bank (1990-2016); 2020F (est.) Risk and Uncertainty Management Center, University of South Carolina.

Global Electric Power Consumption per Capita,1970 – 2020F



Source: World Bank (1990-2014); 2015E and 2020F Risk and Uncertainty Management Center, University of South Carolina.

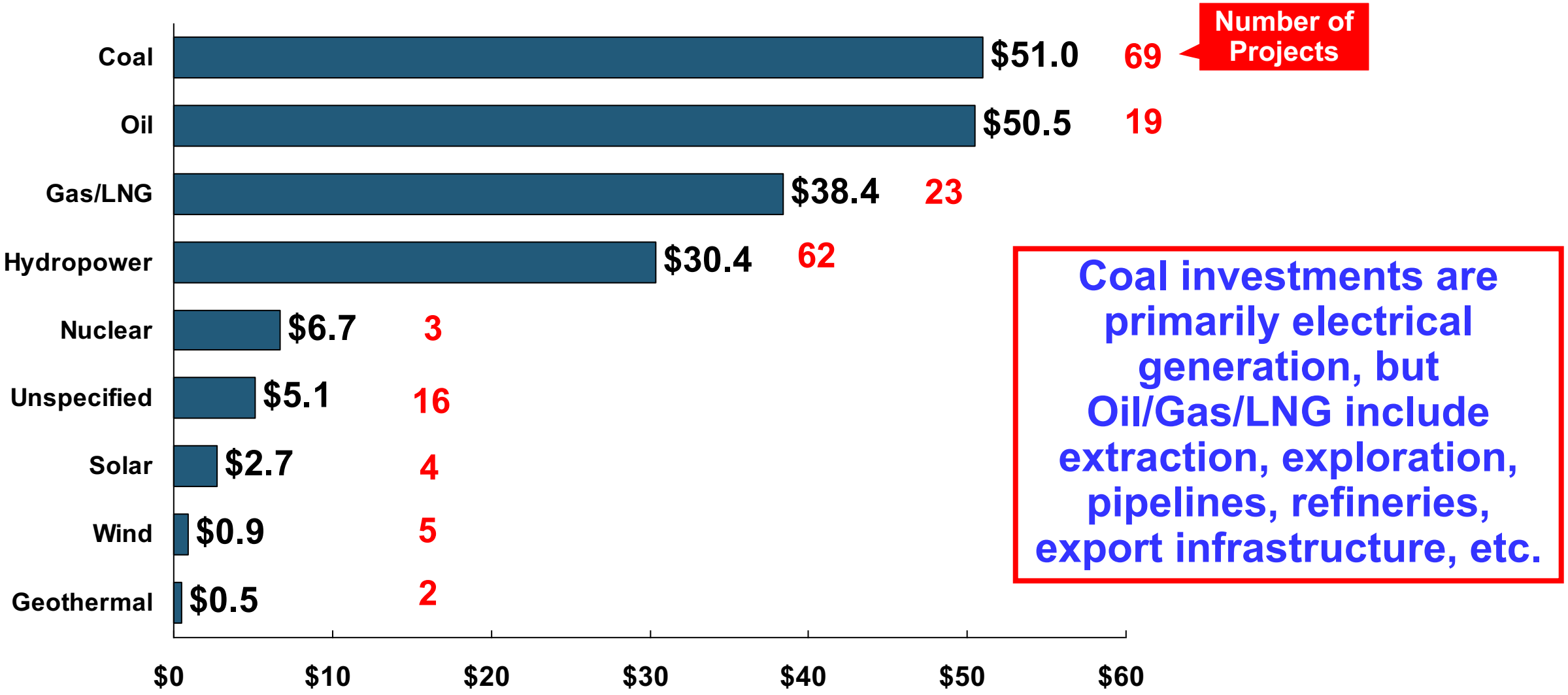
China BRI Initiatives by Energy Sub-Sectors: Power Generation Leads the Way ($ Billions USD)



Coal investments are primarily electrical generation, but Oil/Gas/LNG include extraction, exploration, pipelines, refineries, export infrastructure, etc.

Source: Boston University, Global Development Policy Center: China's Global Energy Finance accessed 9 Apr. 2019 at https://www.bu.edu/cgef/#/2018/Country/Global; Risk and Uncertainty Management Center, University of South Carolina.

China BRI Initiatives by Fuel Type: Coal Remains King ($ Billions USD)



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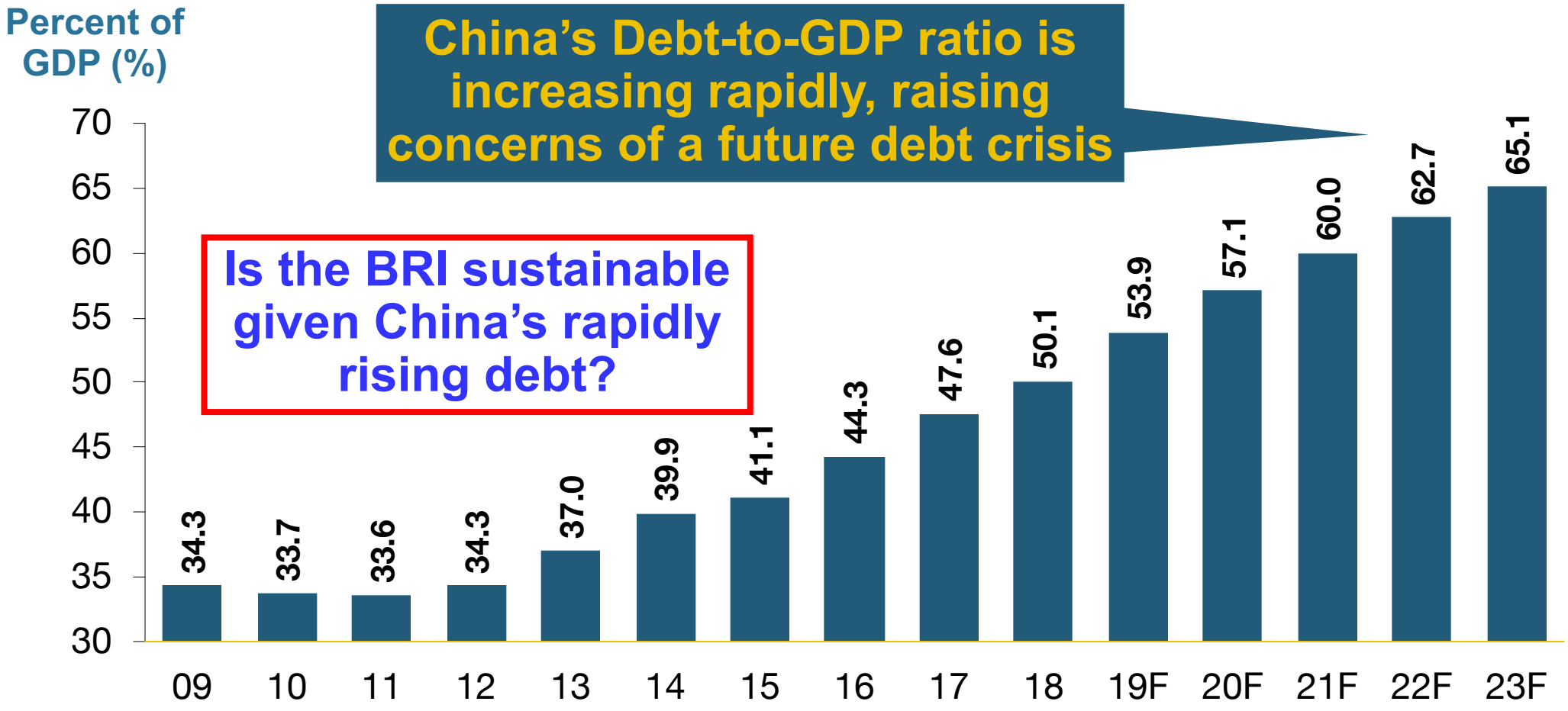
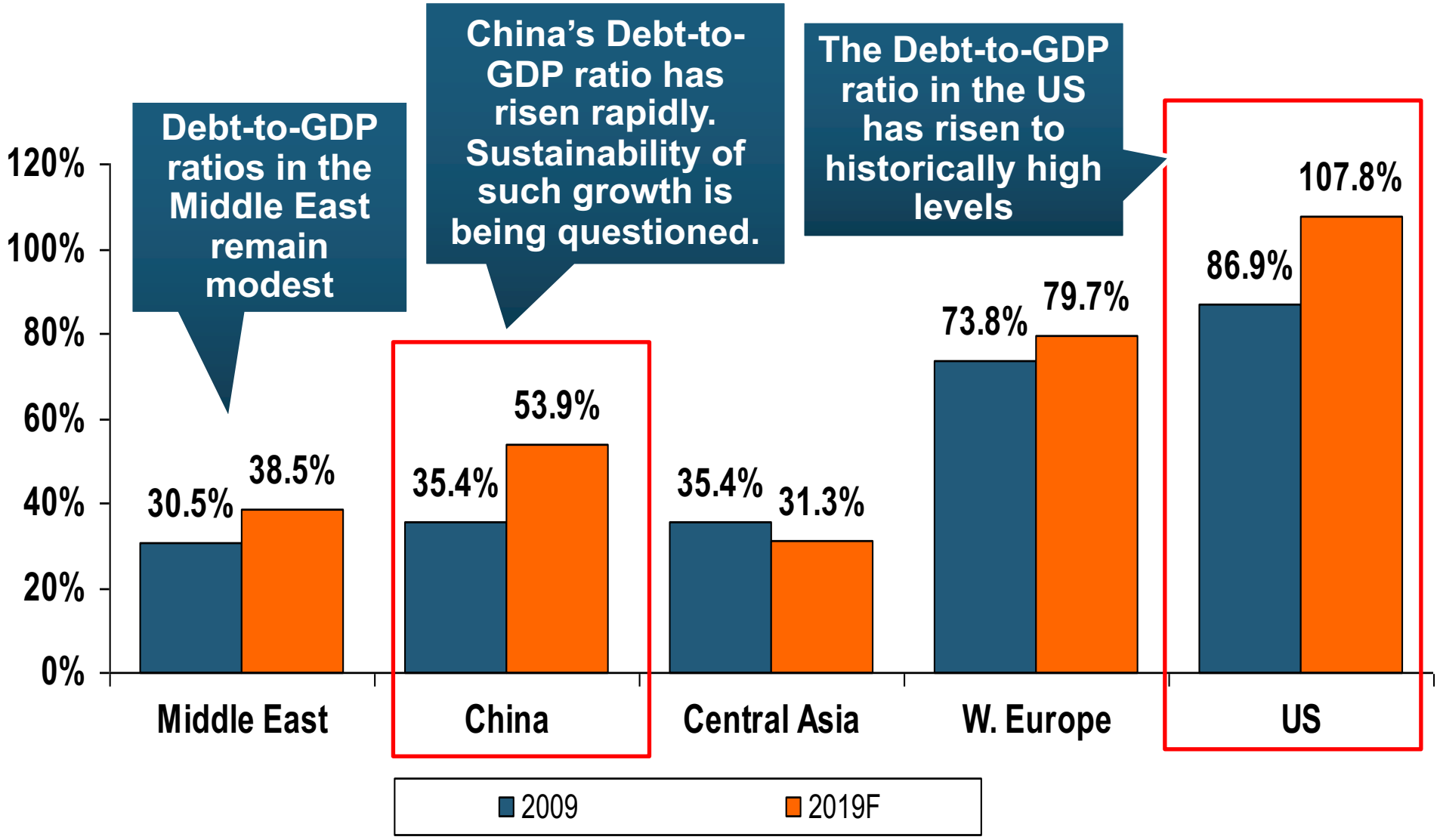
Source: Boston University, Global Development Policy Center: China's Global Energy Finance accessed 9 Apr. 2019 at https://www.bu.edu/cgef/#/2018/Country/Global; Risk and Uncertainty Management Center, University of South Carolina.

Debt-to-GDP Ratio: China, 2009-2023F



Source: IMF, data accessed 4/4/10 at: https://www.imf.org/external/datamapper/GGXWDG_NGDP@WEO/OEMDC/ADVEC/WEOWORLD/CHN ; University of South Carolina Risk Management and Uncertainty Center.

Debt-to-GDP Ratio by Key Region, 2009 vs 2019F



Source: IMF, data accessed 4/4/10 at: https://www.imf.org/external/datamapper/GGXWDG_NGDP@WEO/OEMDC/ADVEC/WEOWORLD/CHN ; University of South Carolina Risk Management and Uncertainty Center.

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
- China's BRI includes long-term opportunities for (re)insurers

UNIVERSITY OF
SOUTH CAROLINA
Darla Moore School of Business

Thank you for your time and your attention!

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For a copy of this presentation, email me at robert.hartwig@moore.sc.edu