# Opportunities and Risks of Fossil Free Investing

AS YOU SOW

Invest Your Values Webinar
Wednesday, April 22, 2020

# General Information

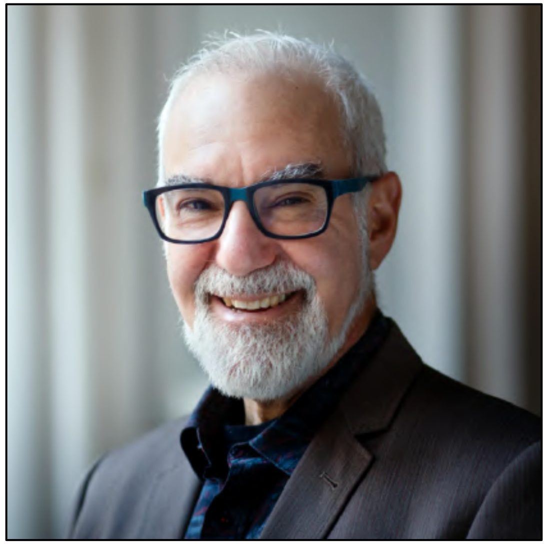
- Use the Q&A window to send us your questions
- After the webinar, you will receive an email link to the recording.

Q&A Window

# Meet the Panelists

**Bob Litterman**
Partner, Kepos Capital

**Kathy Hipple**
Financial Analyst, Institute for Energy Economics and Financial Analysis



**Andrew Behar**
CEO, *As You Sow*

**Mark Campanale**
Founder & Executive Chairman, Carbon Tracker

# Bob Litterman

Partner, Kepos Capital

Bob Litterman is the Chairman of the Risk Committee and a founding partner of Kepos Capital. Prior to joining Kepos Capital in 2010, Bob enjoyed a 23-year career at Goldman, Sachs & Co., where he served in research, risk management, investments and thought leadership roles. He oversaw the Quantitative Investment Strategies Group in the Asset Management division. While at Goldman, Bob also spent six years as one of three external advisors to Singapore's Government Investment Corporation (GIC). Bob was named a partner of Goldman Sachs in 1994 and became head of the firm-wide risk function; prior to that role, he was co-head of the Fixed Income Research and Model Development Group with Fischer Black.

Kepos Capital

# Opportunities and Risks of Fossil Free Investing

**April 22, 2020 – Bob Litterman**

*CONFIDENTIAL*

***As You Sow Webinar***

# Four Lessons from Financial Risk Management

Provide guidance for addressing climate change

1. **Risk management requires consideration of worst case scenarios**

2. **A growing risk is an urgent priority; time is of the essence (with enough time you can solve almost any problem)**

3. **The purpose of risk management is not to minimize risk, it is to price risk appropriately**

4. **Risk is what we measure, uncertainty is what we manage**

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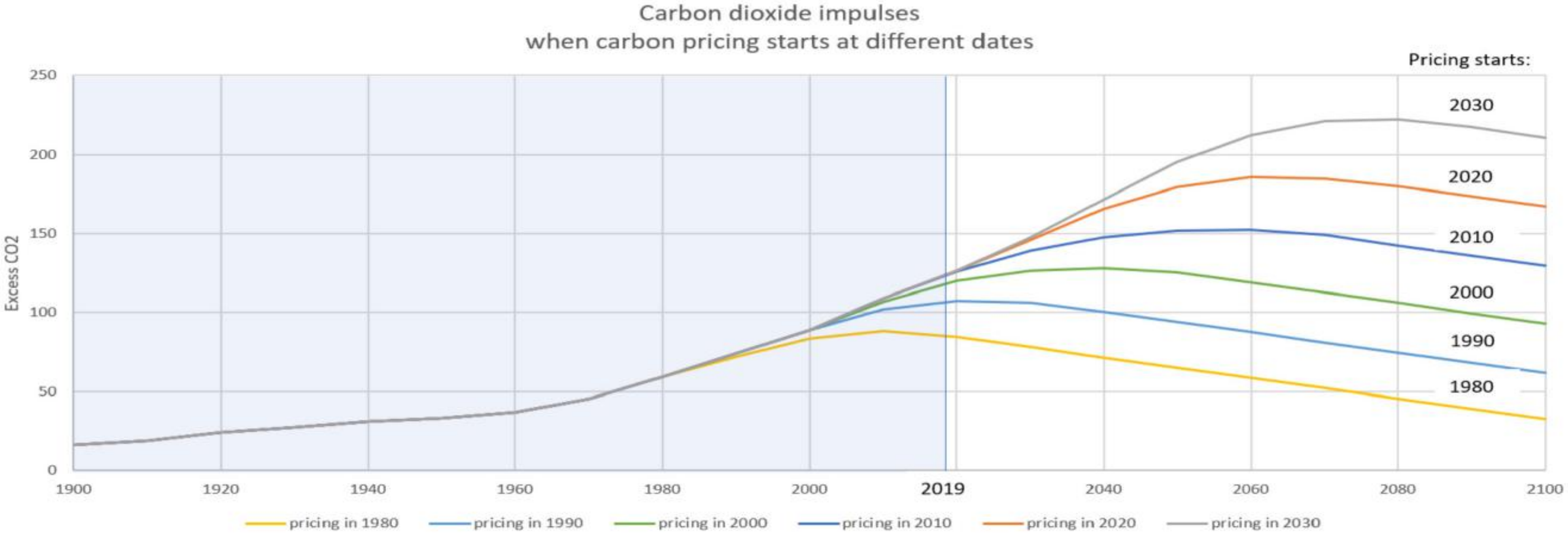
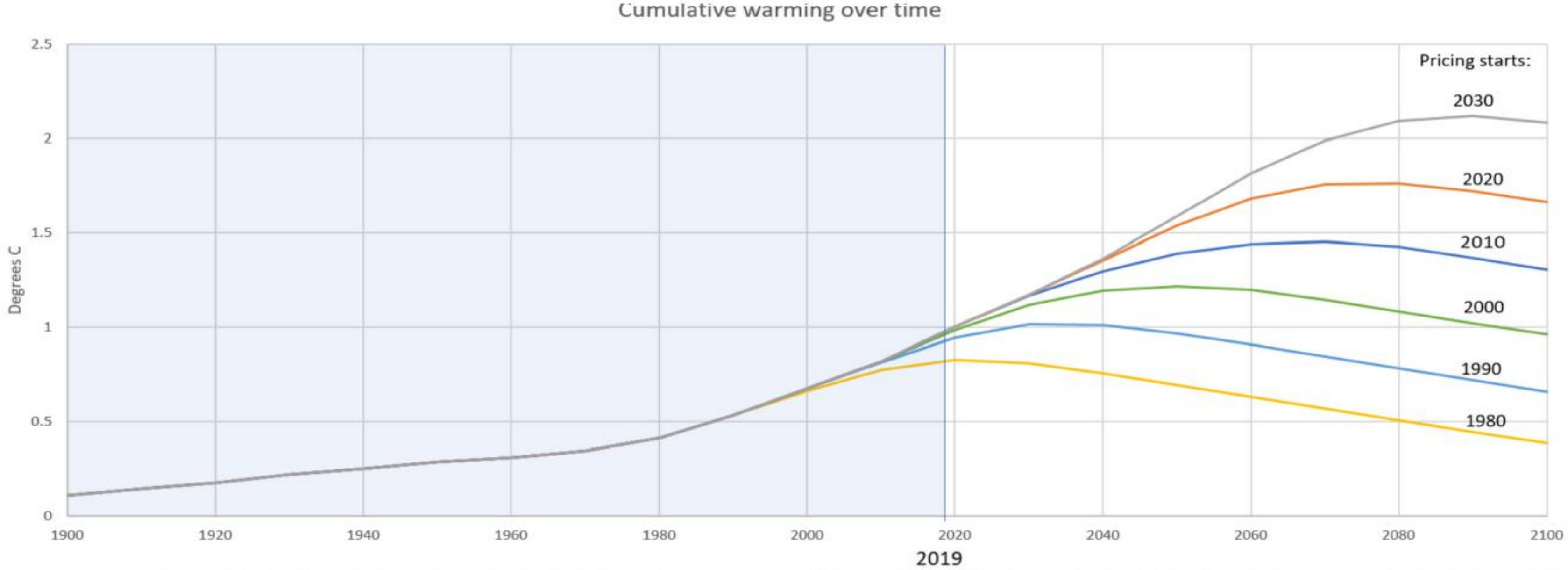
# Understanding the Cost of Delay




These charts are generated using the model in Daniel, Kent, Robert Litterman and Gernot Wagner, "Declining CO2 Price Paths," 2019, Proceedings of the National Academy of Sciences, October 15, 2019. 116 (42) 20886-20891.

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# In the US, the Likelihood of National Carbon Pricing is Increasing

Baker/Shultz Carbon Dividend Plan (Climate Leadership Council)

## Four Pillars

1. Gradually rising carbon fee
2. Revenue neutral / carbon dividends
3. Regulatory simplification
4. Border carbon adjustment

## Support from corporations, economists and environmental organizations

**3554** U.S. Economists

**4** Former Chairs of the Federal Reserve (All)

**27** Nobel Laureate Economists

**15** Former Chairs of the Council of Economic Advisers

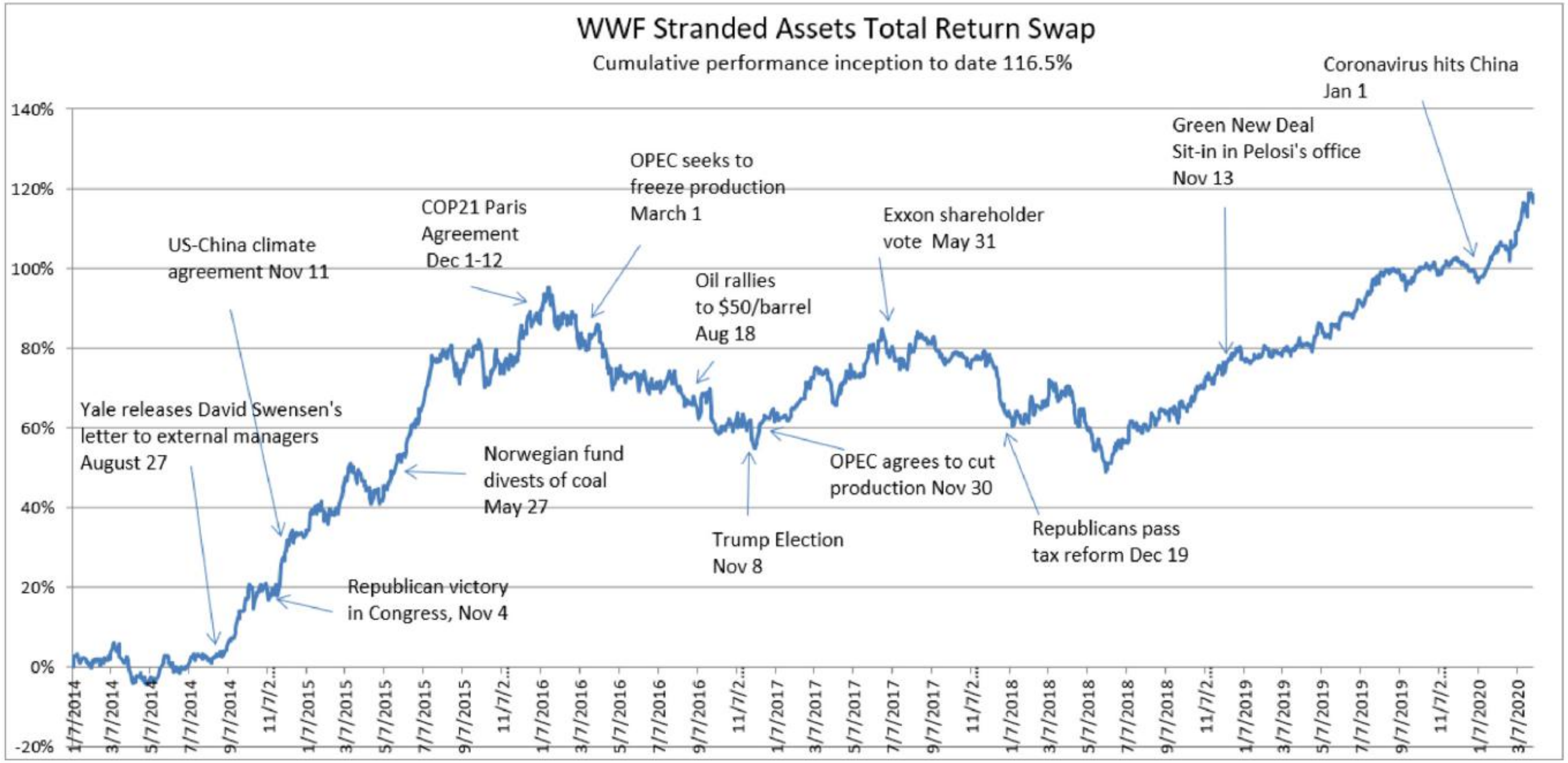
**2** Former Secretaries of the U.S. Department of Treasury

## What Role Should Asset Owners Play?

Hedging stranded assets

### Increasing Expectations of Emissions Pricing?

- Stranded Assets have underperformed the S&P 500…
- …at a rate of more than 13% annually since January 2014




Source: World Wildlife Fund.

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# Kathy Hipple

## Financial Analyst, Institute for Energy Economics and Financial Analysis

Kathy Hipple is a founding partner of Noosphere Marketing and the finance professor at Bard's MBA for Sustainability. She worked for 10 years with international institutional clients at Merrill Lynch and then served as CEO of Ambassador Media.

# Fossil Fuel Divestment

## The Financial Case Grows Stronger

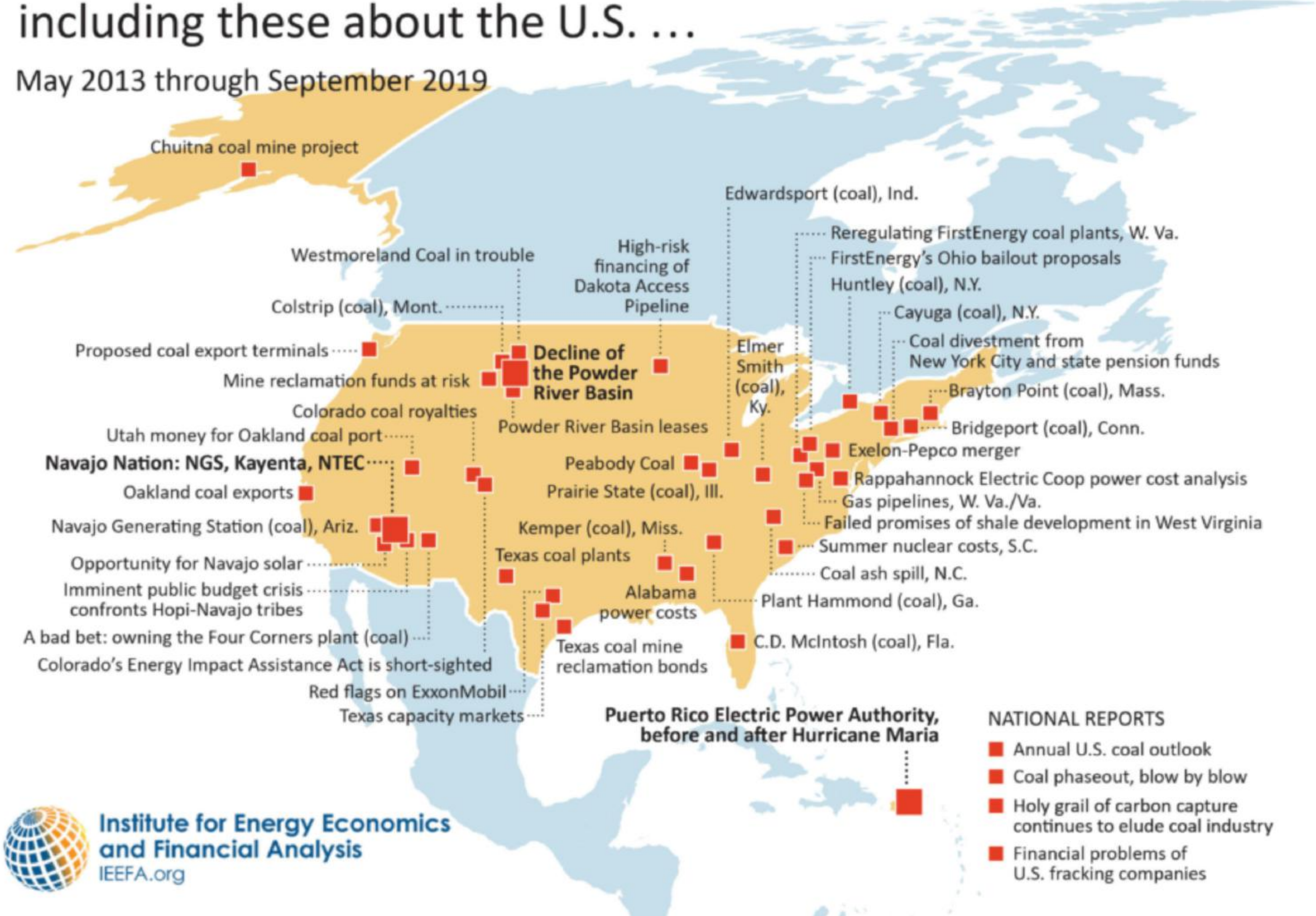
Kathy Hipple

April 2020

Institute for Energy Economics and Financial Analysis
IEEFA.org

# IEEFA has produced more than 200 in-depth reports, including these about the U.S. …

May 2013 through September 2019




Institute for Energy Economics and Financial Analysis
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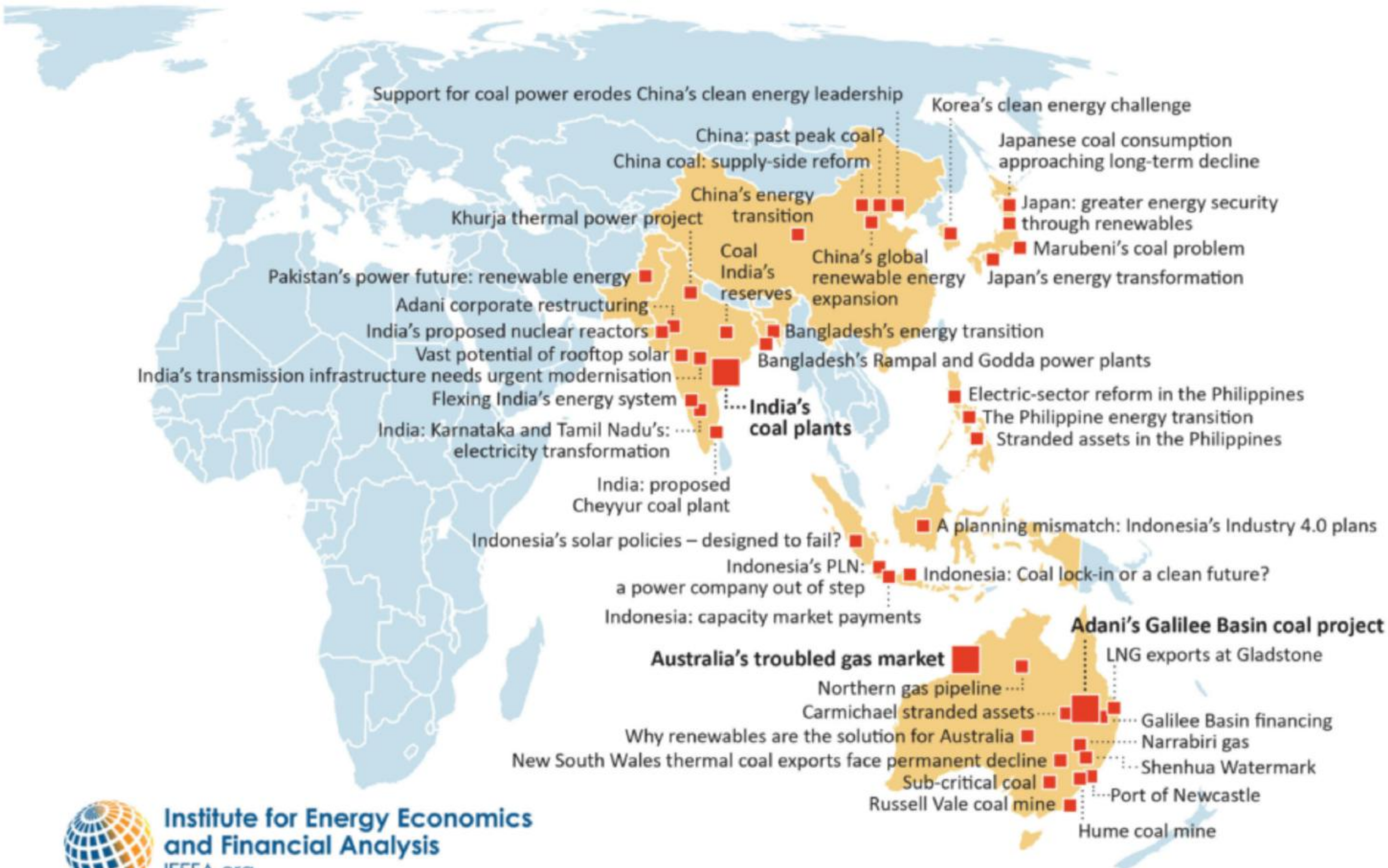
# … and across Asia and Australia.

## May 2013 through September 2019

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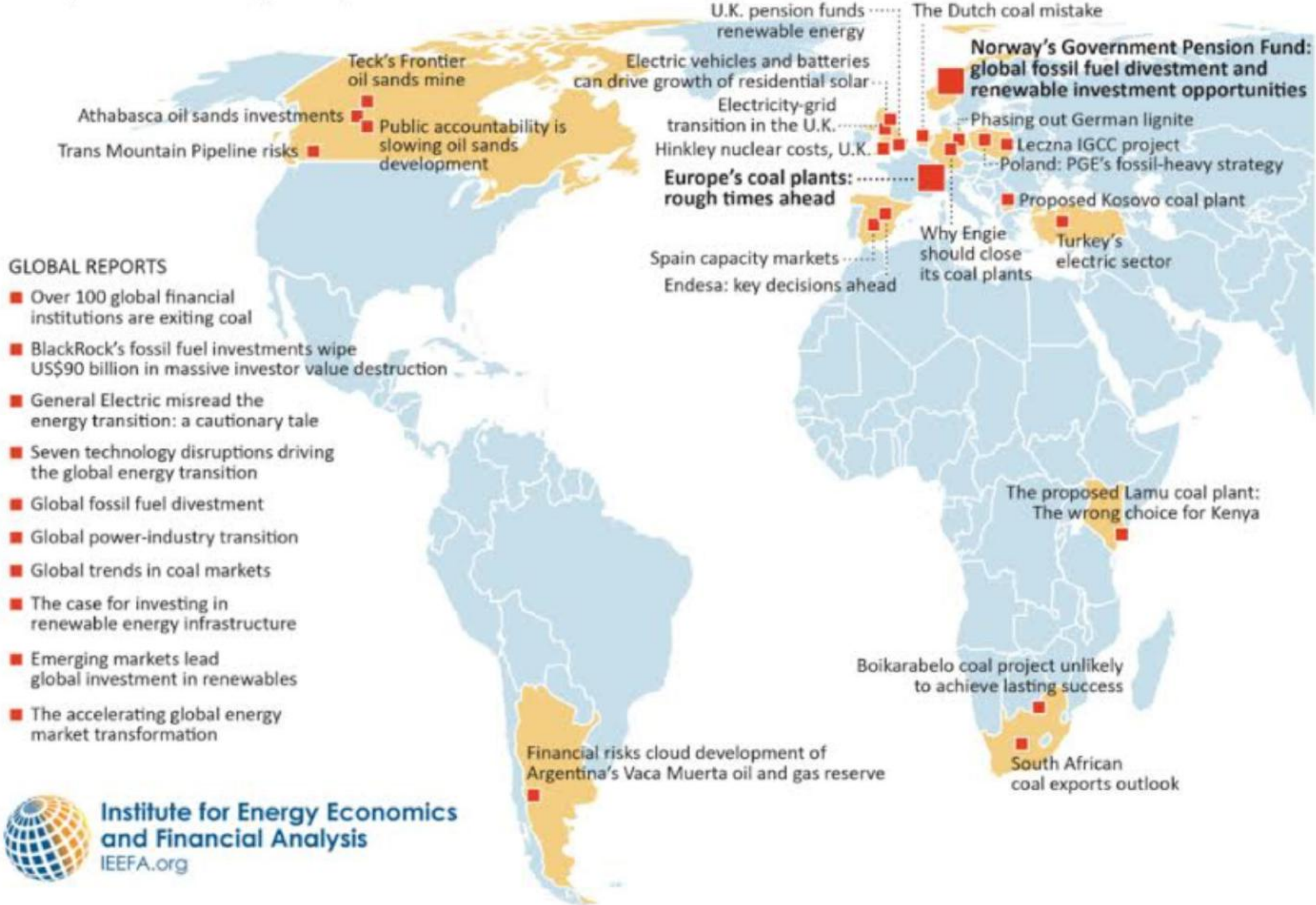
# … the Americas, Europe, and Africa …

## May 2013 through September 2019

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# Overview: Compelling Case for Divestment

- Oil & Gas companies have underperformed the market for a decade
- The energy sector is shrinking
- Today, oil & gas companies are in extremis
- Funds without fossil fuels have outperformed

# In March

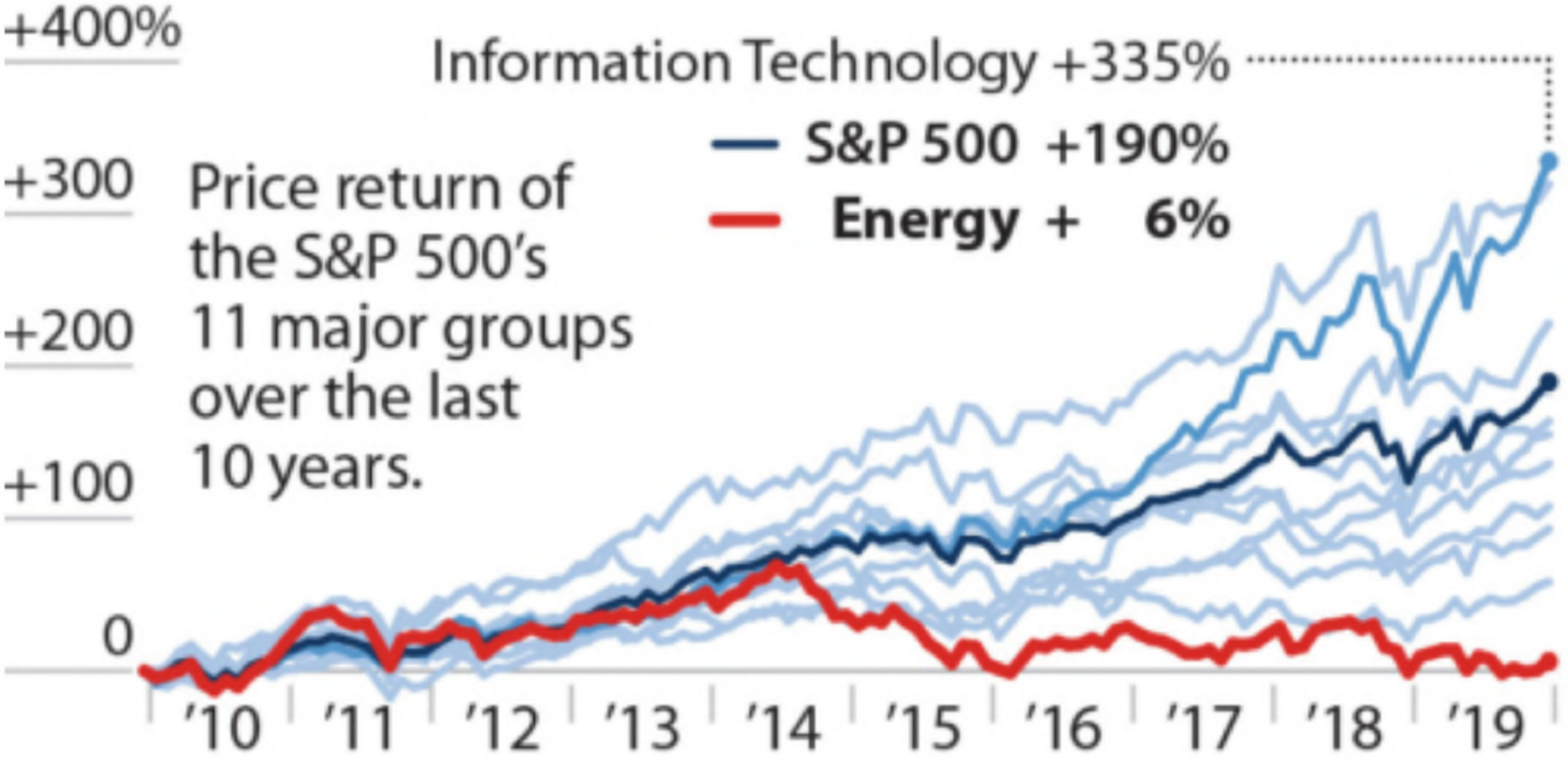
- In March, the reality of the economic slowdown brought about by the Coronavirus set in.
- Oil and gas demand forecasts plummeted.
- Then, Russia and Saudi Arabia began an oil price war.

- In short, the world changed.

# The Industry View. . .
# Or What They'd Like to Believe

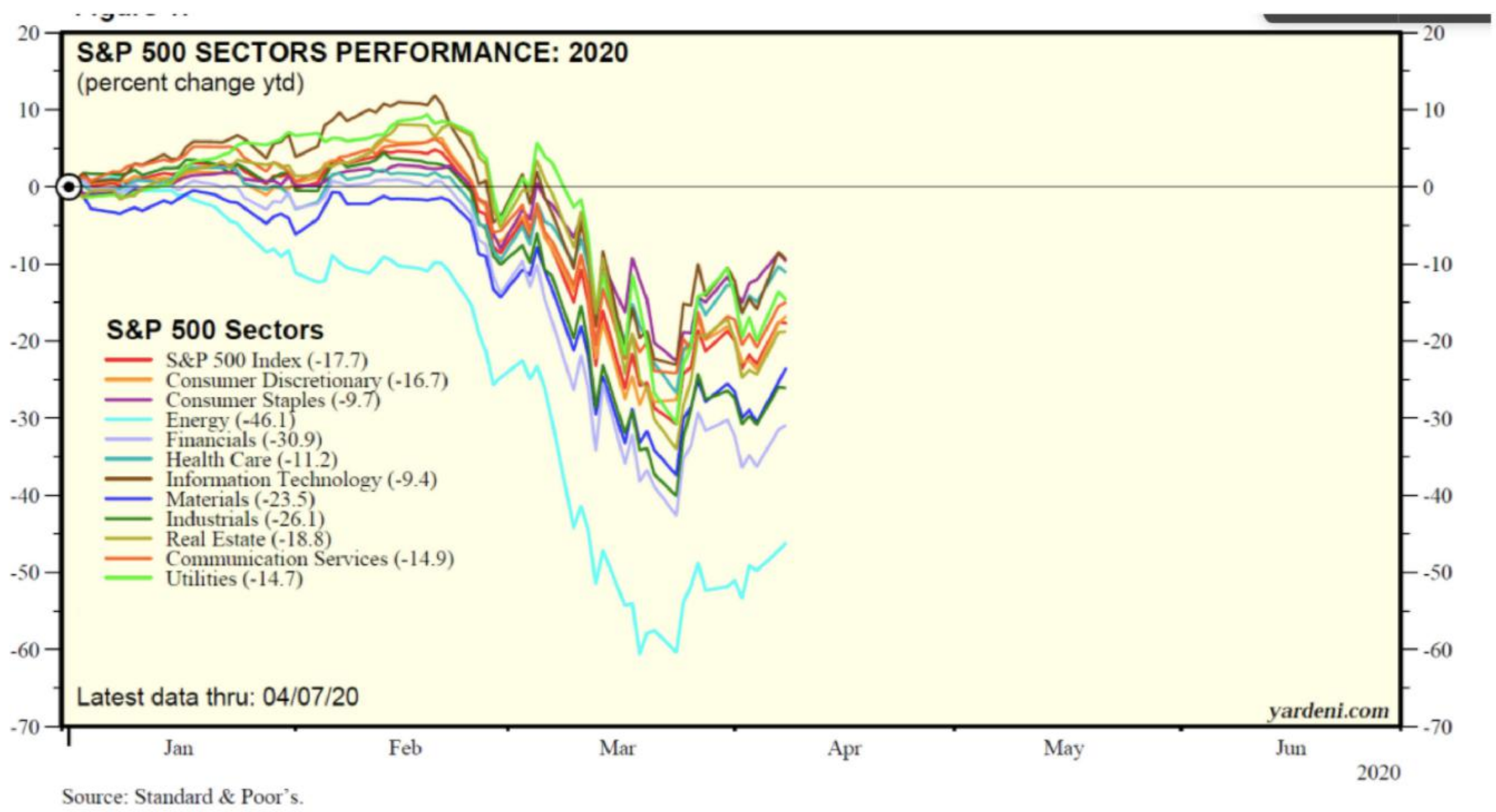
# But The Decline Began Long Ago

# Energy: S&P's Worst Sector Over 10 Years




Source: S&P Dow Jones Indices *Dec. 31, '09 – Dec. 31, '19*

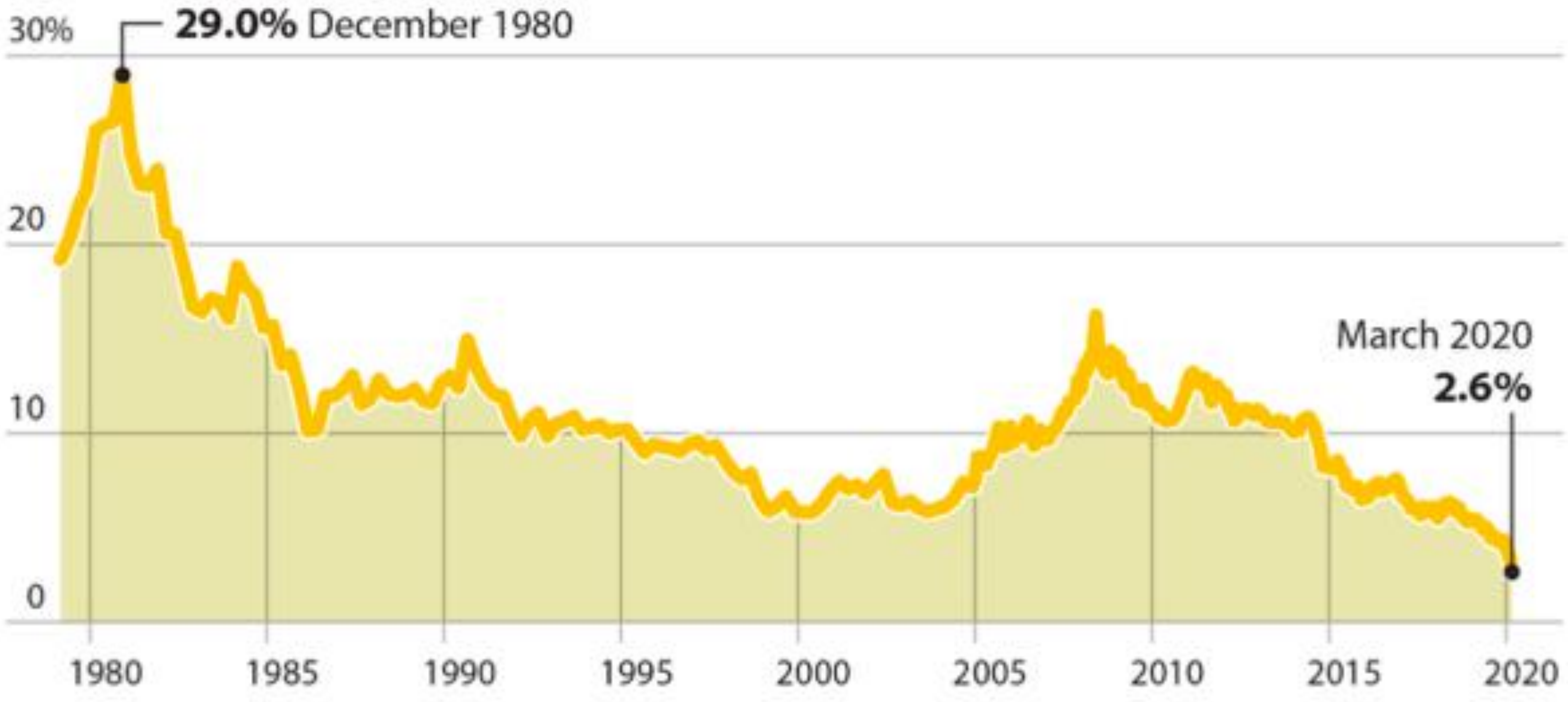
# Energy Sector Declines in 2020



# Oil and Gas: 2.65% of the S&P 500 at 12/31/2018

**Energy Sector's Vanishing Share of the S&P 500**

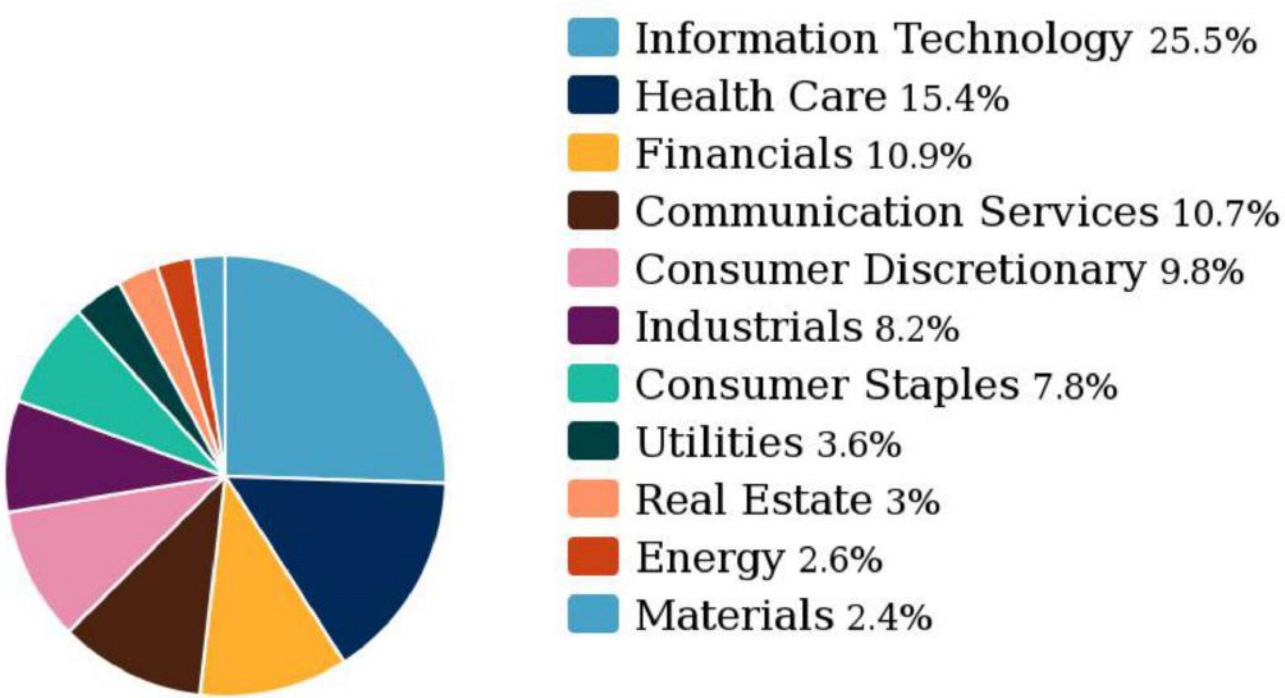
At the end of 1980, energy companies held 29% of the S&P 500's market value, but have vastly underprformed the rest of the market since then, and had fallen to just 2.6% at the end of March 2020.




Source: Siblis Research

Based on GICS sector weightings

# Sectors of S&P 500




Based on GICS® sectors
The weightings for each sector of the index are rounded to the nearest tenth of a percent; therefore, the aggregate weights for the index may not equal 100%.
As of Mar 31, 2020

# Energy No Longer Dominates S&P's Top 10 List

| | 1980 | 2018 |
|---|---|---|
| 1 | IBM | Apple |
| 2 | AT&T | Microsoft |
| 3 | **Exxon** | Amazon |
| 4 | **Standard Oil of Indiana** | Facebook |
| 5 | **Schlumberger** | Berkshire Hathaway |
| 6 | **Shell Oil** | JP Morgan |
| 7 | **Mobil** | **ExxonMobil** |
| 8 | **Standard Oil of California** | Alphabet, Inc. B |
| 9 | **Atlantic Richfield** | Alphabet, Inc. C |
| 10 | GE | Johnson & Johnson |

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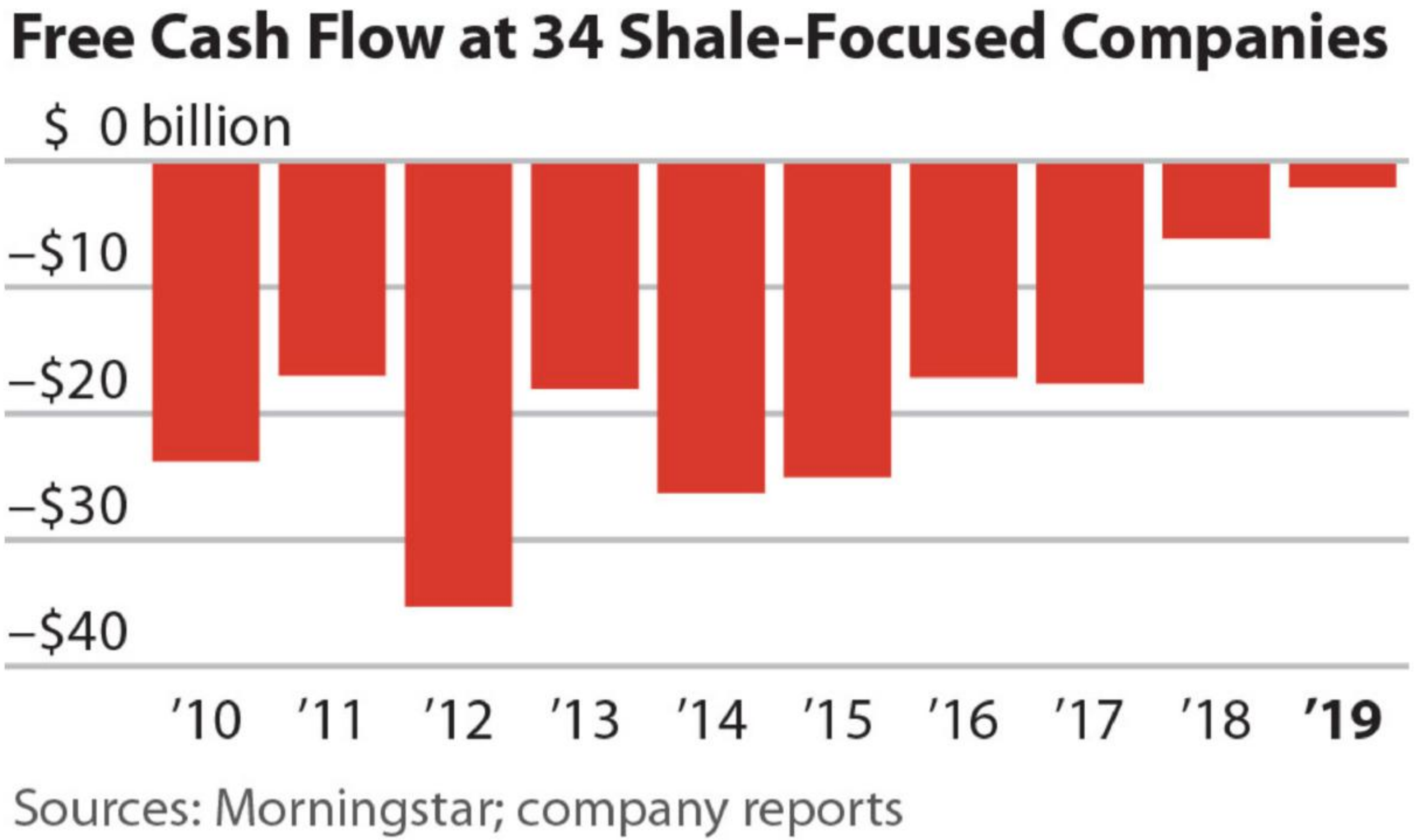
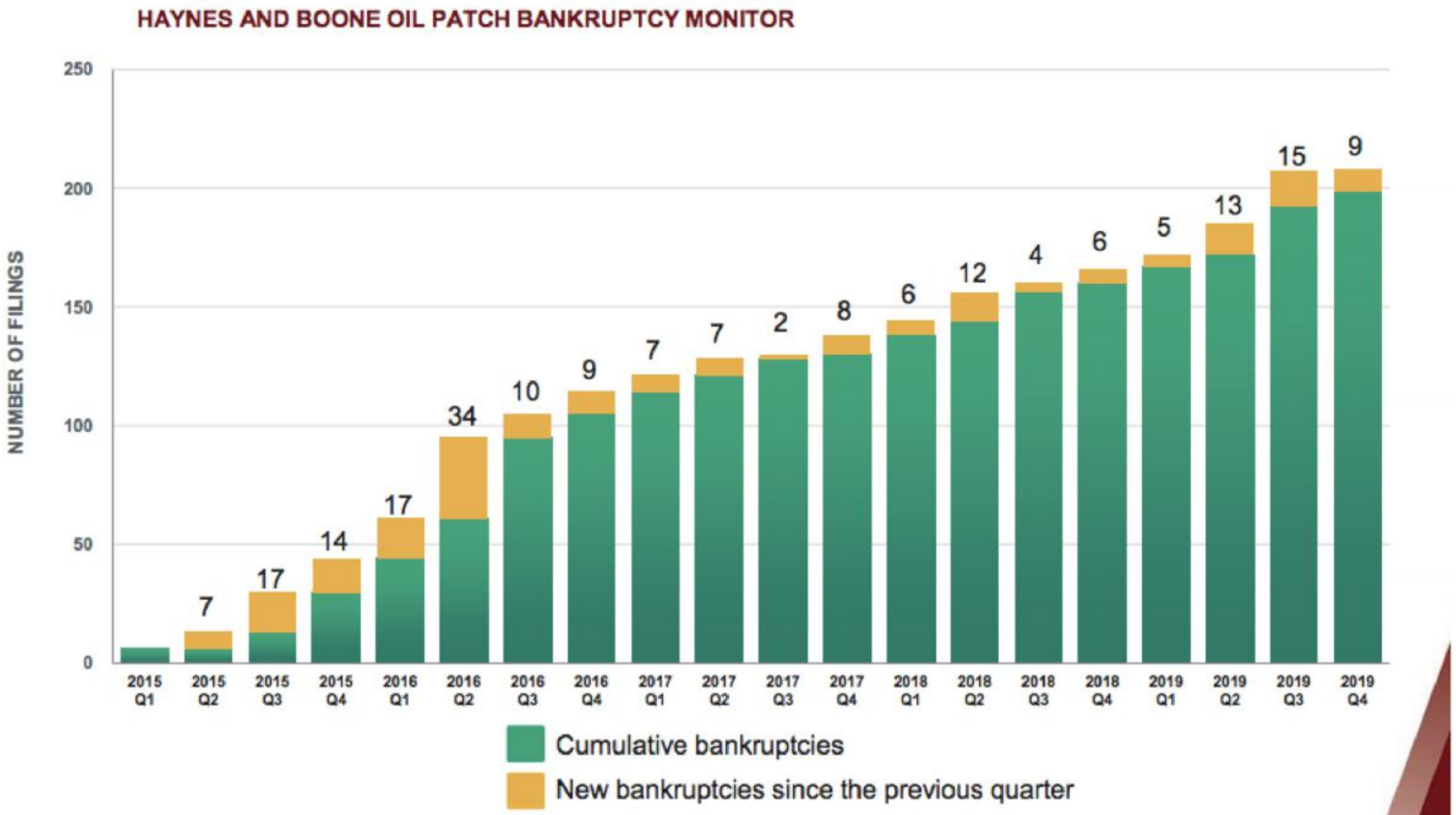
| 9 | **Atlantic Richfield** | Johnson & Johnson |
| 10 | GE | Proctor & Gamble |

# Frackers in Especially Bad Shape



# E&P Bankruptcies, 2015-2019:
# 208 bankruptcy filings
# $122 billion debt to be restructured



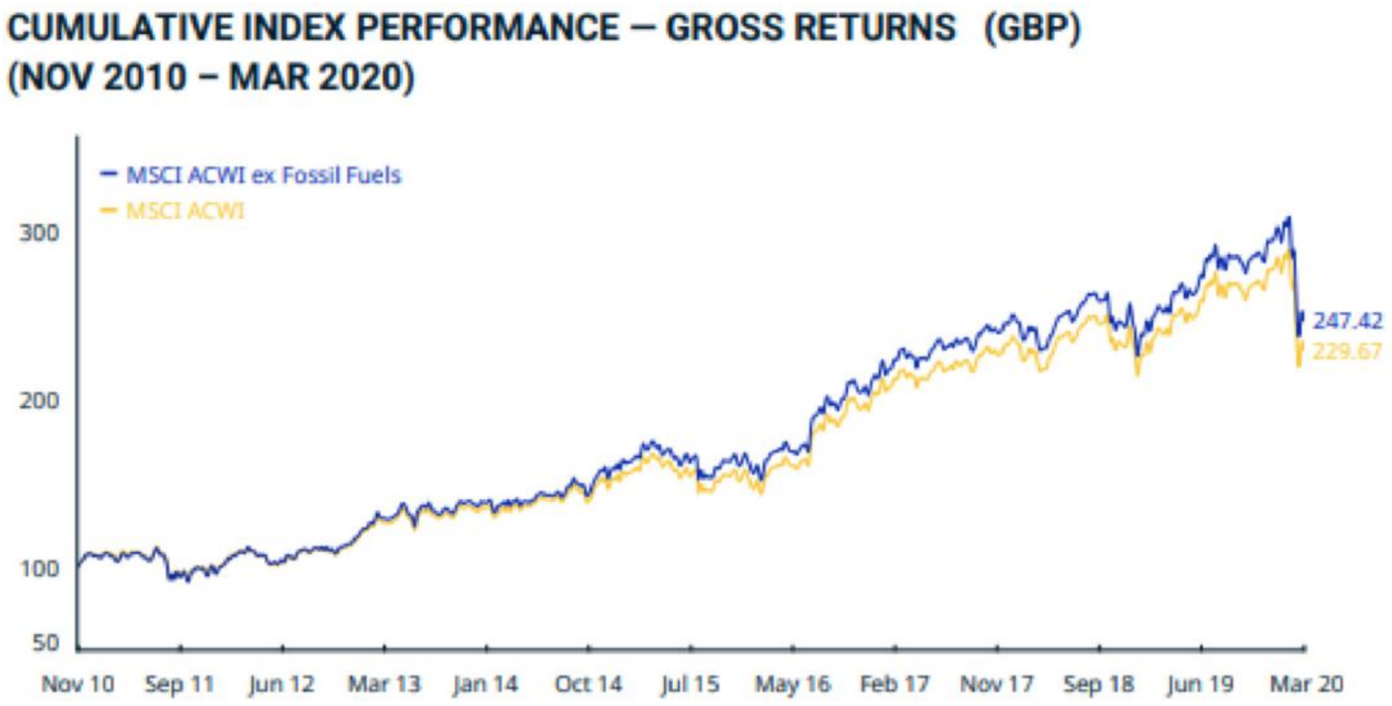
# Number of Bankruptcies among E&Ps Doubled in 2019

- Doubled in 2019 from $13.2 billion to $25.8 billion
- 42 Exploration & Production (E&P) filed for Bankruptcy
- Oilfield Service company bankruptcies also doubled in 2019

# ETFs without Fossil Fuel Stocks Have OUTPEFORMED

# Same Results, Different Index

- ACWI – with and without fossil fuels
- +9.31% versus +10.19%



# Andrew Behar

CEO, *As You Sow*

Andrew Behar, *As You Sow* CEO, has 30 years of experience as a Senior Executive and strategist in the cleantech, communications, and life science sectors. Prior to joining As You Sow, Andrew founded and was CEO of a start-up developing innovative fuel cell technologies. He served as COO for a social media agency focused on sustainability and has been a strategic consultant in the nonprofit sector. He is a member of the board of US Social Investing Forum (US-SIF) and is a member of the UN Sustainable Stock Exchange Green Finance Advisory Group. His book, *The Shareholders Action Guide: Unleash Your Hidden Powers to Hold Corporations Accountable* was published in November 2016 by Berrett-Koehler.

Fossil Free Funds

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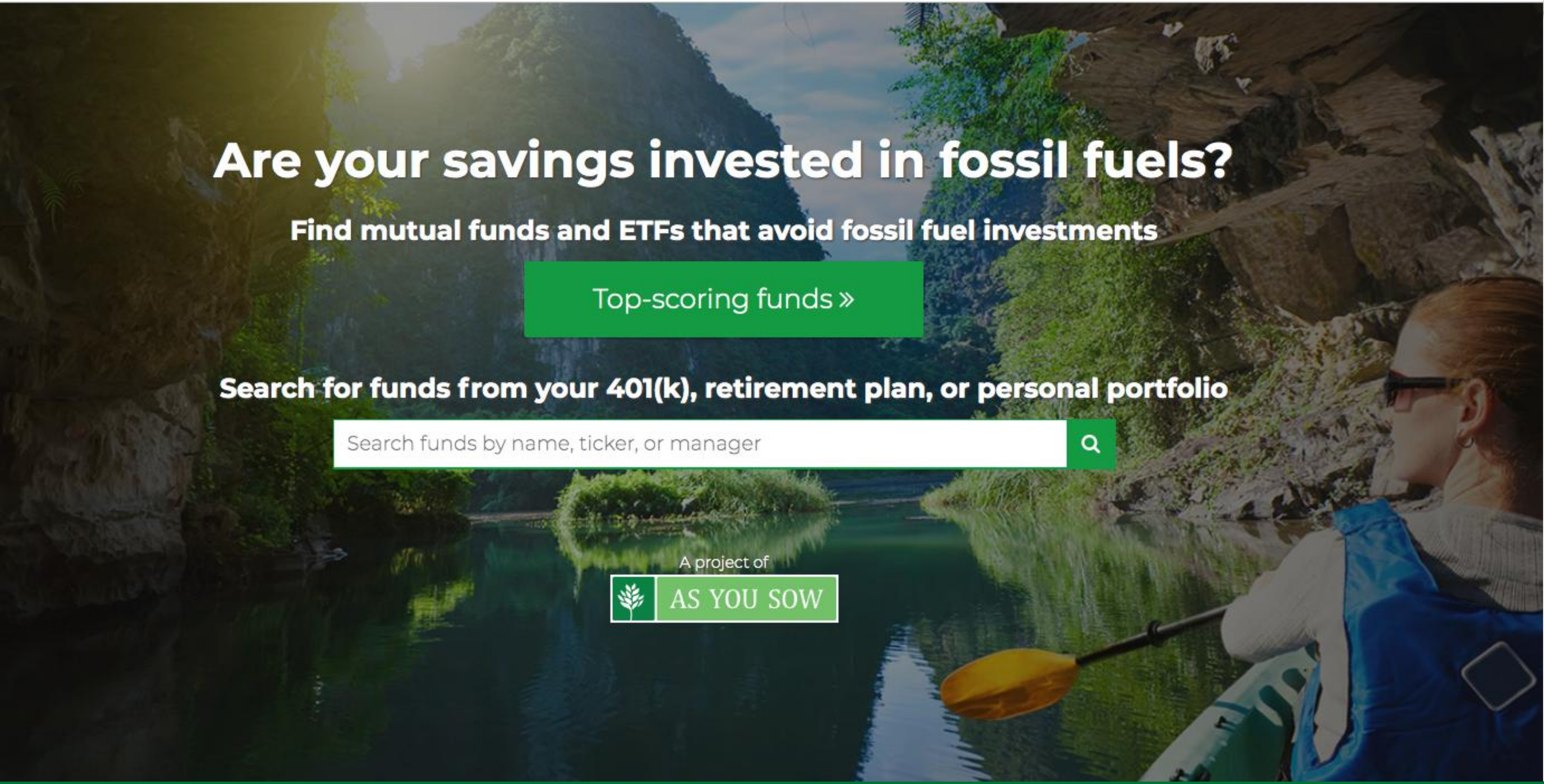


# Mark Campanale

## Founder & Executive Chairman, Carbon Tracker

Mark is the Founder of the Carbon Tracker Initiative and conceived the 'unburnable carbon' capital markets thesis. He commissioned and was editor of Unburnable Carbon — Are the World's Financial Markets Carrying a Carbon Bubble? report that launched us in November 2011.  More recently, Mark founded and is Chair of the Fish Tracker Initiative — www.fish-tracker.org. which focuses on limits to growth in the fisheries space. Mark is responsible for management strategy, board matters and developing their capital markets framework analysis. Their goal is to align capital markets with natural ecological limits to growth.

Carbon Tracker Initiative

# Managing Energy Transition Risk – Are Fossil Fuel Companies 'Paris Aligned?'

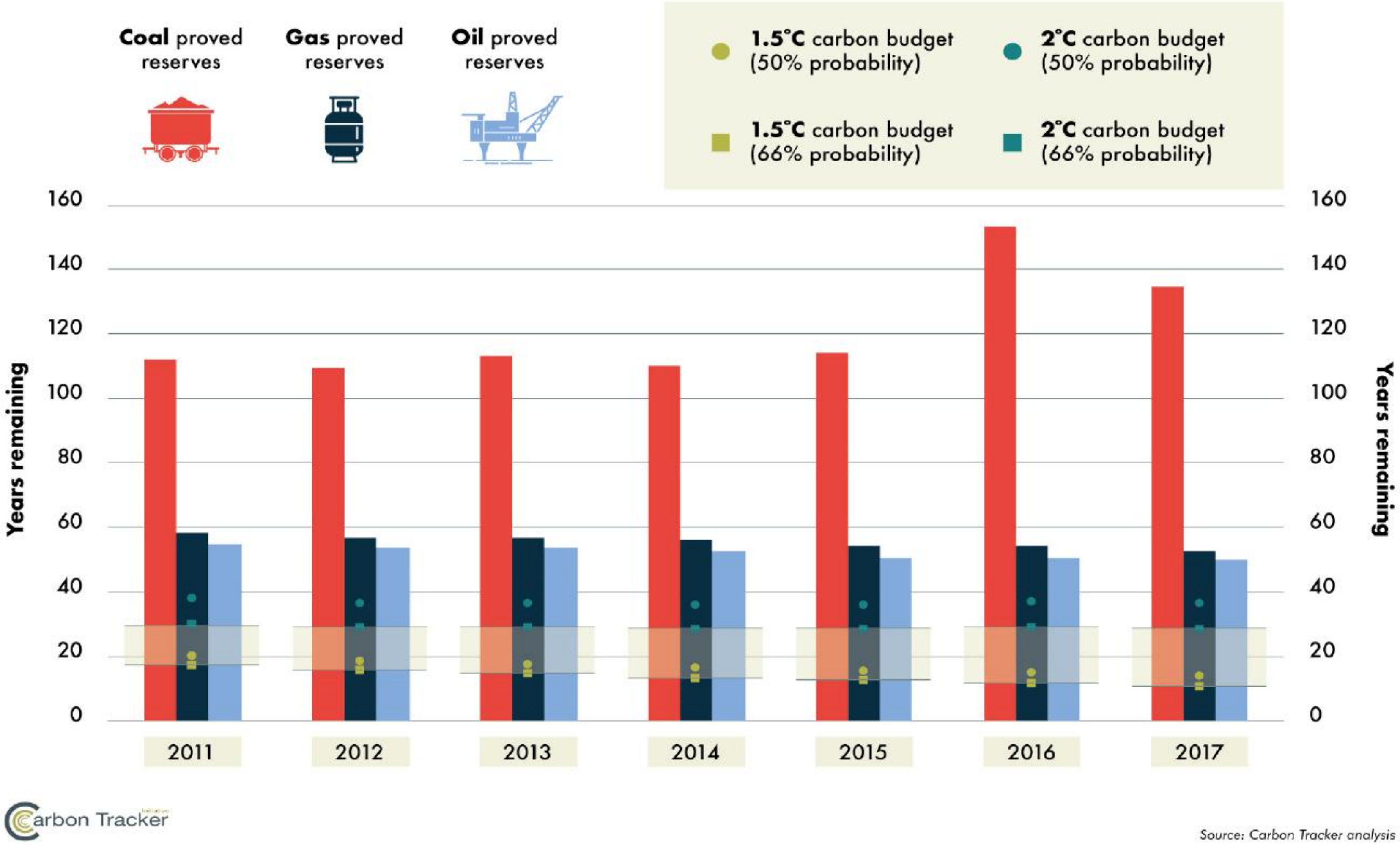
Mark Campanale
Founder & Executive Chair, Carbon Tracker

As You Sow, April 2020

# CARBON BUBBLE CONTINUES TO INFLATE RESERVES 7 X GREATER THAN 2°C BUDGET

Despite the Paris Agreement the fossil fuel industry is not diverting from business as usual.

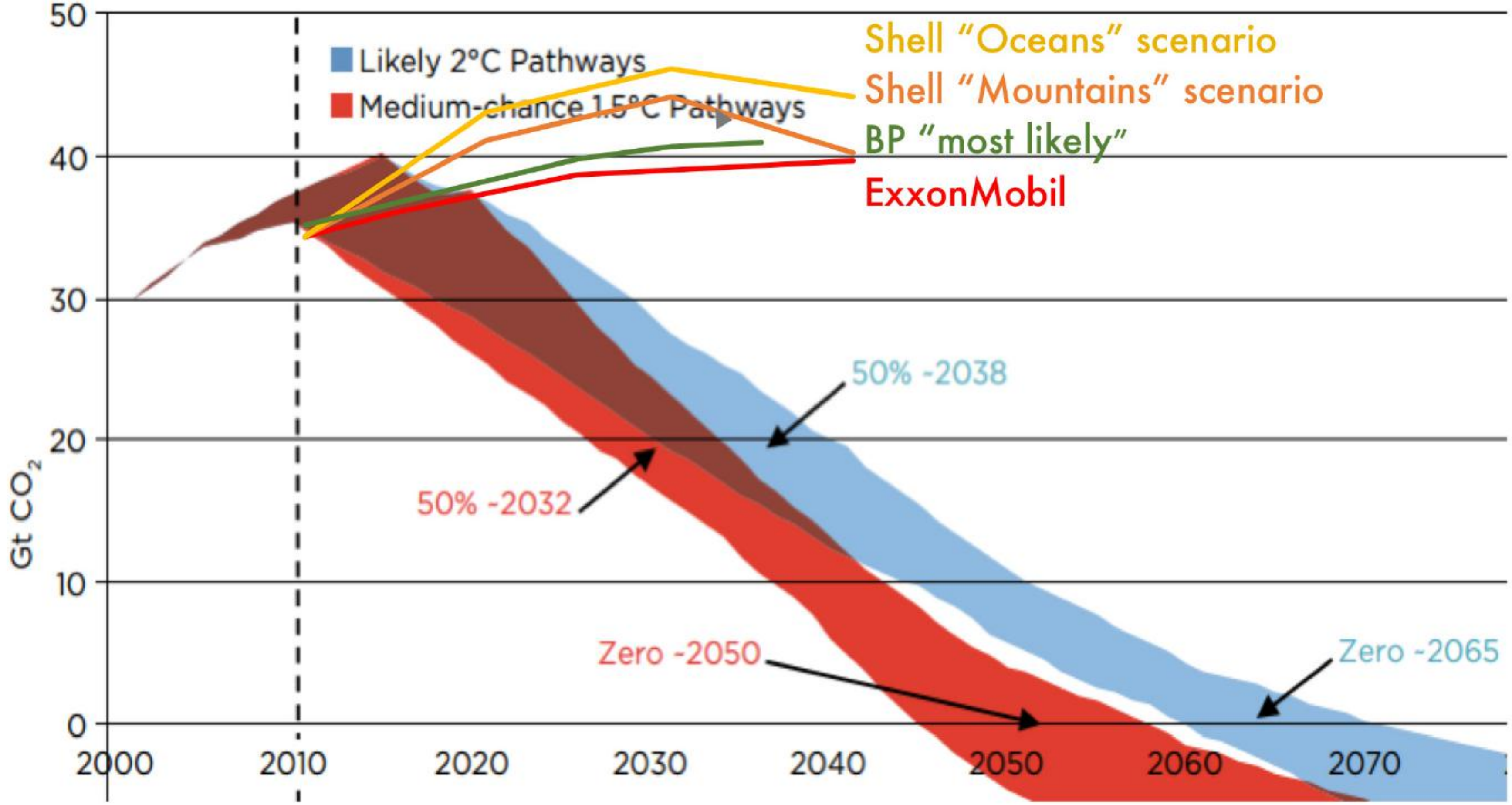
There is an overhang in all fossil fuels, with coal reserves life exceeding the remaining "well-below 2°C" budget life by a factor of 7.




Source: Carbon Tracker analysis

# FOSSIL FUEL COMPANIES PLAN FOR CLIMATE FAILURE

Range of IPCC emissions scenarios (from all sources) consistent with Paris goals VS corporate planning scenarios



# MAJORS NEED TO REDUCE PRODUCTION BY 35% BY 2040

- Same least-cost methodology as capex analysis applied to define projects within a given scenario
- Cumulative production (2019-2040) aggregated by company using B2DS as benchmark
- Linear projection to 2040 defines required reduction
- Production and capex results are complementary

| Company | % of NPS Capex Outside B2DS to 2030 | Minimum Production Reduction | |
|---|---|---|---|
| | | 2040 (vs 2019) | Annual Decline |
| ExxonMobil | 60% - 70% | 55% | 2.4% |
| Shell | 30% - 40% | 10% | 0.5% |
| Chevron | 30% - 40% | 35% | 1.6% |
| BP | 20% - 30% | 25% | 1.1% |
| Total | 30% - 40% | 35% | 1.7% |
| Eni | 30% - 40% | 40% | 1.8% |
| ConocoPhillips | 40% - 50% | 85% | 3.8% |
| Subtotal - Majors | - | 35% | 1.7% |

Source: *Rystad Energy, CTI analysis, "Breaking the Habit" (2019)*

# 2018 PROJECTS SANCTIONED OUTSIDE SDS BUDGET

A selection of the largest projects sanctioned in 2018 outside SDS budget (by a margin):

| Project | Resource theme | 2019-2030 capex | Country | Partners (* denotes operator) |
|---|---|---|---|---|
| LNG Canada T1 | Conventional (land/shelf) | $6.5 bn | Canada | **Shell***, Petronas, Mitsubishi Corp, Korea Gas, PetroChina |
| LNG Canada T2 | Conventional (land/shelf) | $6.5 bn | Canada | **Shell***, Petronas, Mitsubishi Corp, Korea Gas, PetroChina |
| Gorgon/Jansz Stage 2 | Deep water | $3.6 bn | Australia | **Shell**, **Chevron***, **ExxonMobil**, Osaka Gas, Tokyo Gas, Chubu Electric |
| Aspen Phase 1 | Oil sands | $2.6 bn | Canada | **ExxonMobil***, Imperial Oil |
| Amoca FFD | Conventional (land/shelf) | $1.4 bn | Mexico | **Eni***, Qatar Petroleum |
| Zinia 2 | Deep water | $1.3 bn | Angola | **BP**, **ExxonMobil**, **Total***, **Equinor** |

*Source: Rystad Energy, CTI analysis, "Breaking the Habit" (2019)*

## Unsanctioned new source conventional volumes (2020–29), by hydrocarbon and break-even price

| Company | Gas as share of unsanctioned conventional volumes | Unsanctioned oil projects with breakevens of: Less than $30 | $30–40 | $40–50 | Greater than $50 | Oil project production-weighted average break-even oil price ($/bbl) |
|---|---|---|---|---|---|---|
| Eni | 61% | 10% | 7% | 20% | 2% | **$36.01** |
| BP | 60% | 2% | 29% | 7% | 3% | **$39.60** |
| Shell | 39% | 7% | 14% | 24% | 17% | **$43.51** |
| Chevron | 35% | 7% | 16% | 25% | 17% | **$44.08** |
| Total SA | 37% | 12% | 5% | 24% | 22% | **$44.41** |
| ExxonMobil | 34% | 8% | 15% | 17% | 25% | **$45.22** |
| Equinor | 24% | 1% | 24% | 32% | 20% | **$45.26** |
| **Group total** | **40%** | **7%** | **16%** | **21%** | **16%** | **$43.49** |

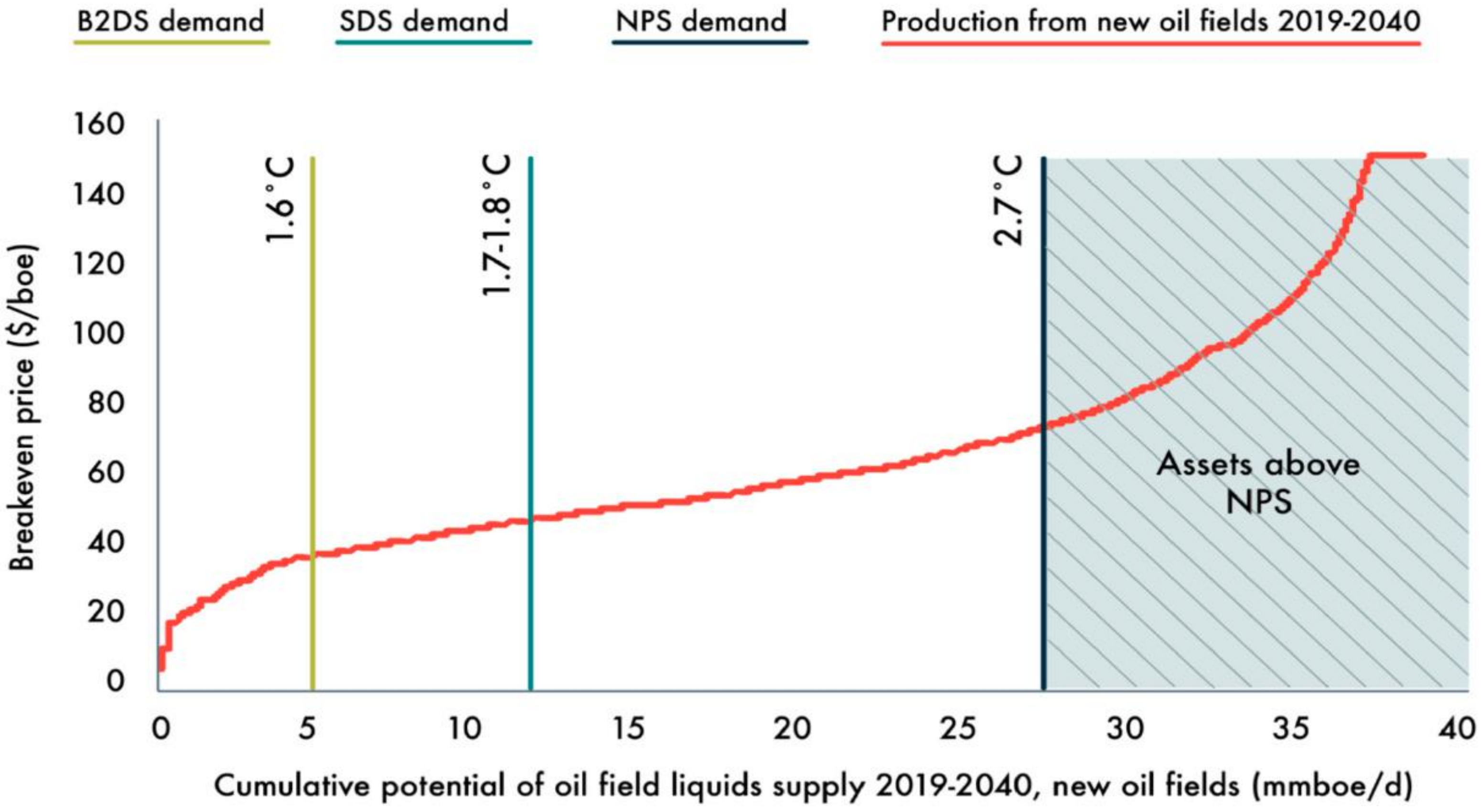
Source: IHS Markit



High break even prices, under current market conditions, required IHS Markit, April 8th 2020

https://ihsmarkit.com/research-analysis/how-global-integrated-oil-companies-are-dealing-with-the-oil.html

# COST CURVES ASSUME ECONOMIC LOGIC




*Source: Rystad Energy, IEA, CTI analysis*
*Note: potential oil supply with a breakeven of >$150/boe has been aggregated at that level*

- Carbon Tracker cost curve approach assumes economic logic plays out
- Lowest cost supply will be most competitive for reduced demand
- Risk mostly with future project options – reflects reality that capital has been sunk on existing projects

# COST CURVES – BREAK-EVEN PRICES KEY TO WINNERS AND LOSERS


*Source: Goldman Sachs Global Investment Research. Annotated by Tom Randall/Bloomberg, 2015*

# POST COVID RECOVERY: EIA & IEA STILL FORCASTING MAJOR OIL DEMAND GROWTH

US Energy Information Administration expects demand drop of 18m barrels a day this month before a sharp recovery back to 100m b/d by the end of 2020 for an annual reduction in global consumption of only 5.2m.

US EIA Ihen sees global demand reverting serenely to its previous course, with 2021 consumption projected at 102m b/d, some 7m higher than 2020 and 1 per cent above the 2019 level of 100.8m (until now the all-time record high).

Similarly, while the International Energy Agency now sees a bigger drop both at the trough April 2020 of 29m b/d and for 2020 as a whole of 9.3m, by December it has demand back to only 2.7m below the level at year-end 2019.

But what if some of the current demand destruction turns out to be permanent? Could 2019 even mark the all-time peak in global oil demand, with a plateau between 95m and 100m b/d for a few years before long-term decline kicks in?

# POST COVID RECOVERY: REASONS FOR DEMAND DESTRUCTION

According to the EIA, the highest level of US oil demand to date was registered back in 2005 at 20.8m b/d. Despite the US population growing by 20m people over 2005-19, and vehicle miles travelled (VMT) increasing by nearly 10 per cent from 8.2bn miles a day in 2005 to 9bn miles a day in 2019, US oil consumption in 2019 was still below the 2005 level. The increases in population and VMT were outweighed by greater vehicle efficiency.

Petrol consumption lost to efficiency improvements in the US and elsewhere over the past 15 years will be dwarfed by the petrol demand destroyed globally over the next 15 years by the far superior efficiency of electric vehicles. This is a structural pressure only just starting to assert itself but with China and India competing with Europe for the most ambitious targets on EV penetration, its effect will be both profound and far-reaching.

There is the backlash against globalisation. This was mainly a political phenomenon before the pandemic struck but with the virus having revealed the fragility of over-extended industry supply chains, there is likely to be a debate over the prudent limits of outsourcing once the public health crisis has passed. More locally sourced production would mean less oil demand.

# WHO WE ARE

**Identity**

Carbon Tracker is an independent non profit financial think tank funded by EU and US foundations interested in climate.

**Vision**

To enable a climate secure global energy market by aligning the capital markets with climate reality.

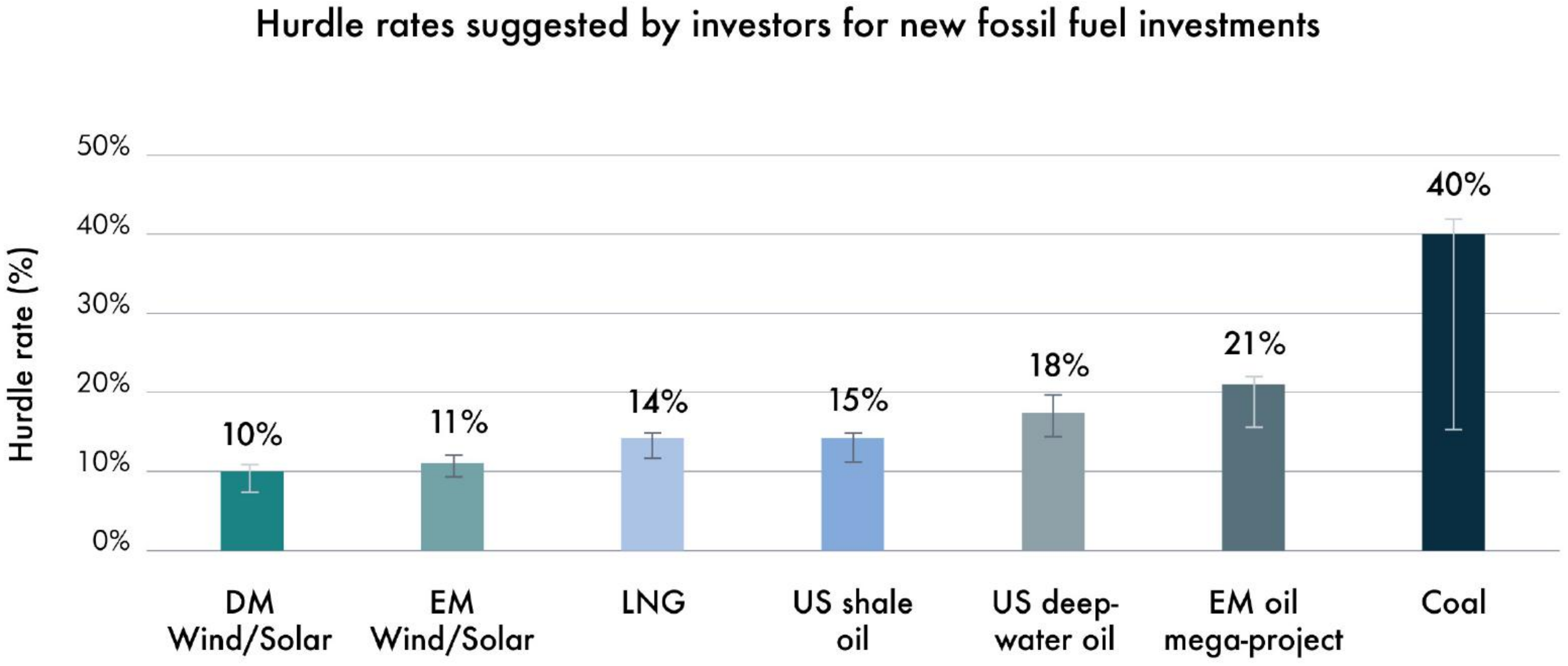
**Mission**

Mapping the transition for the fossil fuel industry to stay within a two degree budget.

**Strategy**

- Empower **investors** to identify and switch off capital to the highest cost, highest carbon projects.
- Engage with **companies** to re-assess both the viability of such projects and of their business model.
- Educate mainstream **financial markets** and **policy-makers** over the risk of a disorderly transition.
- Work with **financial regulators** to bring transparency on carbon and stranded asset risk and the fossil fuel risk premium.

# HURDLE RATES FOR NEW FOSSIL FUEL INVESTMENTS




*Note: error bars show inter-quartiles range*
*Source: 'High Hurdles What if Fossil Fuels Are Starved of Capital?', Redburn, Nov 2018.*

Carbon Tracker Initiative

# Thanks for listening

For more information please visit:
www.carbontracker.org
@CarbonBubble

If you are interested in knowing more,
please get in touch:

Mark Campanale
mark@carbontracker.org

# Disclaimer

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# Questions and Answers

- For technical support call 1-855-888-6094
- Use the Q&A window to send us your questions

Q&A Window

# Questions for the Panelists

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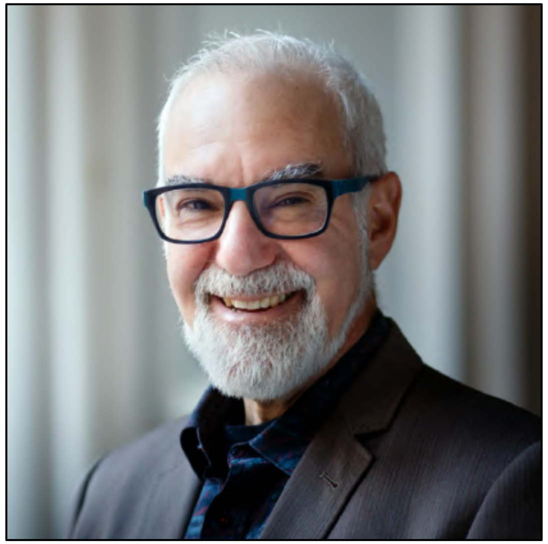

**Andrew Behar**
CEO, *As You Sow*

**Mark Campanale**
Founder & Executive Chairman, Carbon Tracker

# Thank you for joining us today!

***Questions or comments? Contact:***

Stefanie Spear
sspear@asyousow.org

FossilFreeFunds.org

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