

How Capitalism Can Help our Planet?

Focus on Climate Change Mitigation & Adaption

Tony Praza

PLATO – Pathways to a Sustainable Planet

April 8th, 2019

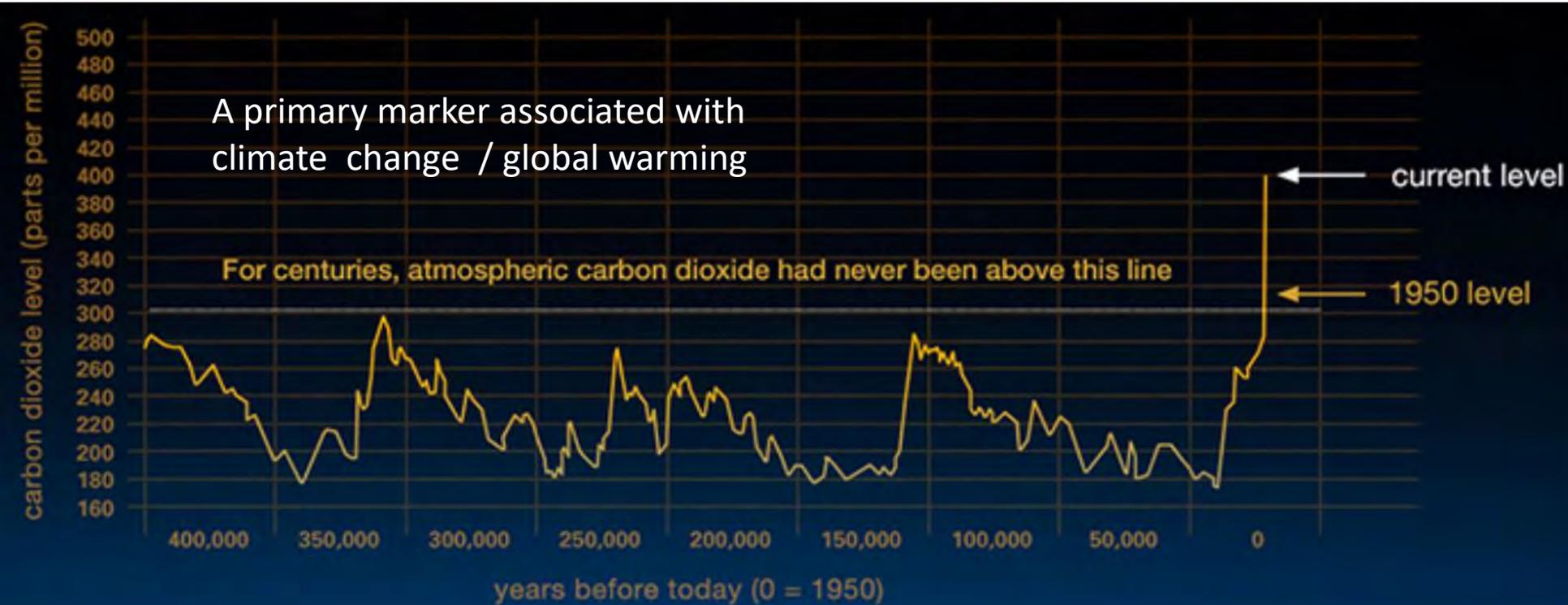
Note Regarding This Presentation

- Blue underline title and main image on the slides will take you to associated Webpage, PDF, Short Video or Short Audio if you click on them – for more info.
- Blue underline in body of slide will take you to a specific webpage related to the topic.
- If you have a question or comment, please feel free to contact me TonyPraza@gmail.com

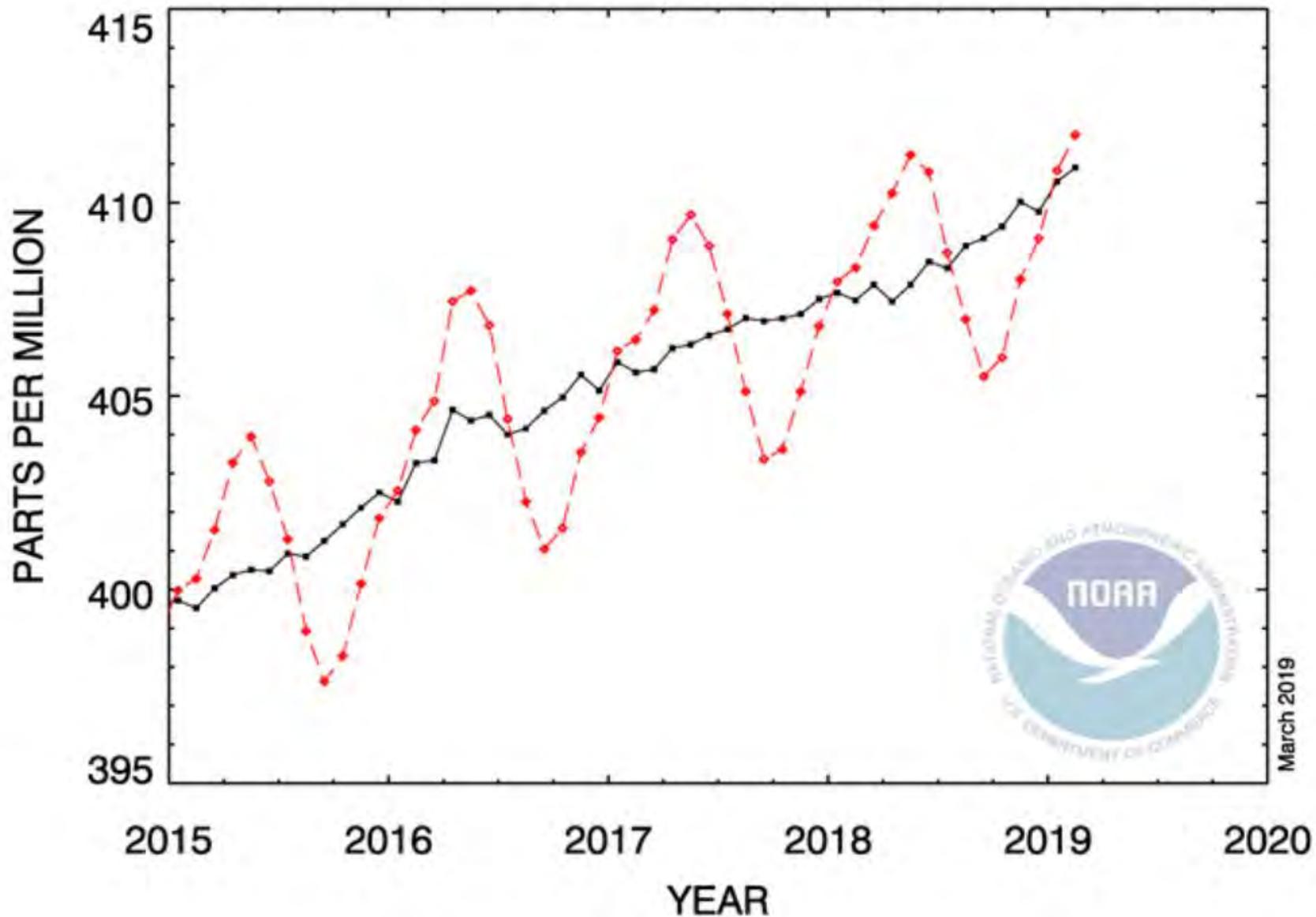
Overview of this presentation

- Climate Change recent events
 - CO² continues to increase and other Green House Gases
 - Temperatures continue to set records
 - Extreme weather events
- Capitalism – The Problem or The Fix?
 - Yes, Yes, to both
 - “The Invisible Hand” it is not working and other economic principles
 - What is happening – Negatives and Positives
- Need businesses, governments at all level, universities, R&D investments, and individuals focused on

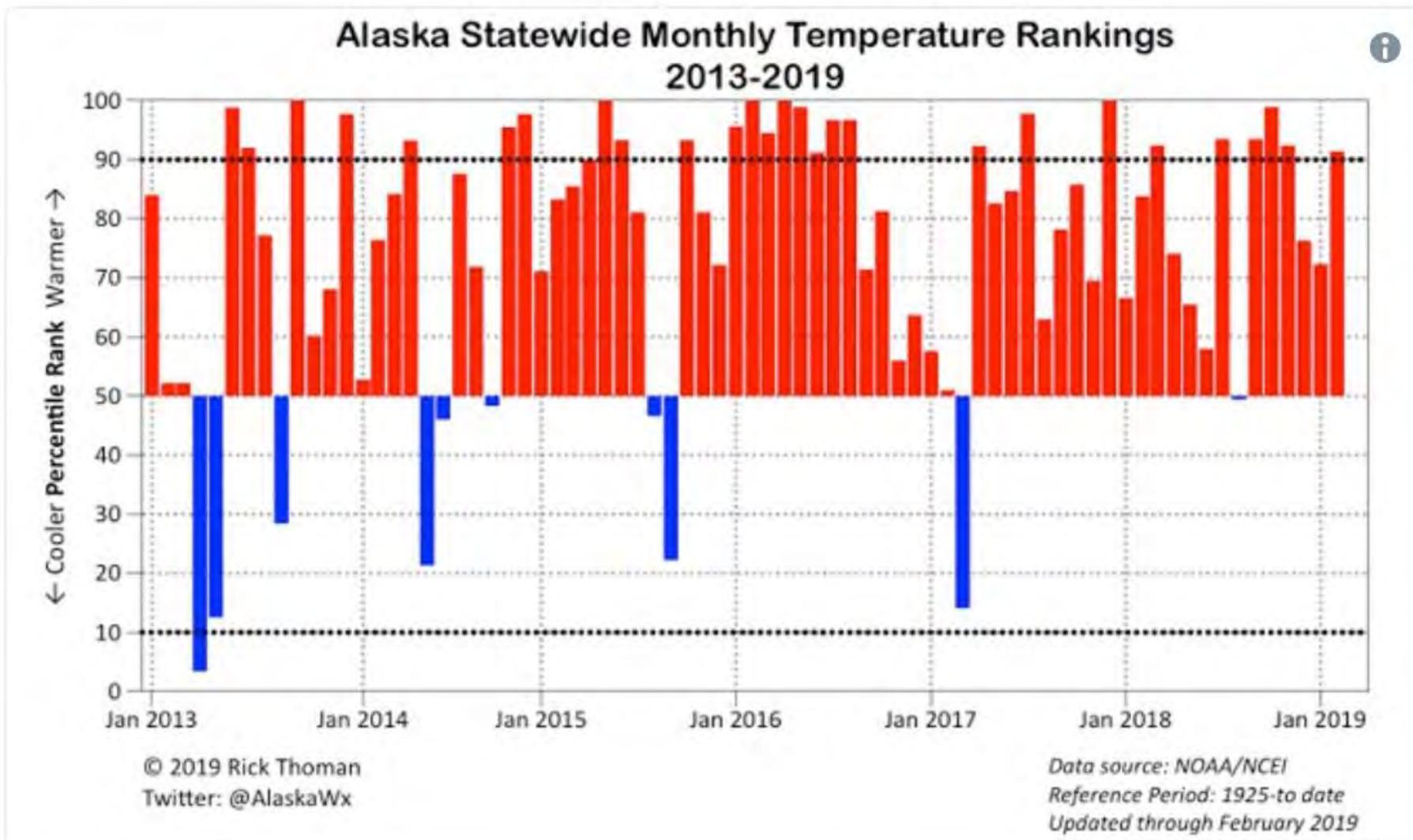
CO2 Level for the past 400,000 Years



RECENT MONTHLY MEAN CO₂ AT MAUNA LOA



What is happening in the Arctic?



Average high temperature -7 actual 37 on March 29, 2019

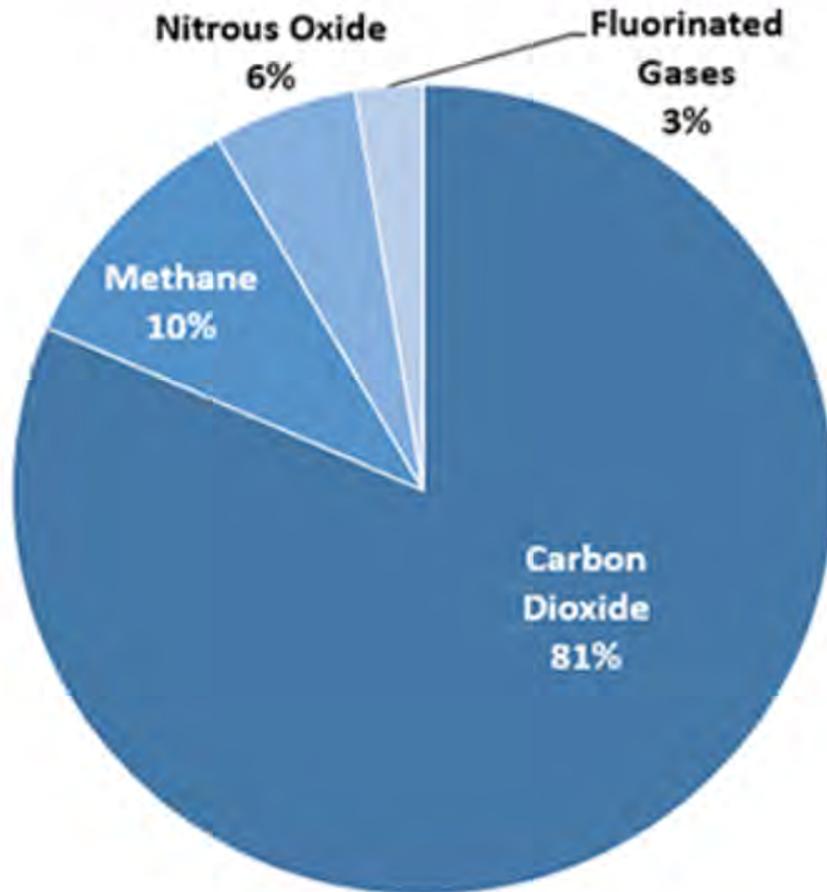


Put into perspective if
Madison's temperatures were
setting comparable highs, we
would have been in the 90s
the whole last week of March!

CO2 and other Greenhouse Gas

Greenhouse Gas		Global Warming Potential (GWP)
1.	Carbon dioxide (CO ₂)	1
2.	Methane (CH ₄)	25
3.	Nitrous oxide (N ₂ O)	298
4.	Hydrofluorocarbons (HFCs)	124 – 14,800
5.	Perfluorocarbons (PFCs)	7,390 – 12,200
6.	Sulfur hexafluoride (SF ₆)	22,800
7.	Nitrogen trifluoride (NF ₃) ³	17,200

U.S. Greenhouse Gas Emissions in 2016



There are problems with all of these but as we saw on the previous slide some have a much bigger impact on Global Warming than others.

Carbon Dioxide has long-term impact on Global Warming where as other durations are just decades.

Total Emissions in 2016 = 6,511 [Million Metric Tons of CO₂ equivalent](#).

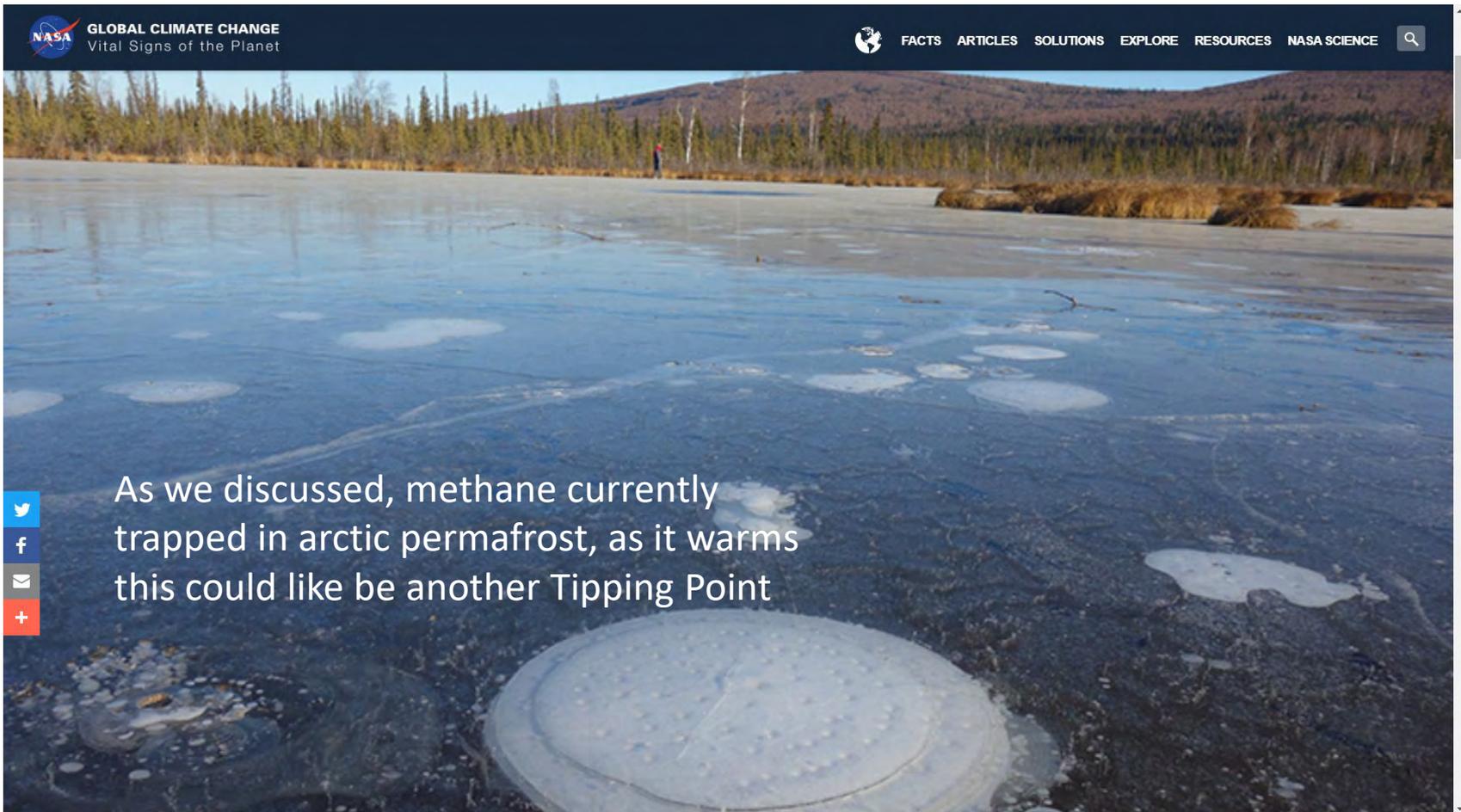
CFC to HFCs

- During the presentation we discussed the impact of HFCs which replace CFC – Freon Gas that had been used in Air Conditions and numerous other applications. PBS recently aired a documentary [“Ozone Hole – How We Saved the Planet”](#)
- You can watch the 53 minute video if you click the underline link above. Last 10 minutes briefly covers the problem of the phasing out the HFCs in air conditions due to their dramatic impact on Global Warming.

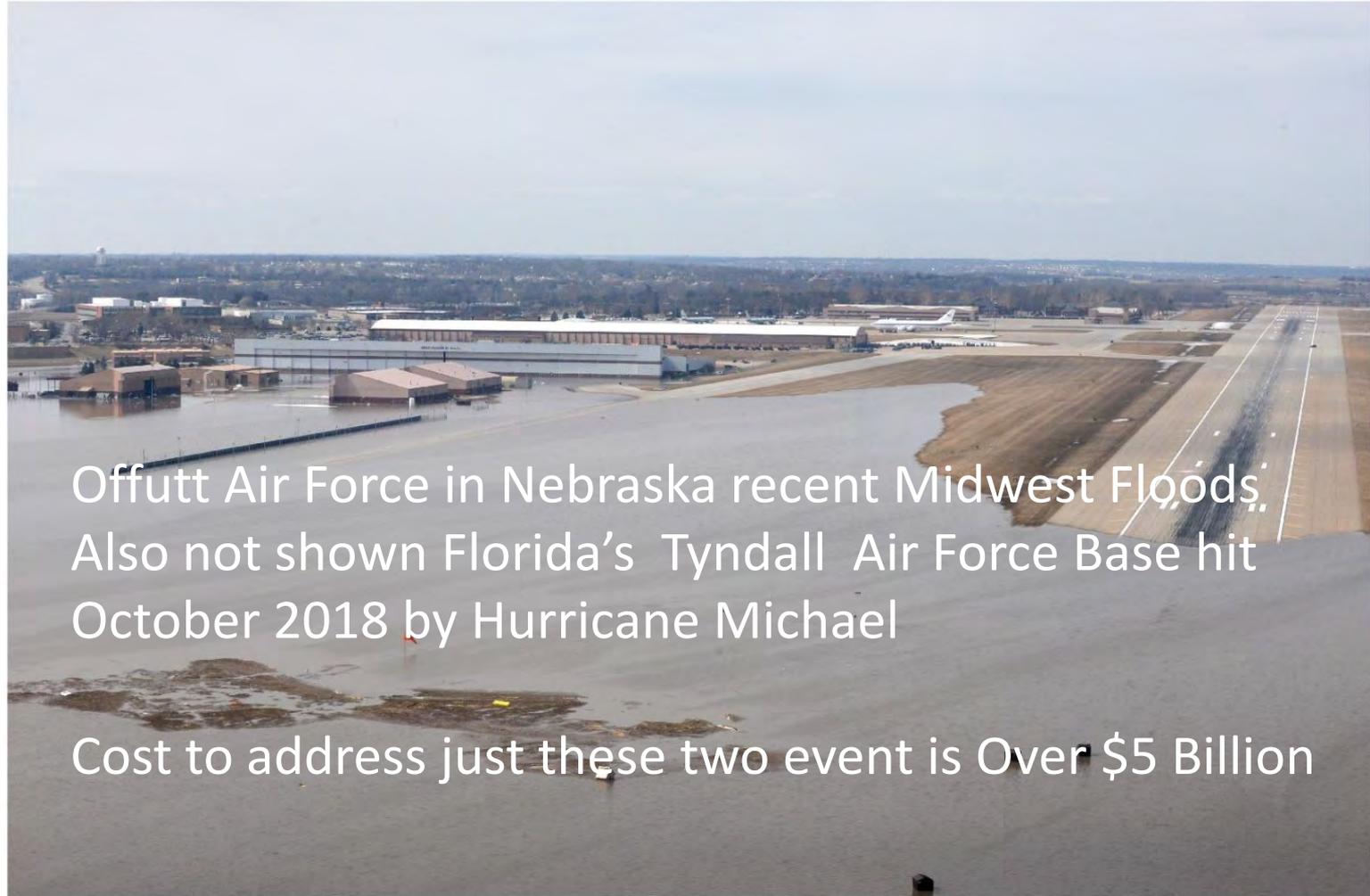
Climate Change VS Cloud Cover

- Global climate models, predictions of their response to greenhouse warming have remained uncertain.
- Yet, recent study indicates Climate Change Is Eliminating Clouds. Without Them, Earth Burns

Unexpected future boost of methane possible from Arctic permafrost



Extreme weather, expensive repair costs, forcing Air Force to curtail operations



Offutt Air Force in Nebraska recent Midwest Floods,
Also not shown Florida's Tyndall Air Force Base hit
October 2018 by Hurricane Michael

Cost to address just these two event is Over \$5 Billion

Environment is deadly, worsening mess, but not hopeless



 5 of 6

FILE - In this Friday, Nov. 10, 2017 file photo, motorists ride through a thick blanket of smog and dust on the outskirts of New Delhi, India., with microscopic particles spiking at times to 75 times the level considered safe by the World Health Organization. According to a scientific report from the United Nations released on Wednesday, March 13, 2019, climate change, a global major extinction of animals and plants, a human population soaring toward 10 billion, degraded land, polluted air, and plastics, pesticides and hormone-changing chemicals in the water are making the planet an increasing unhealthy place for people. (AP Photo/Altaf Qadri)

Trending on

Very Brief History of Capitalism

- **The invisible hand** – Adam Smith “A Wealth of Nations” 1776
- Each individual in pursuing his own selfish good, as if by an invisible hand, to achieve the best good of all, so that any interference with free competition by government was almost certain to be injurious.
- **This unguarded conclusion has done almost as much harm as good in the past century and a half, especially since too often it is all that some of our leading citizens remember, 30 years later, of their college course in economics. Paul Samuelson “Theory of Political Economy” Nobel Prize winner in Economics.**
- **What is Capitalism? The term was coined almost century later.**

Capitalism vs. the Climate

- This Changes Everything (Book by Naomi Klein)
 - ❖ Capitalism = Consumerism
- [This Changes Everything](#) (The movie documentary) available on Amazon Streaming.
- [The world's most profitable company in 2018](#)
 - Saudi oil Aramco generated a whopping \$224 billion
 - Apple Inc. was a distant second, with \$82 billion
 - South Korea's Samsung Electronics was 3rd, Royal Dutch Shell was 4th, Alphabet Inc. (Google) was 5th, and followed by Exxon Mobil Corp in 6th

Climate Change and the Federal Reserve

Glenn D. Rudebusch

Climate change describes the current trend toward higher average global temperatures and accompanying environmental shifts such as rising sea levels and more severe storms, floods, droughts, and heat waves. In coming decades, climate change—and efforts to limit that change and adapt to it—will have increasingly important effects on the U.S. economy. These effects and their associated risks are relevant considerations for the Federal Reserve in fulfilling its mandate for macroeconomic and financial stability.

To help foster macroeconomic and financial stability, it is essential for Federal Reserve policymakers to understand how the economy operates and evolves over time. In this century, three key forces are transforming the economy: a demographic shift toward an older population, rapid advances in technology, and climate change. Climate change has direct effects on the economy resulting from various environmental shifts, including hotter temperatures, rising sea levels, and more frequent and extreme storms, floods, and droughts. It also has indirect effects resulting from attempts to adapt to these new conditions and from efforts to limit or mitigate climate change through a transition to a low-carbon economy. This *Economic Letter* describes how the consequences of climate change are relevant for the Fed's monetary and financial

Other approaches

- Private Public Partnerships
- ESOP Employee Stock Ownership Plan
- **Hedge-fund billionaire Ray Dalio says capitalism needs urgent reform** He was on 60 Minutes Last Night 4/7/2019. Also Ray Dalio and Michael Bloomberg **Commit \$185 Million To Protect The Oceans.** And Dalio produced Oceans – Our Blue Planet and Years of Living Dangerously

Corporate Problems

- **UTILITIES:** PG&E: the first climate-change bankruptcy, probably not the last ([Wall Street Journal](#) \$), California's energy challenge: How—and whether—to save PG&E, a utility that could face monumental fire liabilities ([Washington Post](#) \$), judge says uninsulated power conductors caused California fires ([NBC](#), [The Hill](#)),

Negatives and Positives

1. Central bankers plan for disruption caused by climate change ([FT](#) \$),
2. A.J. Gallagher's 'clean coal' business draws ire of green investors ([Reuters](#)),
3. 'A List' climate change firms outperform on stock market -survey ([Thomson Reuters Foundation](#))
 - The two percent of 6,800 firms that submitted data made the "A List" of the CDP index, with the shares of those leaders tending to outperform on stock markets
4. European power firms aim to harness electric car batteries ([Reuters](#))
 - European utilities are already working with Nissan to develop services that allow power stored in electric vehicle batteries to be sold back to the grid - and now they're trying to persuade European carmakers to follow suit.
 - Charge your electric vehicle (EV) at off-peak times and are prepared to sell power back to the grid when it's under strain, you could effectively charge for free.

Drawdown.org

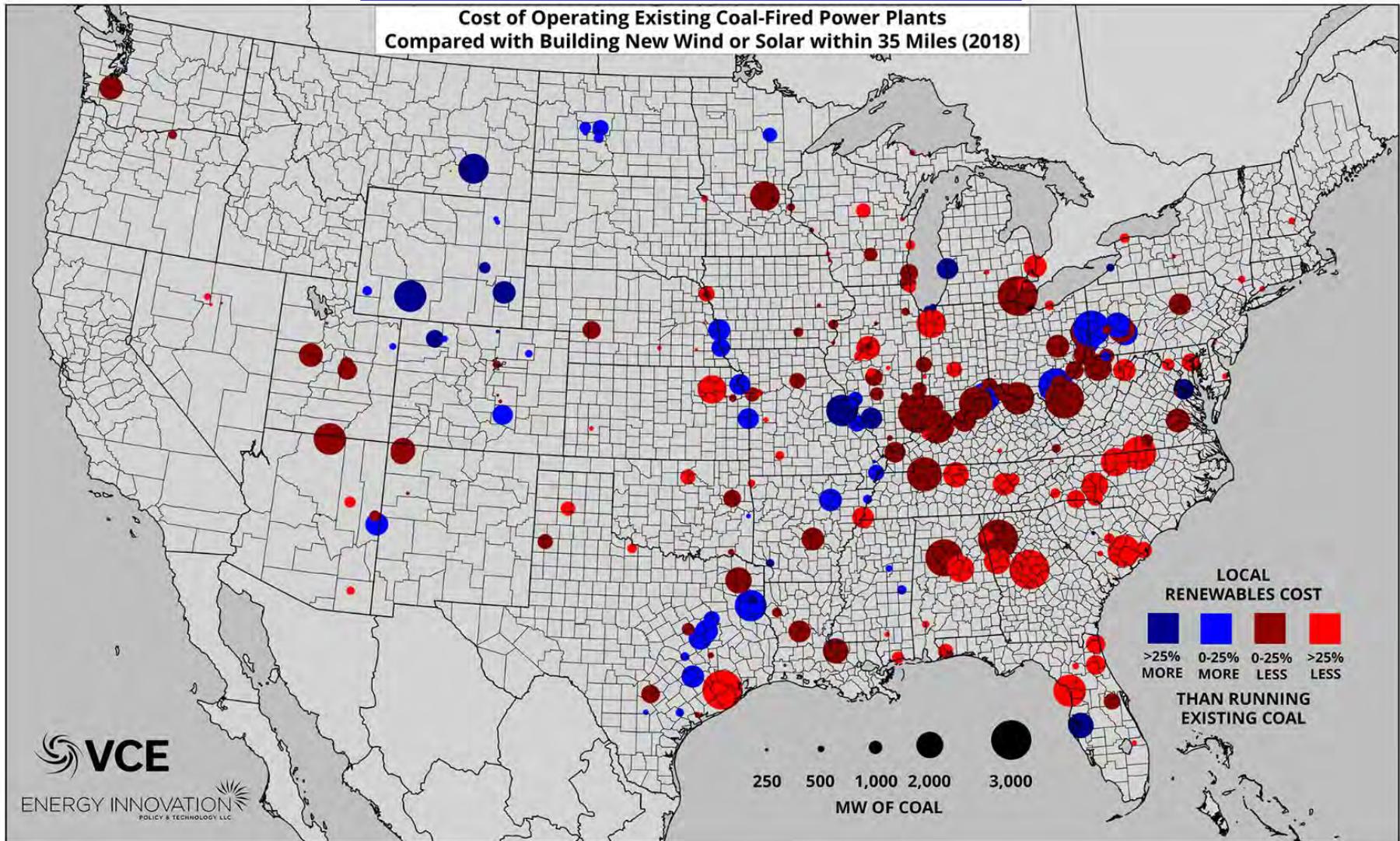
Summary of Solutions by Overall Rank

Rank	Solution	Sector	TOTAL ATMOSPHERIC CO ₂ -EQ REDUCTION (GT)	NET COST (BILLIONS US \$)	SAVINGS (BILLIONS US \$)
1	Refrigerant Management	Materials	89.74	N/A	\$-902.77
2	Wind Turbines (Onshore)	Electricity Generation	84.60	\$1,225.37	\$7,425.00
3	Reduced Food Waste	Food	70.53	N/A	N/A
4	Plant-Rich Diet	Food	66.11	N/A	N/A
5	Tropical Forests	Land Use	61.23	N/A	N/A
6	Educating Girls	Women and Girls	51.48	N/A	N/A
7	Family Planning	Women and Girls	51.48	N/A	N/A
8	Solar Farms	Electricity Generation	36.90	\$-80.60	\$5,023.84
9	Silvopasture	Food	31.19	\$41.59	\$699.37

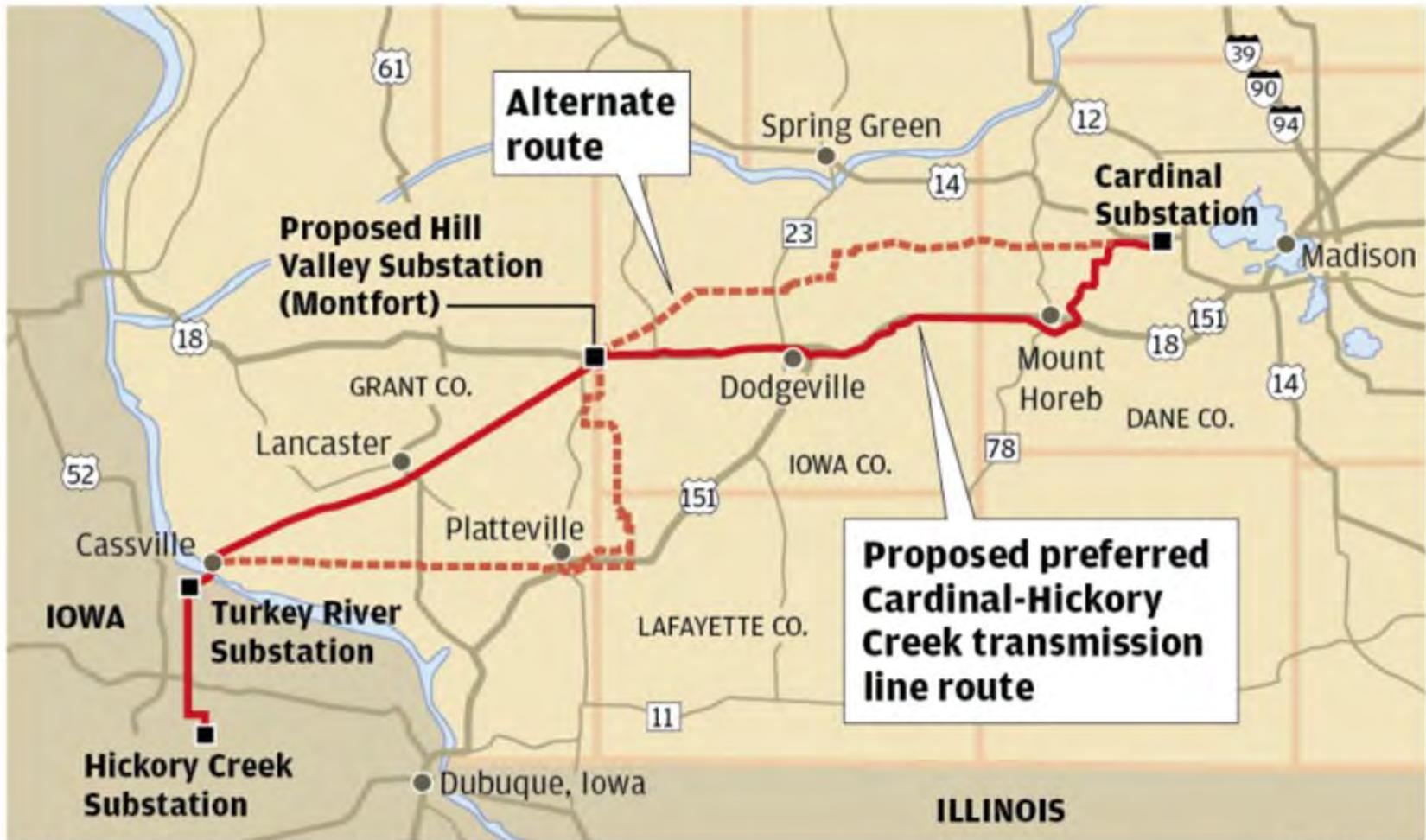
Citi TV Commercial, 'Progress Makers: Offshore Wind Farms'



New Solar, Wind Could Replace Coal While Cutting Costs



ATC power line slows transition to low-carbon future



SOURCE: American Transmission Company

State Journal

Quilt Block Wind Farm



WISCONSIN: Quilt Block



Quilt Block Wind Farm is located 50 miles from Madison in southwestern Wisconsin. Located entirely in Seymour Township, Lafayette County, the wind farm complements the area's sprawling corn, wheat, and soybean fields, providing local farmers with a stable, drought-resistant cash crop in the form of landowner lease payments.

98 MW
COD 2017



Quilt Block Wind Farm produces enough clean electricity to power more than **36,000** Wisconsin homes.¹



New Project Would More Than Double Wisconsin's Solar Energy Output

Click under lined blue text or picture to transcript or play 45 second audio

WPR

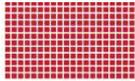


The 149-megawatt Badger State Solar Project is planned for private land in the Towns of Jefferson and Oakland. *Photo courtesy of Ranger Power*

Wisconsin Iowa Cty 3 times Larger

https://madison.com/wsj/news/local/environment/rural-wisconsin-county-split-on-solar-energy-project-that-would/article_dd4efefb-a335-5ccf-9a9c-66c046a3a21c.html

the last: Grid operators
nearly two dozen more
megawatts.



Largest in Dane Co.
(2.2 megawatts)
Epic Systems,
Verona

Proposed
(300 megawatts)
Badger Hollow,
Iowa Co.

Submission: Renew Wisconsin; MISO

State Journal



deserves PSC

Wisconsin needs
energy to combat
climate change



The 100-megawatt North Star Solar Farm in Chisago County, Minnesota. With more than 44,000 solar panels spread across more than 1,000 acres, it is the largest solar farm in the Midwest. Wisconsin utility regulators are considering a proposal for a solar farm three times that size in Iowa County.

D. F. Shaw Renewable Investments



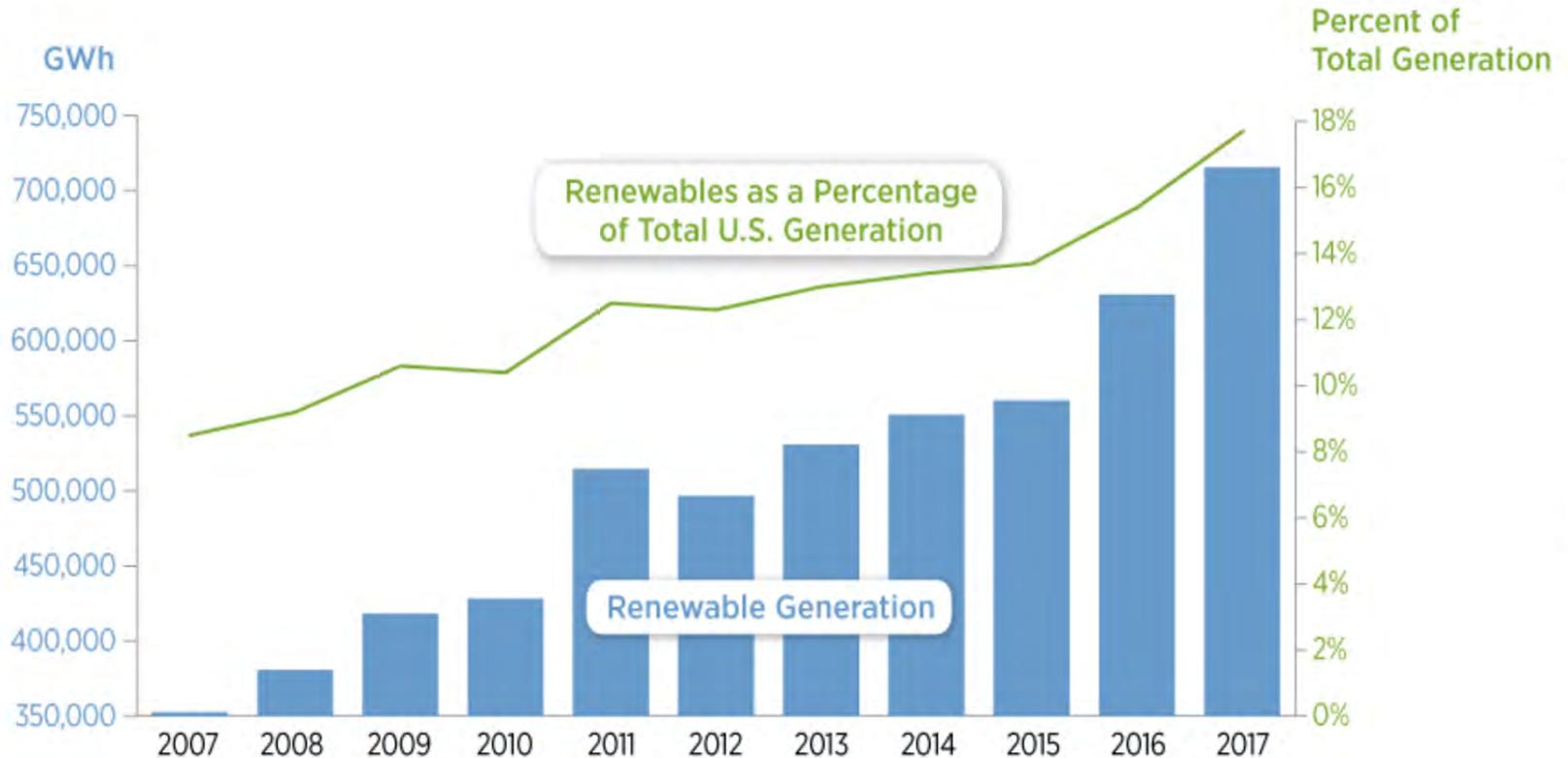
FAN



REC



Renewables Growth



Graphic from the 2017 Renewable Energy Data Book highlights sustained growth in U.S. renewable electricity generation since 2007.

EVs Shown here Chevy Bolt

Major car companies have committed to rolling out numerous EV models over the next few years!



<https://cars.usnews.com/cars-trucks/chevrolet/bolt/2019/photos-exterior>

Retail location like Wal-Mart are deploying EV charging points to draw customers.

EV – 59,000 Mile across 33 Countries

Dutchman ends 'world's longest electric car trip' in Australia

AFP April 7, 2019, 6:57 AM GMT



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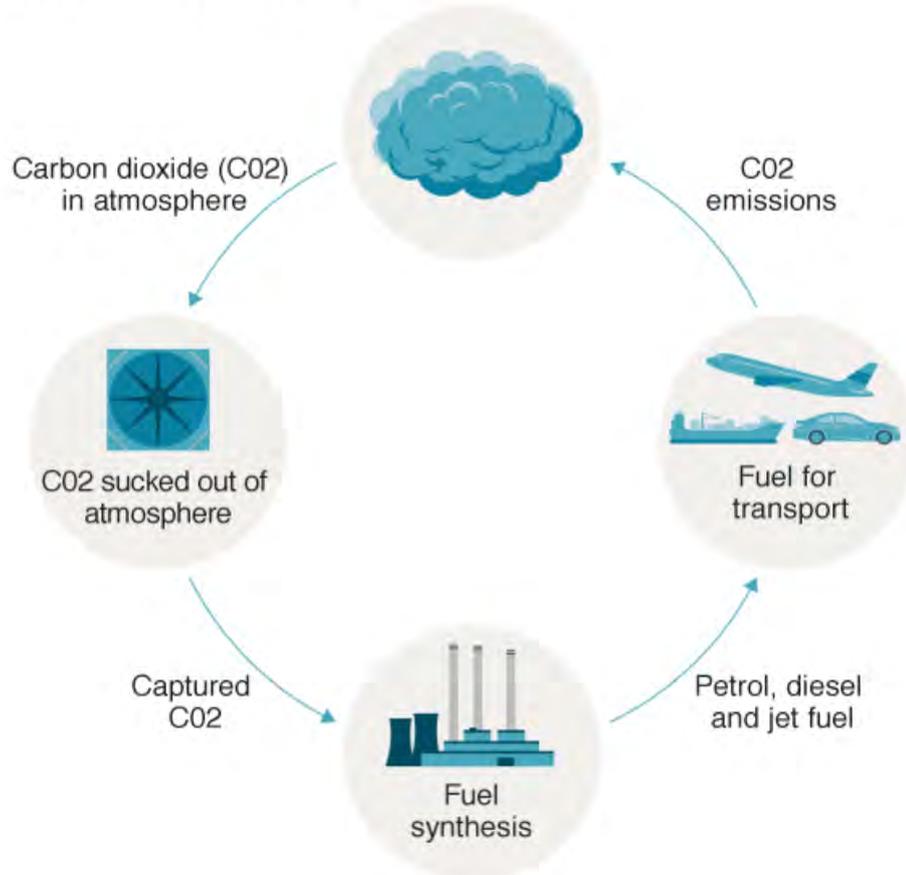
54 Reactions



Can you really make a liquid fuel from CO2?

Yes. It's complicated but it can be done.

How to turn CO2 into fuel

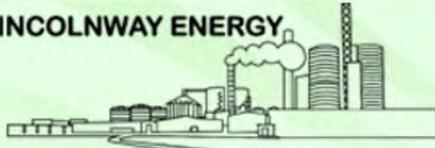


British Columbia-based – Carbon Engineering says that its direct air capture process is now able to capture the gas for under \$100 a Ton

CE has now been boosted by \$68m in new investment from Chevron, Occidental and coal giant BHP.

The carbon-capture era may finally be starting

LINCOLNWAY ENERGY



THE COMPANY ▼ | INVESTORS ▼ | CO-PRODUCTS ▼ | ETHANOL INDUSTRY ▼ | CONTACT ▼ | HOME |



Carbon Dioxide

During the ethanol production process, carbon dioxide gas (CO₂) is formed during the fermentation stage of ethanol production. The CO₂ gas is then piped to a third party liquefaction plant where the gas is turned into a CO₂ liquid. From there, it is sold to other industries including those who manufacture carbonated beverages, process meat or dry ice and can also be used by other food processors and paper mills.



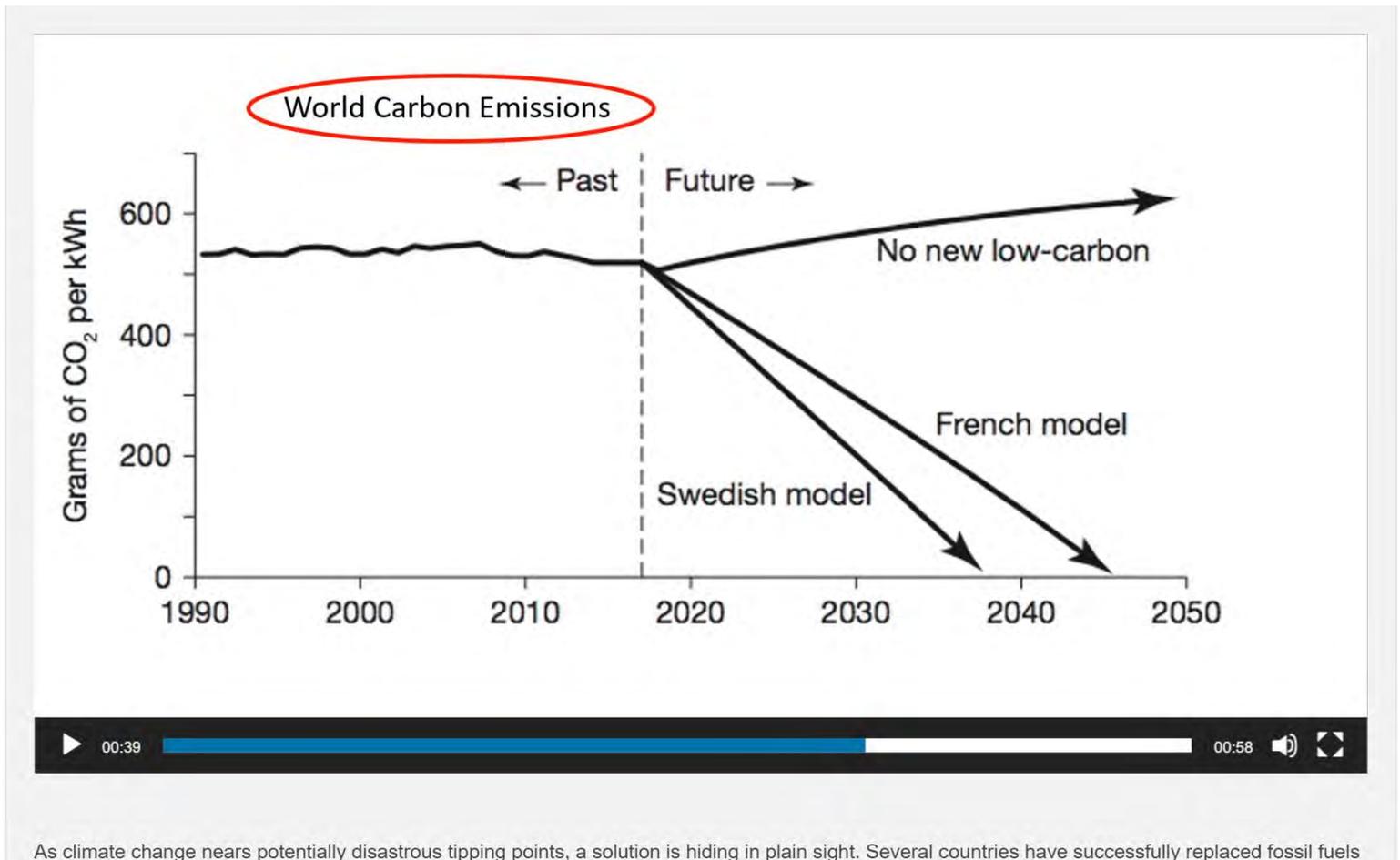
The budget bill that President Donald Trump signed into law last year provides a huge incentive for capturing and storing carbon emissions.

Shell sets its first carbon reduction targets on output, consumption

- Royal Dutch Shell said on just last month it planned to reduce carbon emissions from its oil and gas operations and product sales by 2 percent to 3 percent by 2021.
- Last year Shell announced an “ambition” to halve its carbon footprint by 2050
- The targets will be linked to the remuneration of 150 executives in 2019, and expanded to 16,000 employees next year.
- [On NPR April 7th, 2019 Shell withdraws support from oil lobbying group](#)
- Rivals BP and Total have already set short-term targets on reducing carbon dioxide emissions, but those planned cuts are limited to their own operations

Book: A bright future

Author: Goldstein, Joshua S.



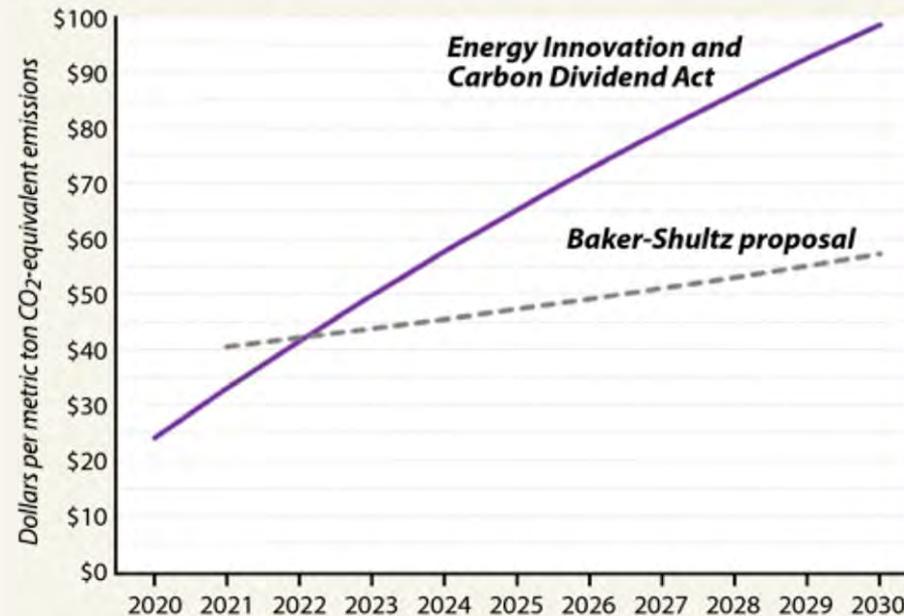
Carbon Tax Plans: How They Compare and Why Oil Giants Support One of Them

Two U.S. Carbon Tax Proposals

Not all carbon tax plans are alike. This chart shows the potential trajectory of two proposals: Legislation introduced by Rep. Ted Deutch and the midpoint pathway of a proposal floated by former Republican Secretaries of State James Baker and George Shultz. Both plans would return all revenue to taxpayers as dividends.

CARBON TAX RATES

2020-2030



SOURCE: Columbia Center on Global Energy Policy

InsideClimate News

Baker-Shultz proposal: Part of the package that is especially important to the proposal's industry supporters is curbing [lawsuits](#) against energy companies involving climate change— "once and for all, putting a can on that ... so that we have a comprehensive climate solution," said Costello.

Energy Innovation and Carbon Dividend Act: The right to sue would be protected by the Deutch bill's provision that it would not preempt or supersede any state law or regulation.

H.R.763 - Energy Innovation and Carbon Dividend Act of 2019

CCL – Carbon Fee and Dividend

BILL
Hide Overview ✕

Sponsor: [Rep. Deutch, Theodore E. \[D-FL-22\]](#) (Introduced 01/24/2019)

Committees: House - Ways and Means; Energy and Commerce; Foreign Affairs

Latest Action: House - 02/12/2019 Referred to the Subcommittee on Energy. ([All Actions](#))

Tracker:

Introduced
Passed House
Passed Senate
To President
Became Law

More on This Bill

[Constitutional Authority Statement](#)

[CBO Cost Estimates \[0\]](#)

Subject — Policy Area:

Taxation

[View subjects »](#)

Summary (1)
Text (1)
Actions (5)
Titles (2)
Amendments (0)
Cosponsors (26)
Committees (3)
Related Bills (0)

Committees: H.R.763 — 116th Congress (2019-2020) [All Information](#) (Except Text)

Committees, subcommittees and links to reports associated with this bill are listed here, as well as the nature and date of [committee activity](#) and [Congressional report](#) number.

Committee / Subcommittee	Date	Activity	Reports
House Ways and Means	01/24/2019	Referred to	
House Energy and Commerce	01/24/2019	Referred to	
House Energy and Commerce Subcommittee on Energy	02/12/2019	Referred to	
House Foreign Affairs	01/24/2019	Referred to	

I'm Just Bill



Any additional Questions?

- HR 763 – Energy Innovation and Carbon Dividend Act Of 2019
- We need businesses, governments at all level, universities, R&D investments, and individuals focused on addressing Climate Change