

OCSAB 2020

The Changing Political Landscape— Washington Update



OCSAB 2020 Workshop
January 29, 2020 –
The Woodlands, TX

L. Poe Leggette, Energy
Head
BakerHostetler
Houston, TX

L. Poe Leggette

Energy Head - BakerHostetler

- ❑ Received IPAA's special recognition for "25 Years of Outstanding Legal Representation," having saved industry an estimated \$25 billion. (This figure is based on government numbers, so the range of savings is between \$1.5 trillion and about \$104.35.)
- ❑ Enjoys beating up on the Interior Department's Office of Natural Resources Revenues. Calls it "whuppin' the tail that tries to wag the dog."
- ❑ Has litigated a lot. He once left in the middle of a speech saying "I've gotta go sue somebody."
- ❑ Advises on and litigates over compliance with EPA and Interior Department regulations.
- ❑ Has published many articles, but we don't recommend you read any of them.

For the Scrabble Players

It's our quadrennial quarrel of quirky, quipless, quivering semi-quadrupeds with their quondam quilled but still quirky quacks in the media in their quenchless quest to quadruple our annual quittance to our quagmired government, while they silence our queries with their querulous quotations. And we, in our queasy quandary, cry out like Richard the Third "My Kingdom for a Quaalude.

People of the State of New York v. Exxon Mobil Corp. (N.Y. Sup. Ct. Dec. 10, 2019)

Nothing in this opinion is intended to absolve ExxonMobil from responsibility for contributing to climate change through the emission of greenhouse gases in the production of its fossil fuel products. . .

But ExxonMobil is in the business of producing energy, and this is a securities fraud case, not a climate change case.

The Kids' Climate Suit (Juliana v. U.S., No. 18-36082, Op. Jan. 17, 2020)

- 2-1 ruling that federal courts don't have the ability to fashion the remedy the plaintiffs seek:
 - to direct the government cease permitting and subsidizing fossil fuel use and to prepare a plan to “draw down harmful emissions.” Even though the “plaintiffs in this case have presented compelling evidence that climate change has brought that eve [of destruction] nearer.”
- Dissent (Hon. Josephine L. Staton, Los Angeles, by designation). Each citizen has a constitutional right to a republican form of government in perpetuity.
 - This right is “structural and implicit in our constitutional system.” Climate change threatens our nation's survival, infringing plaintiffs' “right to be free from irreversible and catastrophic climate change.”
 - A court may step in when the President and the Congress are willing to “walk the Nation over a cliff.” The issue is “amount of fossil-fuel emissions that will irreparably devastate our Nation.” A district court receiving scientific testimony can make that finding and issue directives to the two other branches to stop it.

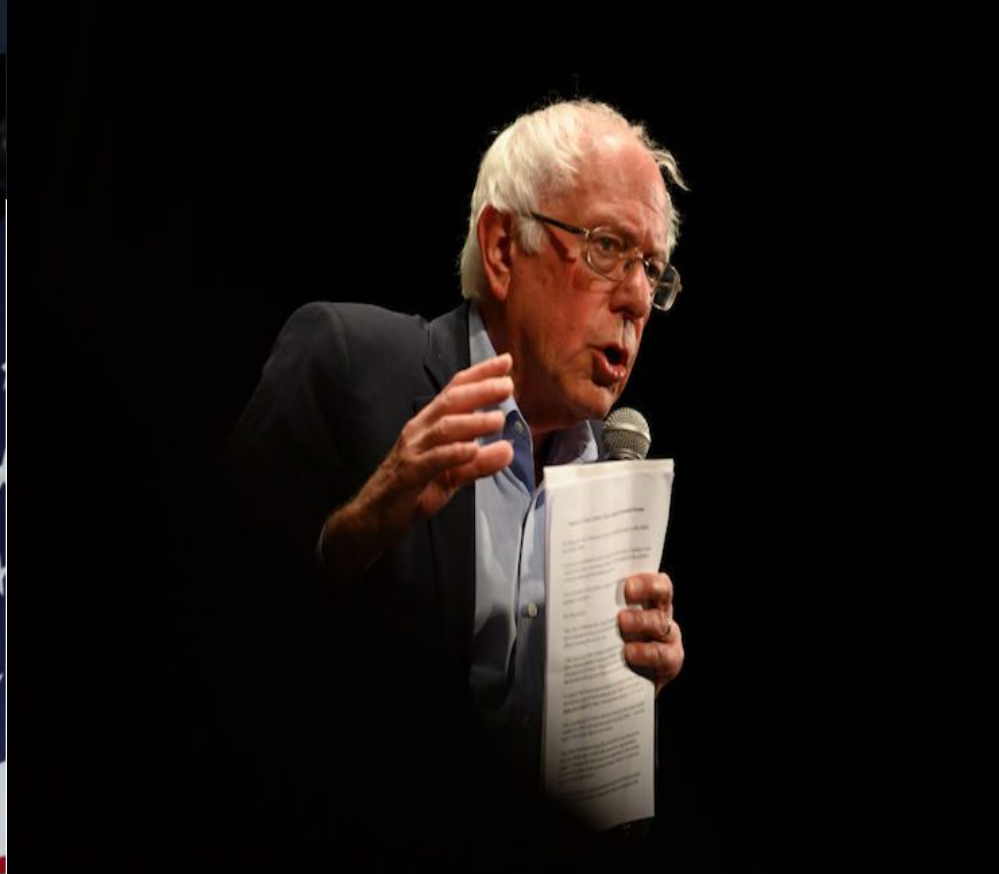
The Kids' Climate Plan

**Joe Biden's \$5 trillion climate plan:
Net zero emissions by 2050**



**Sanders Debut \$16 Trillion Green
New Deal**

Plan would cost 20 times as much as FDR's New Deal



The hard data today -

PROJECTED HUMAN POPULATION



Source: American Museum of Natural History, Human Population Through Time
https://www.youtube.com/watch?v=PUwmA3Q0_OE&feature=youtu.be

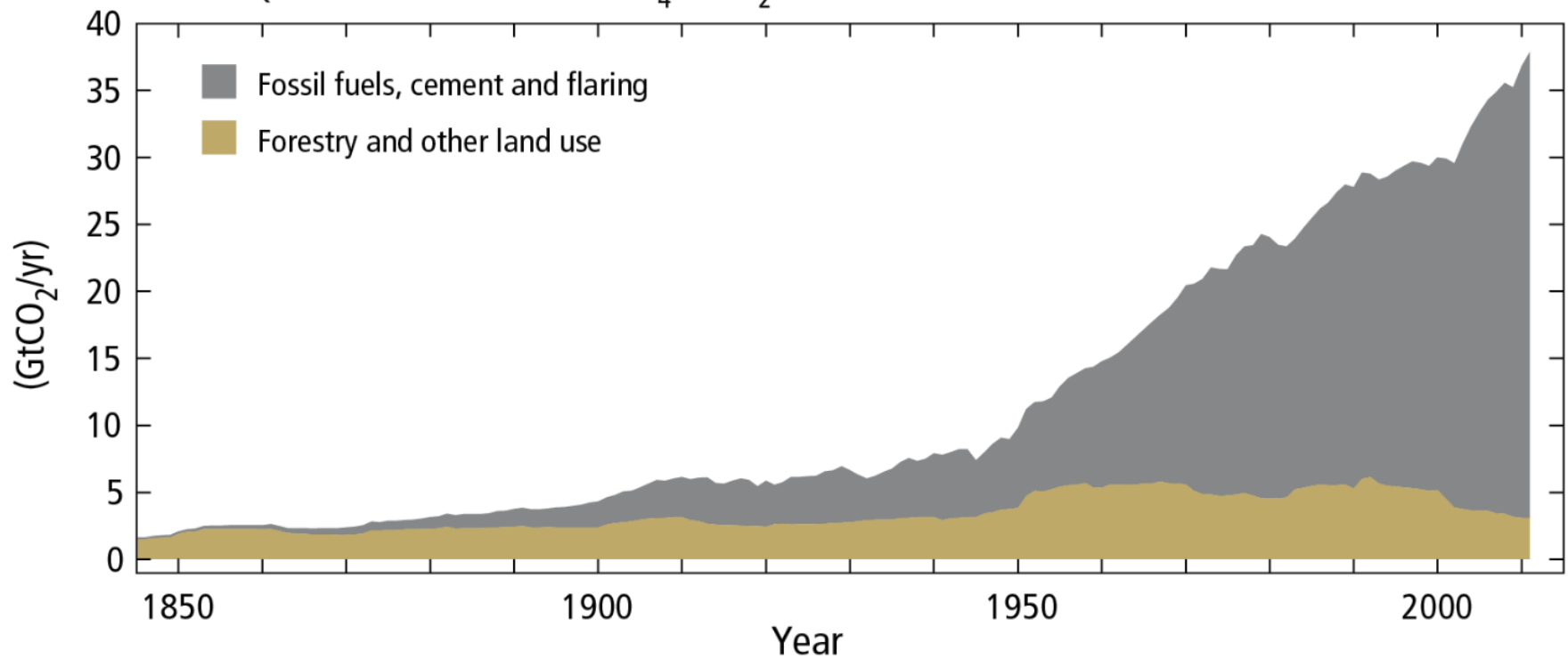
Five Facts

- Concentration of CO₂ in the atmosphere. 2019 average was 407.8 parts per million.
- Sea level: currently rising at the rate of 15 inches per century. (4mm/year) [But Rutgers says one foot in the next decade, two feet in three decades??]
- Global average surface temperature: as of 2019, 1.1 degrees Centigrade above “pre-industrial levels,” said to start somewhere between 1850 and 1900.
- Number of cars and trucks on the planet: more than one billion.
- GHG emissions in 2019? Estimated to be 52.6 gt. CO₂e.

GHG Emissions – Trends and Forecasts

Global anthropogenic CO₂ emissions

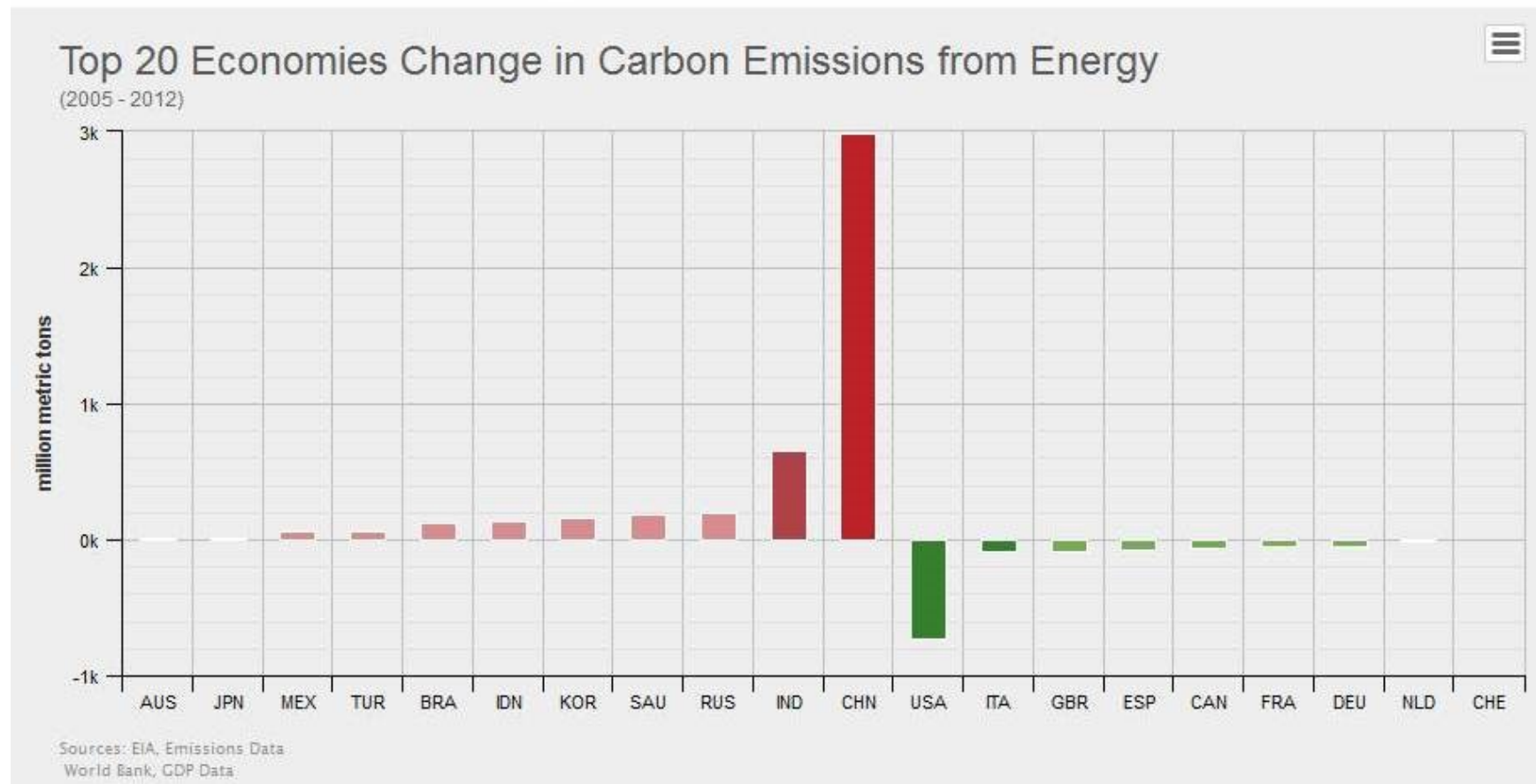
Quantitative information of CH₄ and N₂O emission time series from 1850 to 1970 is limited



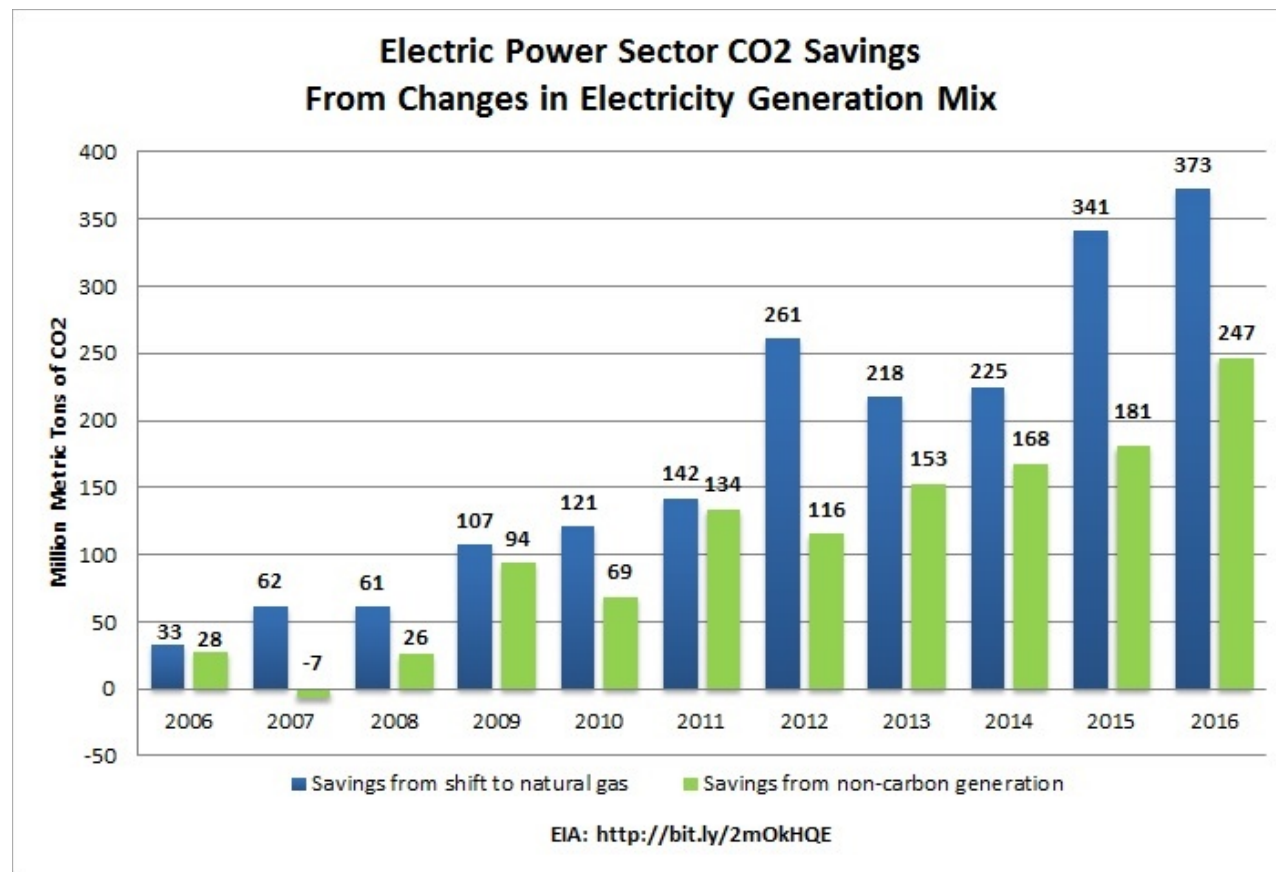
Source: IPCC Climate Change 2014 Synthesis Report, Topic 1 (Observed Changes and their Causes), Figure SPM.1

The oil & gas industry is the number one reason the United States leads the world in reducing greenhouse gas emissions.

U.S. is Already Leading on Reducing Emissions



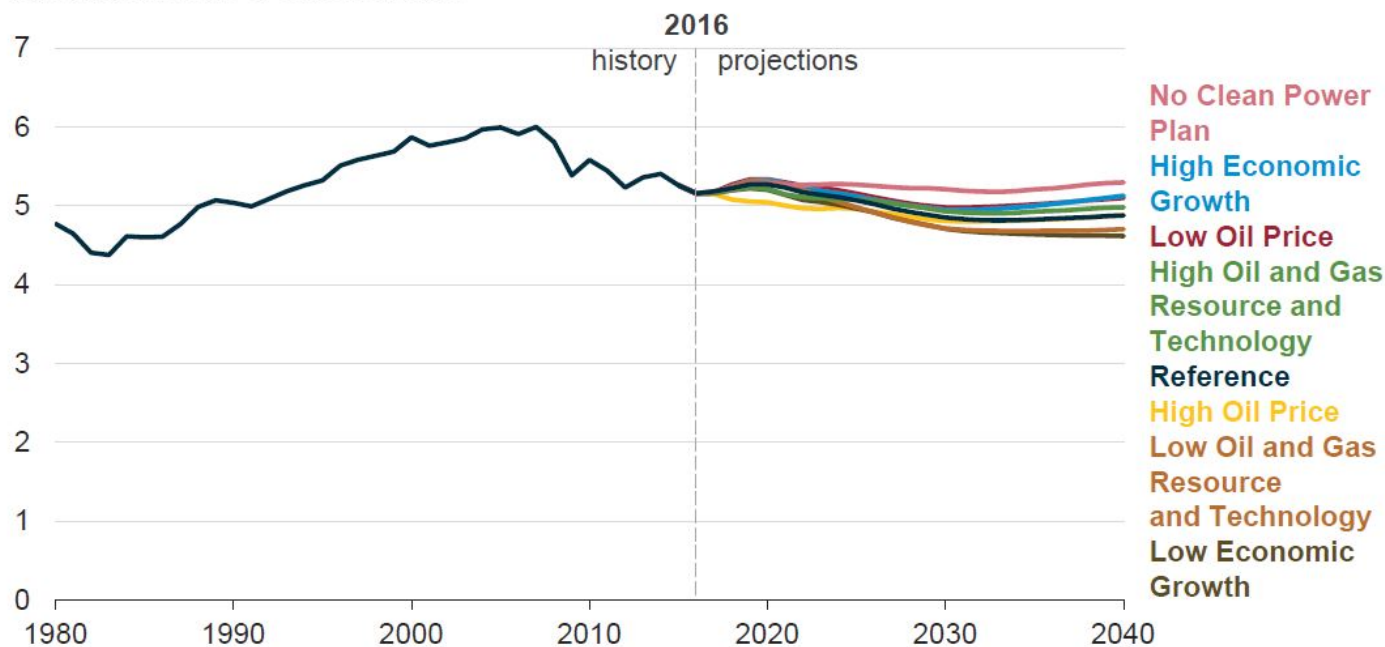
The oil & gas industry is responsible for 62% of the greenhouse gas emissions reductions in the electricity sector, compared to just 38% for wind, solar, and other non-carbon generation, according to the Energy Information Administration.



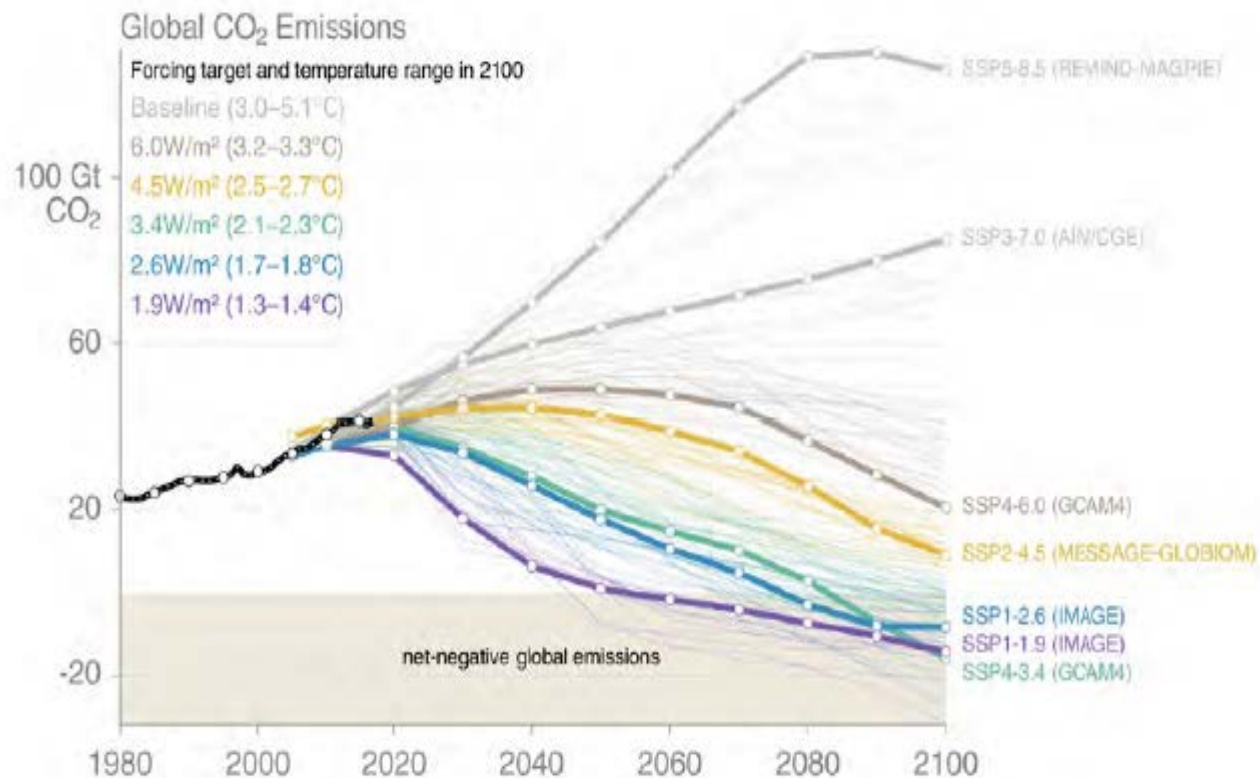
Assuming President Obama's Clean Power Plan

Energy-related carbon dioxide emissions decline in most AEO cases—

Energy-related carbon dioxide emissions
billion metric tons of carbon dioxide



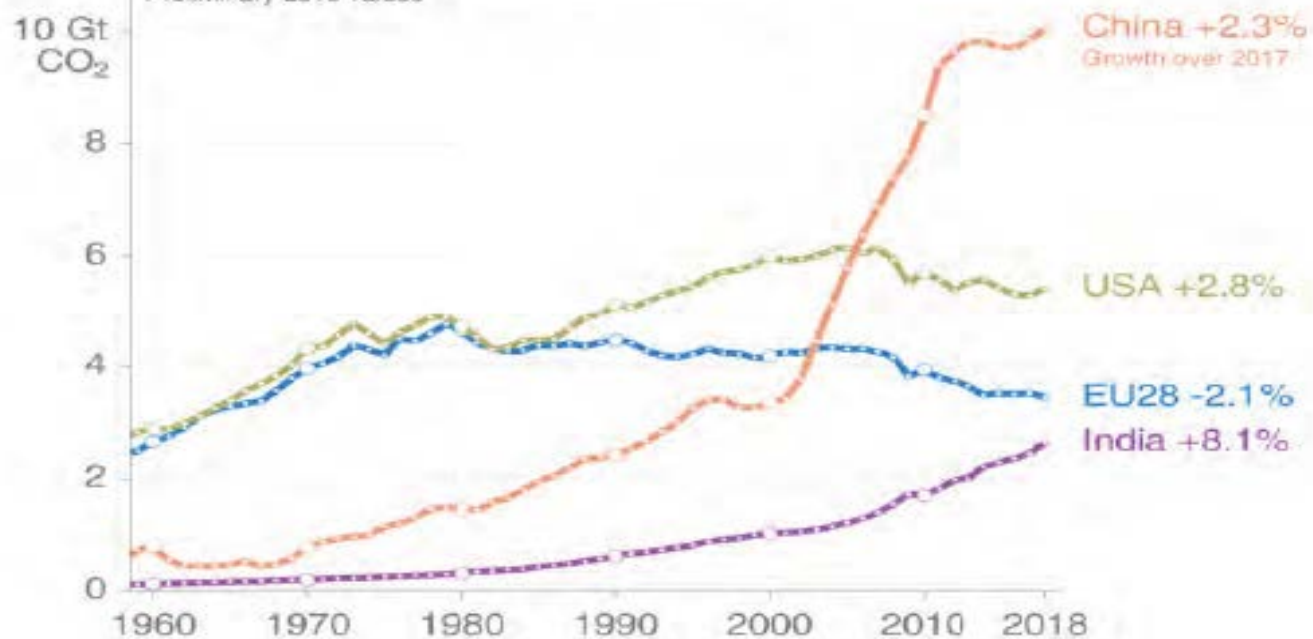
Modeling of Temperature Forecasts and Consequences



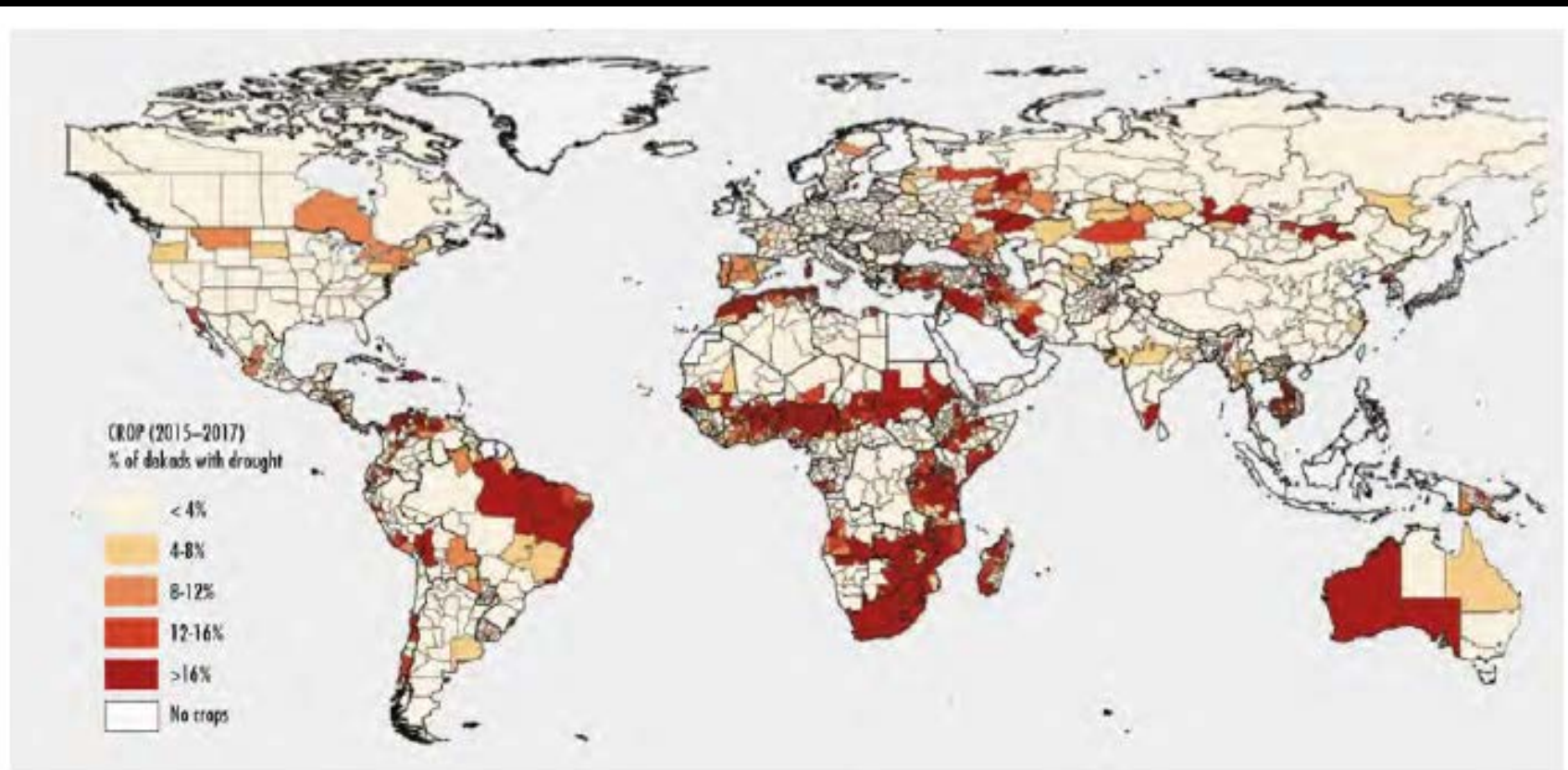
© Global Carbon Project • Data: Riahi et al (2017), Rogelj et al (2018), SSP Database (version 2)

Annual Emissions: Top Four Emitters

Preliminary 2018 values



© Global Carbon Project • Data: CDIAC/UNFCCC/BP/USGS



Percentage of time (dekad is a 10-day period) with active vegetation when the Anomaly Hot Spots of Agricultural Production (ASAP) was signaling possible agricultural production anomalies according to NDVI (Normalized Difference Vegetation Index) for more than 25% of the crop areas in 2015–2017 (FAO, IFAD, UNICEF, WFP and WHO, 2018)

Real-life climate disasters are mirroring doomsday myths—and that's worse than you think

If people start to believe the end is nigh, they might give up on tackling environmental problems.

By Jeremy Deaton/Nexus Media | January 23, 2020



Greek
mythology
who survived
a flood.

Deucalion and Pyrrha are figures in Greek mythology who survived a flood. To repopulate the Earth, they scattered rocks, and those rocks turned into the people. Giovanni Maria Bottalla

A peevish interlude...

Toward an Energy Ethic

by L. Poe Leggette

This article originally appeared in 23 Petroleum Accounting and Financial Management Journal 1-23 © 2004, and is reprinted by permission of the Journal and the author.

We Americans consume energy conspicuously; yet many of us oppose energy development passionately. This paradox our society cannot long sustain. Within three years, the population of the United States will reach 300 million. By 2050, the population of the planet is likely to exceed 9 billion. Even the most rigorous programs of energy conservation will not cap, let alone reduce, America's or the world's demand for energy.

Opposition to energy development in the United States is fed (perhaps "fueled" would convey the irony better) by a basic set of values about protecting our environment and preserving areas of wilderness. These values, which may be called an environmental ethic and a wilderness ethic, frequently overpower arguments favoring development in our national discourse. But as good as we have become at opposing energy development, we remain largely ignorant of how the choices we make in consuming energy create an inexorable demand for more development. We lack, in short, an energy ethic.

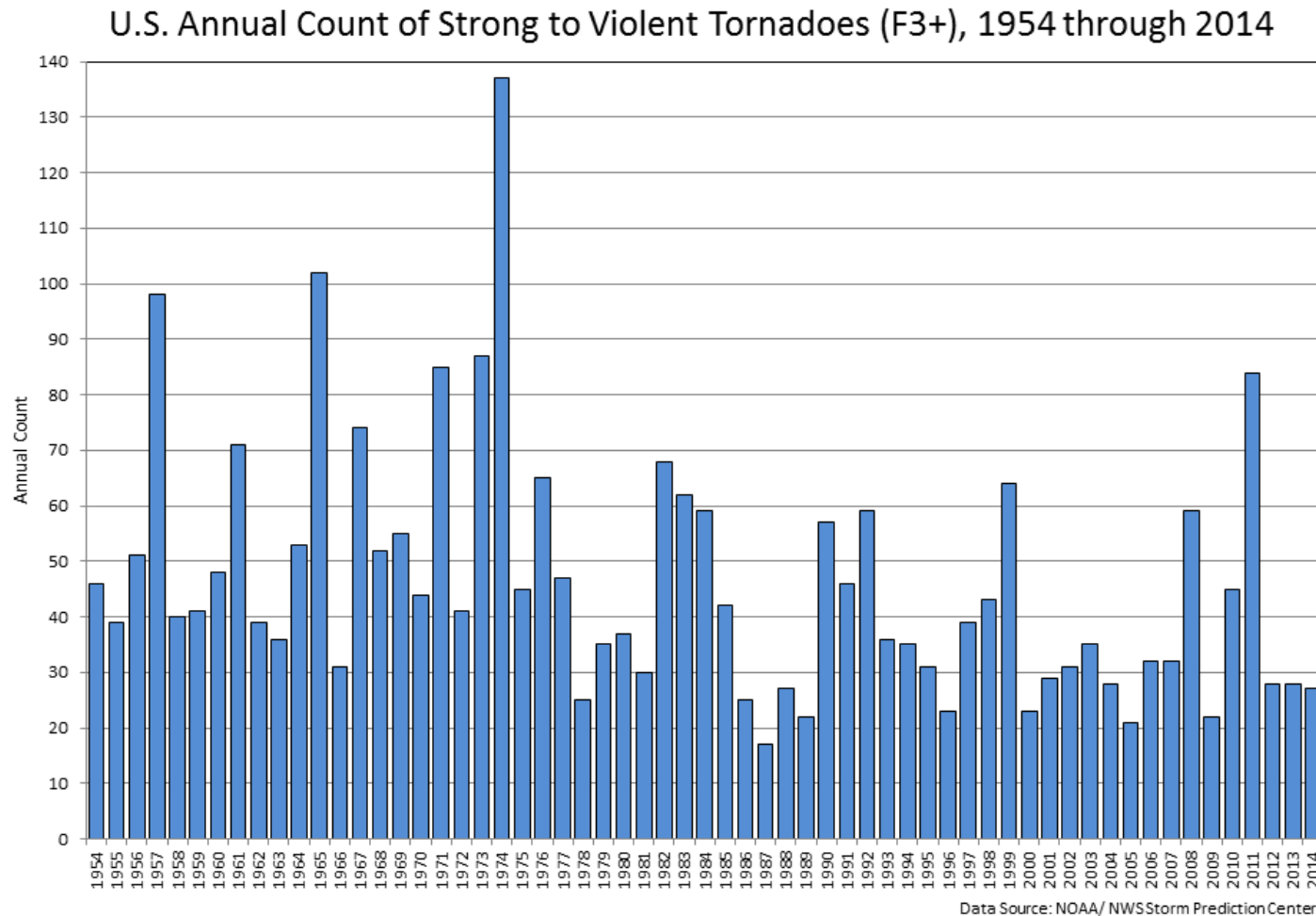
This article proposes principles to undergird an energy ethic. It explores how that ethic might lead us to a national consensus on the balance of development, protection, and preservation needed for the years ahead.

The Environmental Ethic

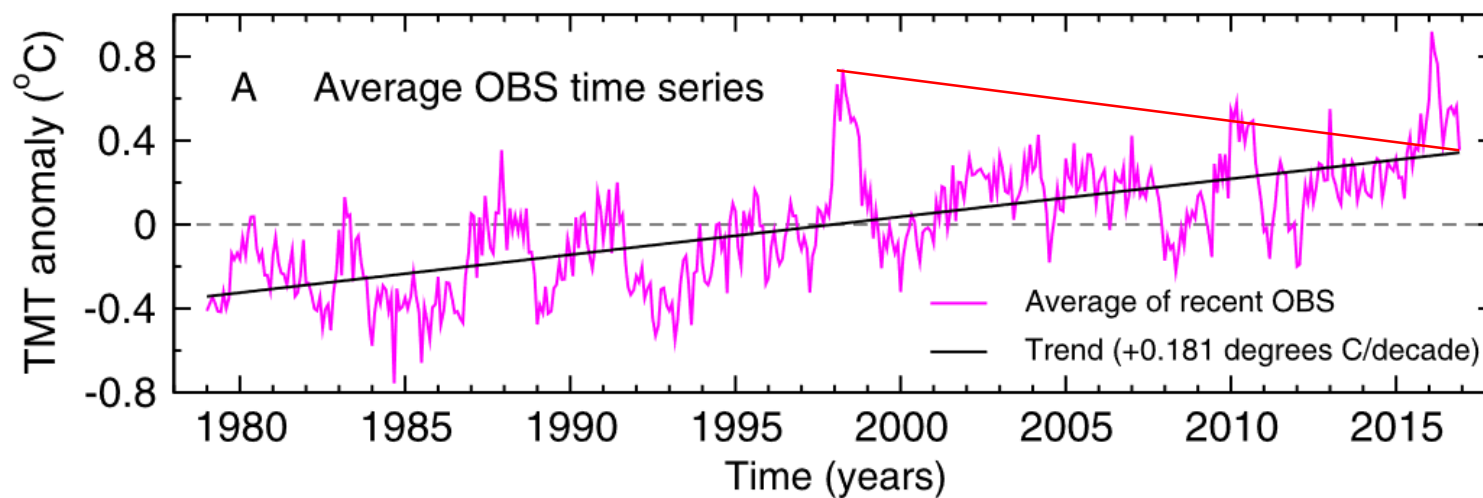
In the last fifty years, the United States has made extraordinary progress toward an environmental ethic. You might not know this from our newspapers, our leading environmental organizations, and some of our national political figures. From them, we hear multiple messages with a common theme: American industry is at war with the environment, seeking short-term profit at the expense of the common good, and contributing heavily to the campaigns of political leaders to secure favorable laws and decisions.

This supposed "war" is being conducted on a far different battlefield than it was a half-century ago. Then, writers such as Rachel Carson and Aldo Leopold, calling attention to the dire effects of human activity on the

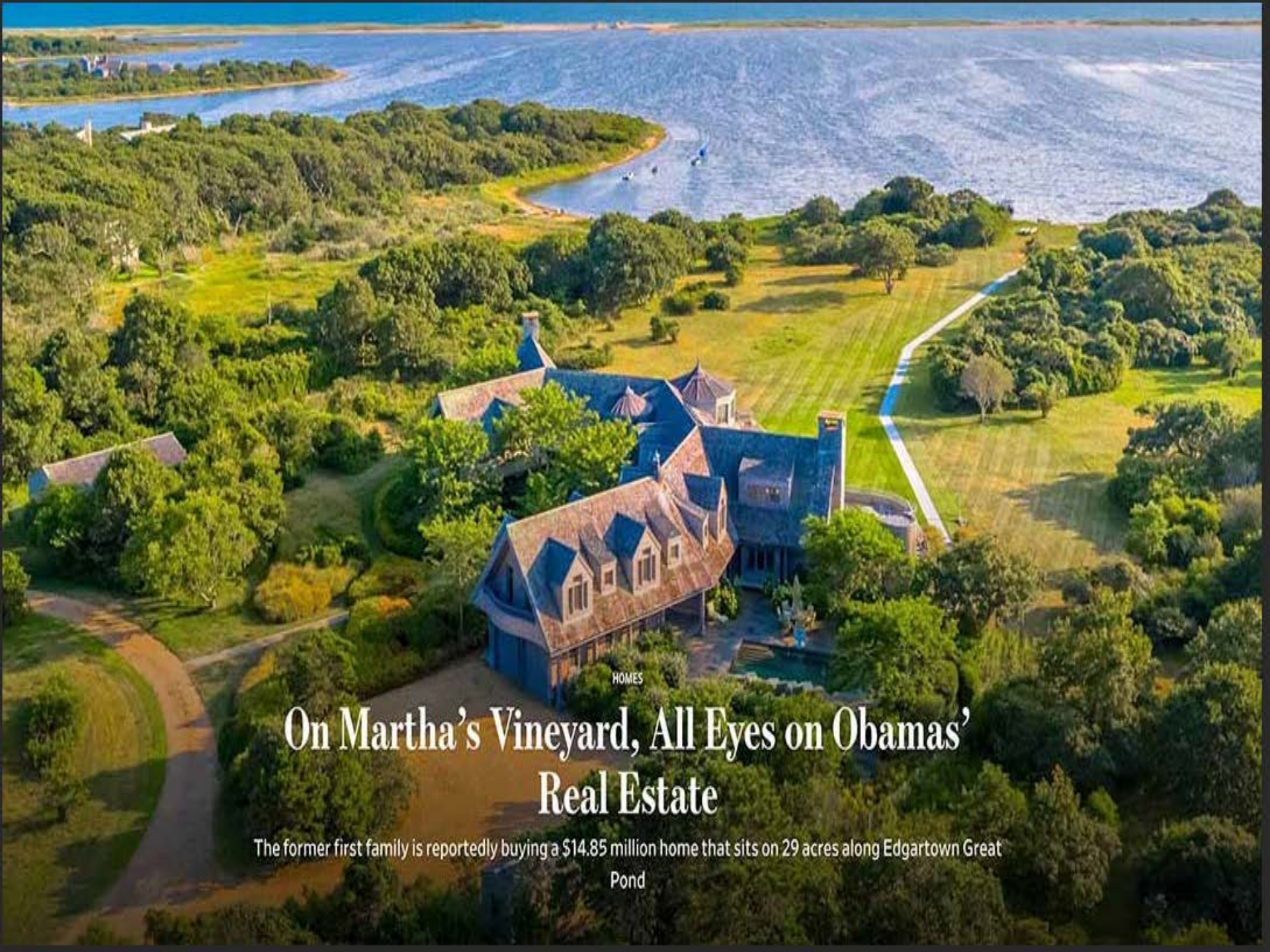
Tornadic Activity in the U.S.



Satellite TMT Time Series, Overlapping Trends, and Trend Significance



Source: www.nature.com - Scientific Reports | 7:2336 | DOI:10.1038/s41598-017-02520-7



HOMES

On Martha's Vineyard, All Eyes on Obamas' Real Estate

The former first family is reportedly buying a \$14.85 million home that sits on 29 acres along Edgartown Great Pond

G:\CMTE\EC\16\EN\100X50\BASE_01.XML [Discussion Draft]

[DISCUSSION DRAFT]

116TH CONGRESS
2D SESSION

H. R. _____

To build a clean and prosperous future by addressing the climate crisis, protecting the health and welfare of all Americans, and putting the Nation on the path to a net-zero greenhouse gas economy by 2050, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

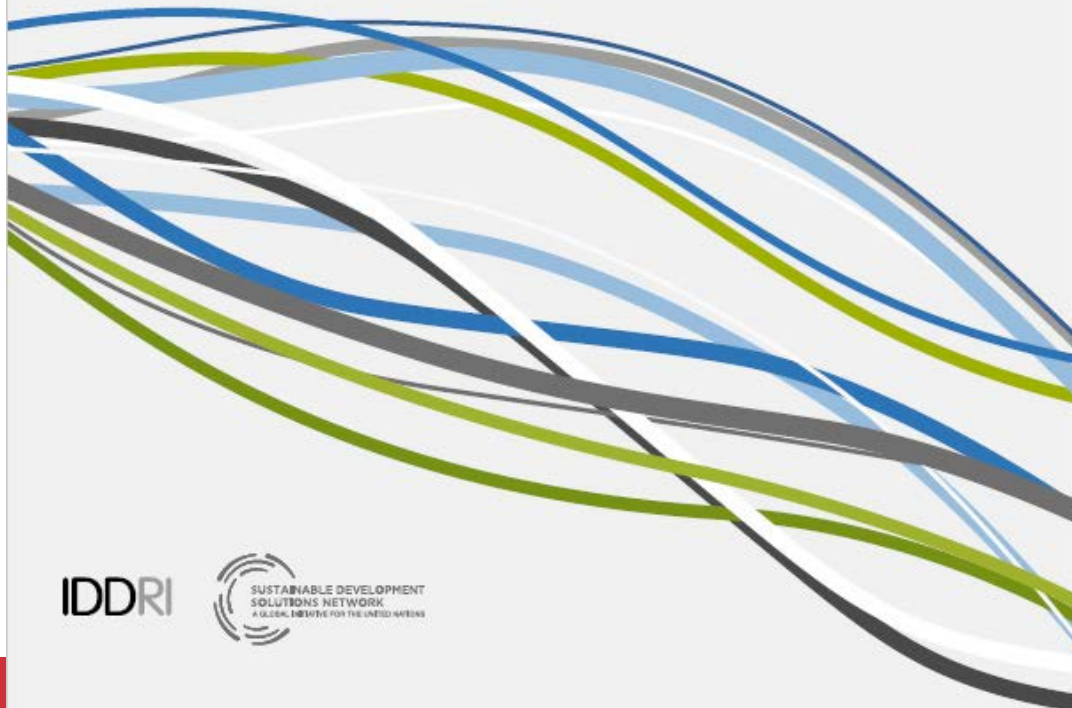
M. _____ introduced the following bill; which was referred to the
Committee on _____

Clean Future Act Regulates Methane

The emissions baseline is the year 2012.

- Existing sources must reduce
 - **by 2025, 65%**
 - **by 2030, 90%**
- No flaring from new sources
- Flaring phased out by **2028**

pathways to
deep decarbonization



Periodic Table

1 H																	2 He
3 Li	4 Be	<div><div>Alkali</div><div>Alkaline</div><div>Transition</div><div>Lanthanoid</div></div> <div><div>Actinoid</div><div>Poor</div><div>Metalloid</div><div>Nonmetal</div></div> <div><div>Halogen</div><div>Noble gas</div><div>Unknown</div></div>										5 B	6 C	7 N	8 O	9 F	10 Ne
11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
55 Cs	56 Ba	*	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
87 Fr	88 Ra	**	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Uut	114 Fl	115 Uup	116 Lv	117 Uus	118 Uuo
*		57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	
**		89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr	

Alkali	Actinoid	Halogen
Alkaline	Poor	Noble gas
Transition	Metalloid	Unknown
Lanthanoid	Nonmetal	

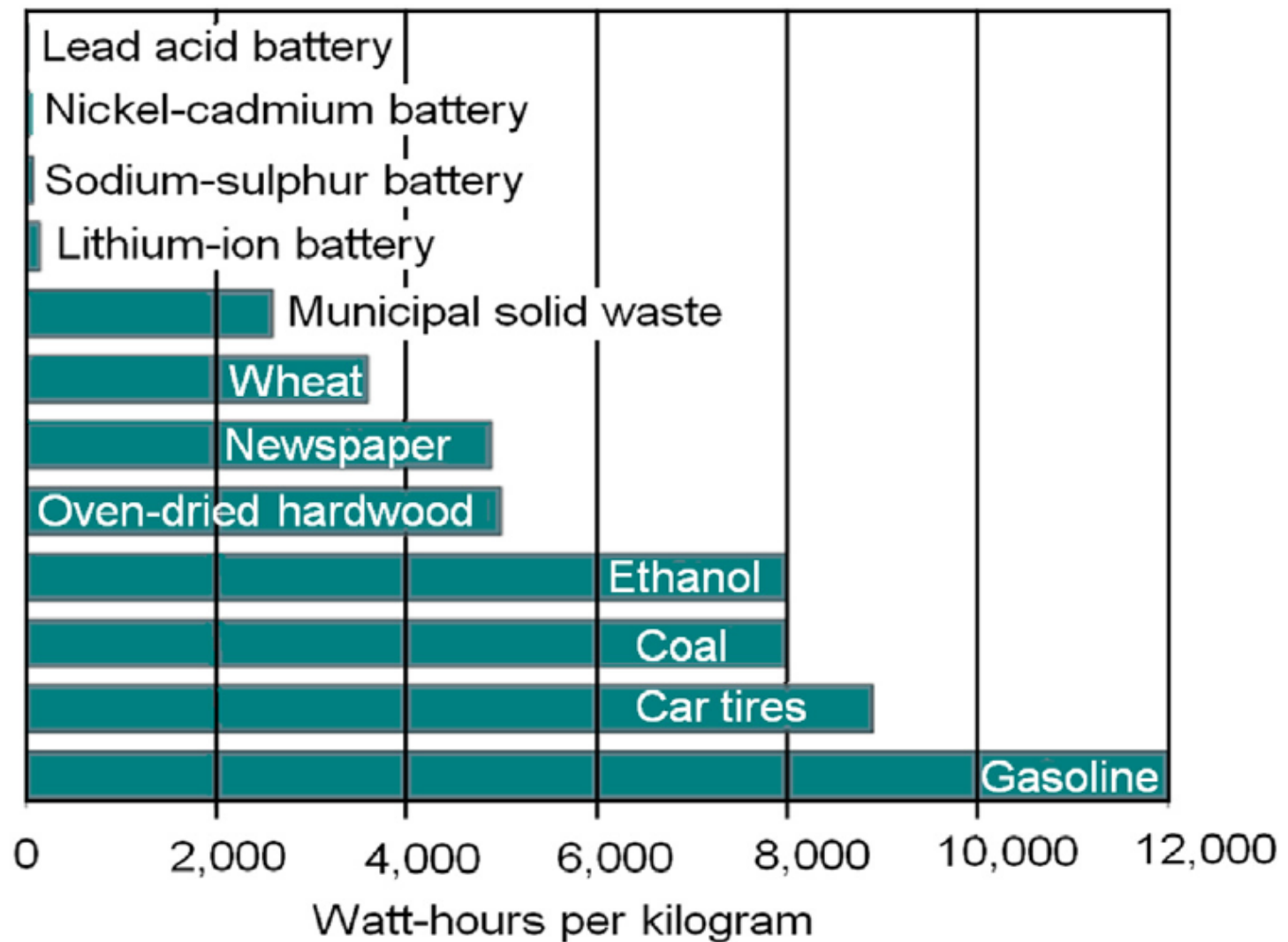


Fig. 2. Comparison between energy densities of different materials.[39].

What Conducts Electricity Best?

0.143 $10^6/\text{cm} \cdot \Omega$;	<u>Nickel</u>	Ni	28
0.166 $10^6/\text{cm} \cdot \Omega$;	<u>Zinc</u>	Zn	30
0.172 $10^6/\text{cm} \cdot \Omega$;	<u>Cobalt</u>	Co	27
0.187 $10^6/\text{cm} \cdot \Omega$;	<u>Molybdenum</u>	Mo	42
0.189 $10^6/\text{cm} \cdot \Omega$;	<u>Tungsten</u>	W	74
0.197 $10^6/\text{cm} \cdot \Omega$;	<u>Iridium</u>	Ir	77
0.21 $10^6/\text{cm} \cdot \Omega$;	<u>Sodium</u>	Na	11
0.211 $10^6/\text{cm} \cdot \Omega$;	<u>Rhodium</u>	Rh	45
0.226 $10^6/\text{cm} \cdot \Omega$;	<u>Magnesium</u>	Mg	12
0.298 $10^6/\text{cm} \cdot \Omega$;	<u>Calcium</u>	Ca	20
0.313 $10^6/\text{cm} \cdot \Omega$;	<u>Beryllium</u>	Be	4
0.377 $10^6/\text{cm} \cdot \Omega$;	<u>Aluminum</u>	Al	13
0.452 $10^6/\text{cm} \cdot \Omega$;	<u>Gold</u>	Au	79
0.596 $10^6/\text{cm} \cdot \Omega$;	<u>Copper</u>	Cu	29
0.63 $10^6/\text{cm} \cdot \Omega$;	<u>Silver</u>	Ag	47

Periodic Table

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11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
55 Cs	56 Ba	*	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
87 Fr	88 Ra	**	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Uut	114 Fl	115 Uup	116 Lv	117 Uus	118 Uuo
*		57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	
**		89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr	

Alkali	Actinoid	Halogen
Alkaline	Poor	Noble gas
Transition	Metalloid	Unknown
Lanthanoid	Nonmetal	

Will Green New Dealers Embrace This?



WIRED on Energy

The spiralling environmental cost of our lithium battery addiction

As the world scrambles to replace fossil fuels with clean energy, the environmental impact of finding all the lithium required could become a major issue in its own right

H

ere's a thoroughly modern riddle: what links the battery in your smartphone with a dead yak floating down a Tibetan river? The answer is lithium – the reactive alkali metal that powers our phones, tablets, laptops and electric cars.

In May 2016, hundreds of protestors threw dead fish onto the streets of Tagong, a town on the eastern edge of the Tibetan plateau. They had plucked them from the waters of the Liqi river, where a toxic chemical leak from the Ganzizhou Rongda Lithium mine had wreaked havoc with the local ecosystem.

Always Look on the Bright Side of Life

- Zheng, et al., “The Optimal CO₂ Concentrations for the Growth of Three Perennial Grass Species,” BMC Plant Biology (2018).
- Optimal atmospheric concentration of CO₂ to grow winter wheat is 894 ppm
 - For tall fescue 915 ppm
 - For perennial ryegrass 1178 ppm
 - For Kentucky Bluegrass 1386 ppm

E&ENEWS

EARTH

Earth Stopped Getting Greener 20 Years Ago

Declining plant growth is linked to decreasing air moisture tied to global warming

By Chelsea Harvey, E&E News on August 15, 2019

<https://www.scientificamerican.com/article/earth-stopped-getting-greener-20-years-ago/>

Stopped Greening

The world is gradually becoming less green, scientists have found. Plant growth is declining all over the planet, and new research links the phenomenon to decreasing moisture in the air—a consequence of climate change.

The study published yesterday in *Science Advances* points to satellite observations that revealed expanding vegetation worldwide during much of the 1980s and 1990s. But then, about 20 years ago, the trend stopped.

Since then, more than half of the world's vegetated landscapes have been experiencing a “browning” trend, or decrease in plant growth, according to the authors.

<https://www.scientificamerican.com/article/earth-stopped-getting-greener-20-years-ago/>

Stopped Greening

The declines challenge an argument often presented by skeptics of mainstream climate science to downplay the consequences of global warming: the idea that plants will grow faster with larger amounts of carbon dioxide. The argument hinges on the idea that food supplies will increase.

It's largely a red herring, as climate scientists have patiently explained for years. Rising CO₂ does benefit plants, at least up to a point, but it's just one factor. Plants are also affected by many other symptoms of climate change, including rising temperatures, changing weather patterns, shifts in water availability and so on.

<https://www.scientificamerican.com/article/earth-stopped-getting-greener-20-years-ago/>

NOAA Satellite Data Used in Study Finding Significant Greening in Earth's Vegetative Areas

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Tuesday, April 26, 2016

A new study based long-term vegetation data sets derived, in part, from NOAA polar-orbiting satellites has found significant greening on a quarter to one-half of the Earth's vegetated lands.

<https://www.nesdis.noaa.gov/content/noaa-satellite-data-used-study-finding-significant-greening-earths-vegetative-areas>

Getting Greener

A new study, "Greening of the Earth and its Drivers," published today (April 25) in the journal *Nature Climate Change* reports significant greening of a quarter to one-half of the Earth's vegetated lands. The findings are based on long-term vegetation data sets derived, in part, from imagery produced by the Advanced Very High Resolution Radiometer (or AVHRR) instruments aboard NOAA polar-orbiting (NOAA-series) satellites.

"We were able to tie the greening largely to the fertilizing effect of rising atmospheric CO₂ concentration by tasking several computer models to mimic plant growth observed in the satellite data," Ranga Myneni, study co-author and professor in Boston University's Department of Earth and Environment, said in a press release.

"Greening" refers to an increase in leaves on plants and trees. Green leaves produce sugars using energy in the sunlight to mix carbon dioxide (CO₂) drawn in from the air with water and nutrients pumped in from the ground. These sugars are the source of food, fiber and fuel for life on Earth.

<https://www.nesdis.noaa.gov/content/noaa-satellite-data-used-study-finding-significant-greening-earths-vegetative-areas>



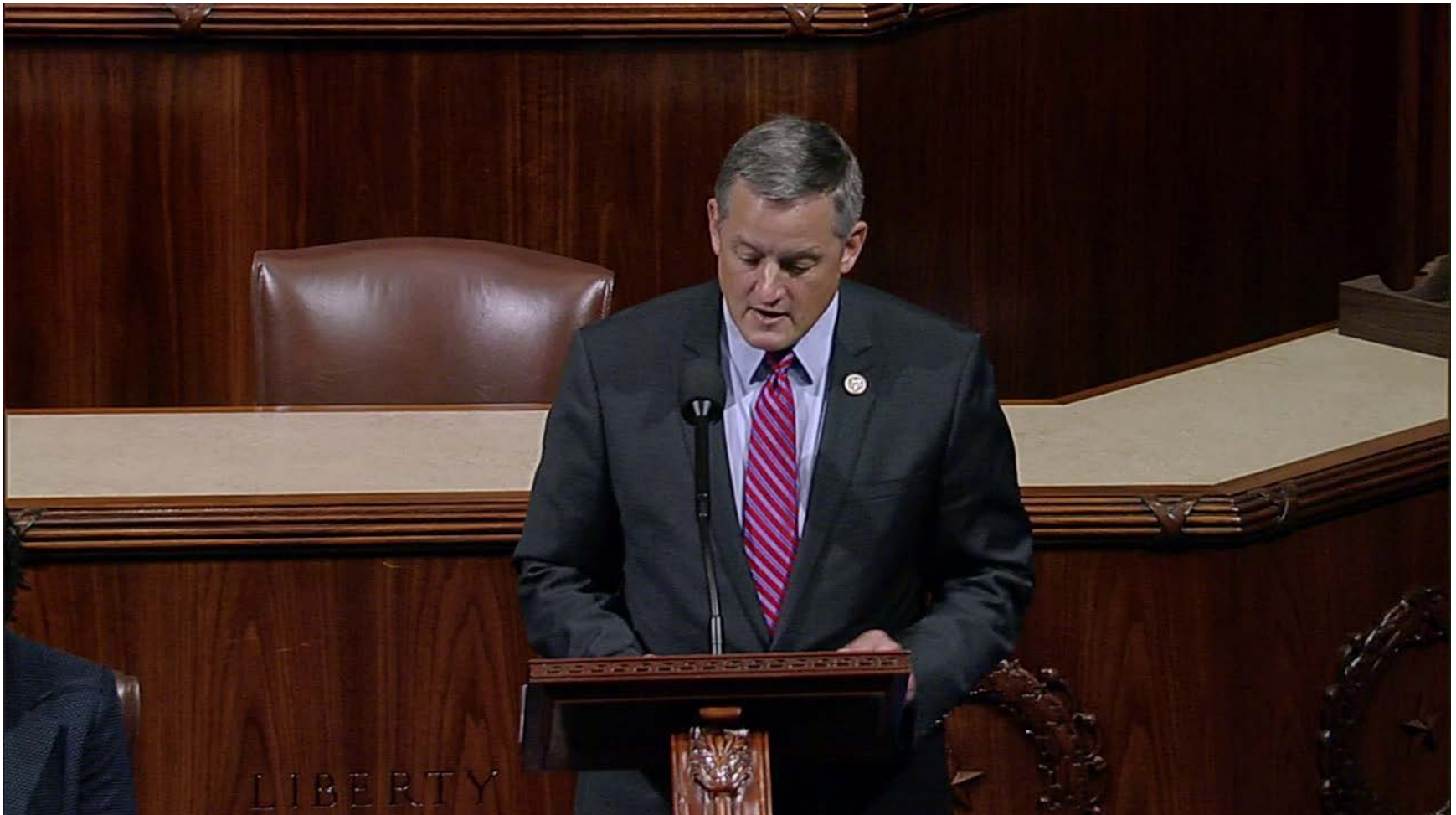
University of Arkansas

TABLE 1. Merchantable weight (tons) of hardwood trees *by diameter or circumference at breast height in inches.*

Diameter	Circumference	Weight
Inches	Inches	Tons
12	38	0.75
13	41	0.92
14	44	1.09
15	47	1.28
16	50	1.48
17	53	1.69
18	57	1.92
19	60	2.16
20	63	2.41
21	66	2.68
22	69	2.95
23	72	3.25
24	75	3.55
25	79	3.87
26	82	4.20
27	85	4.54
28	88	4.90
29	91	5.26
30	94	5.65
31	97	6.04
32	100	6.45
33	104	6.87
34	107	7.30
35	110	7.75
36	113	8.21

Westerman fine-tuning 'Trillion Trees' climate bill

BakerHostetler



The Real Solution?

Forest Green New Deal