

# Soho Forum Debate

*Climate science compels us to make large and rapid reductions in greenhouse gas emissions.*

Steven E Koonin for the Negative

# Responses must strike a balance

**Climate certainties  
and uncertainties**



**Reliable and  
affordable energy**

*Climate science compels us to make large and rapid reductions in greenhouse gas emissions.*

- “compels” - The proposition is **Unjustified** **Needn't do it**
- “us” - The proposition is **Immoral** **Shouldn't do it**
- “large and rapid”- The proposition is **Fantastical** **Can't do it**

# Economic impact of climate change

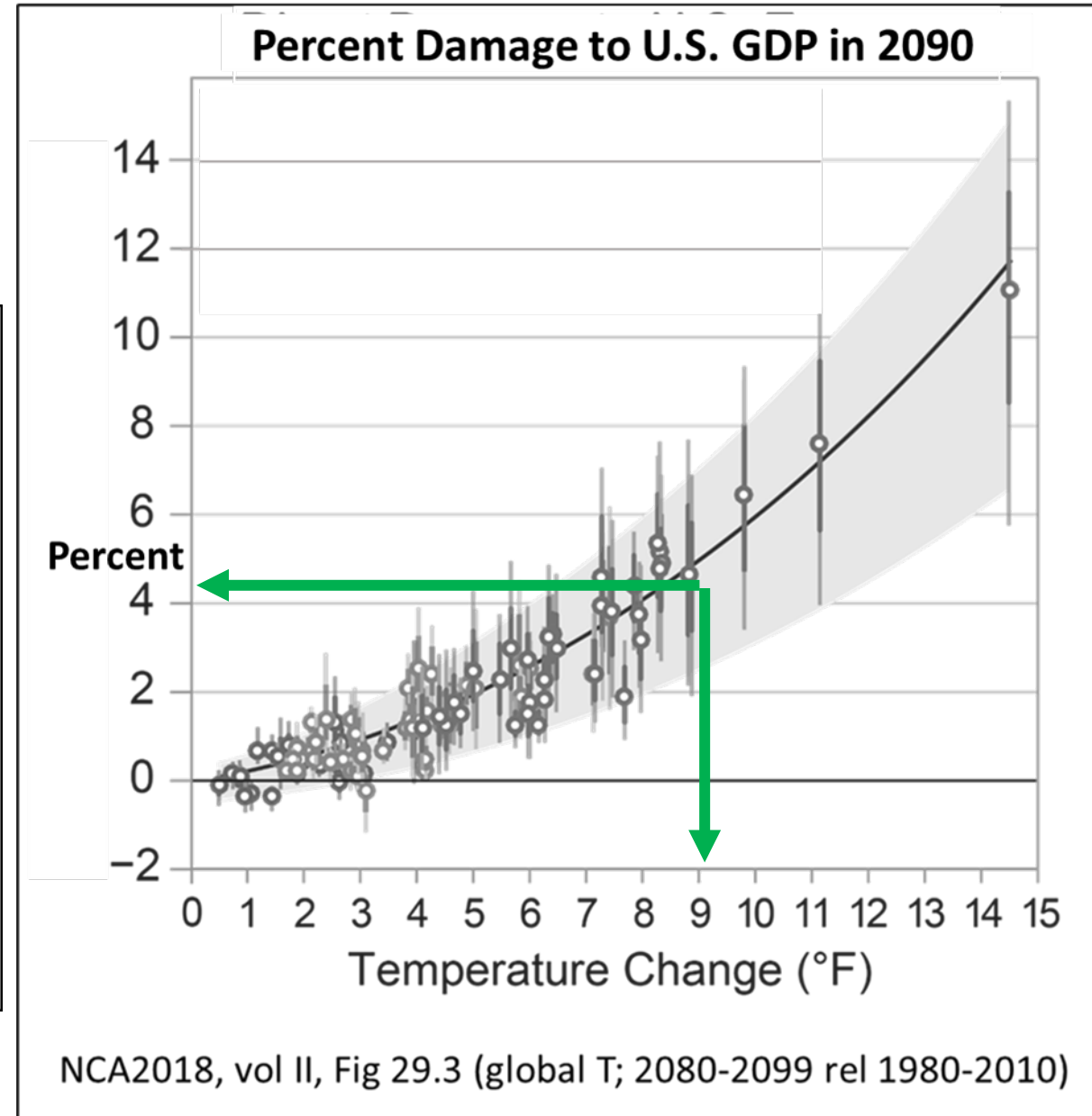
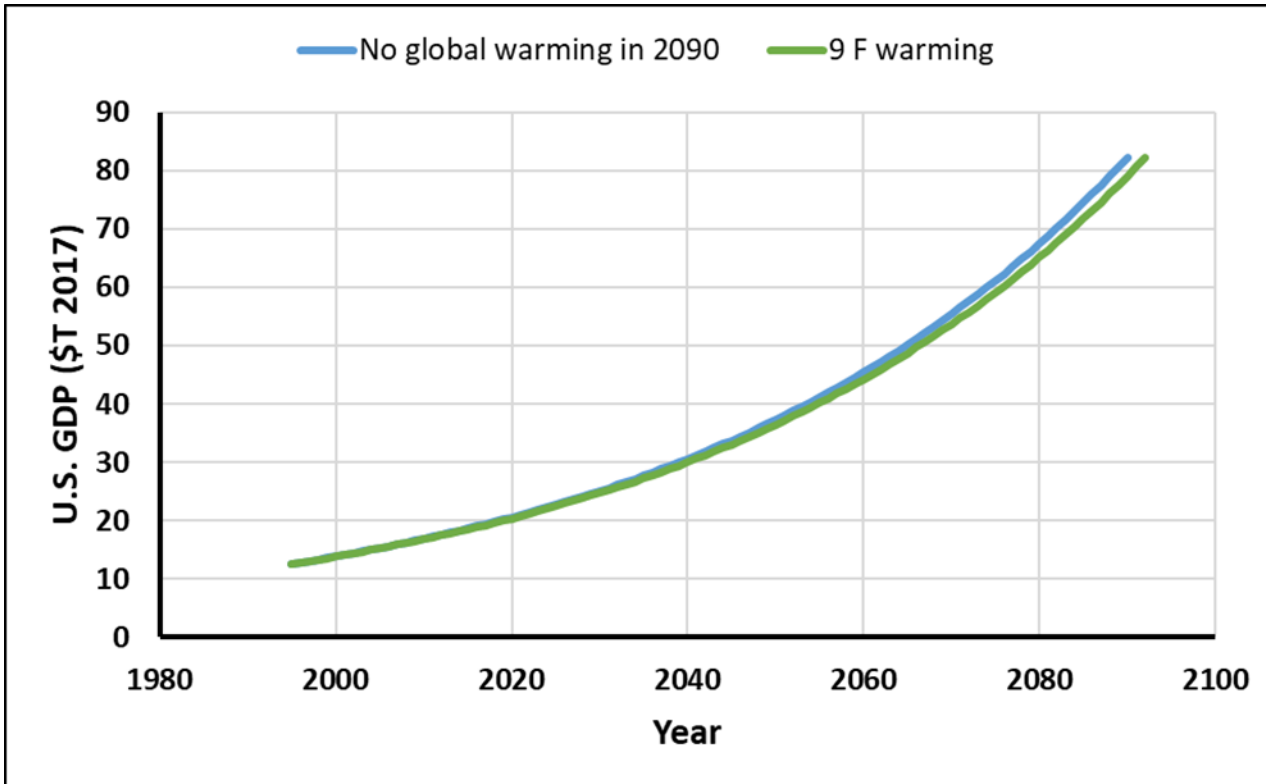
IPCC AR5 WG2 Chapter 10:

*For most economic sectors, **the impact of climate change will be small relative to the impacts of other drivers** (medium evidence, high agreement). Changes in population, age, income, technology, relative prices, lifestyle, regulation, governance, and many other aspects of socioeconomic development will have an impact on the supply and demand of economic goods and services that is large relative to the impact of climate change.*

IPCC AR6 WG2 pg. 16-114:

**low confidence that global aggregate economic impacts could be higher than previously estimated**

# Projected economic damage in 2100 is minimal

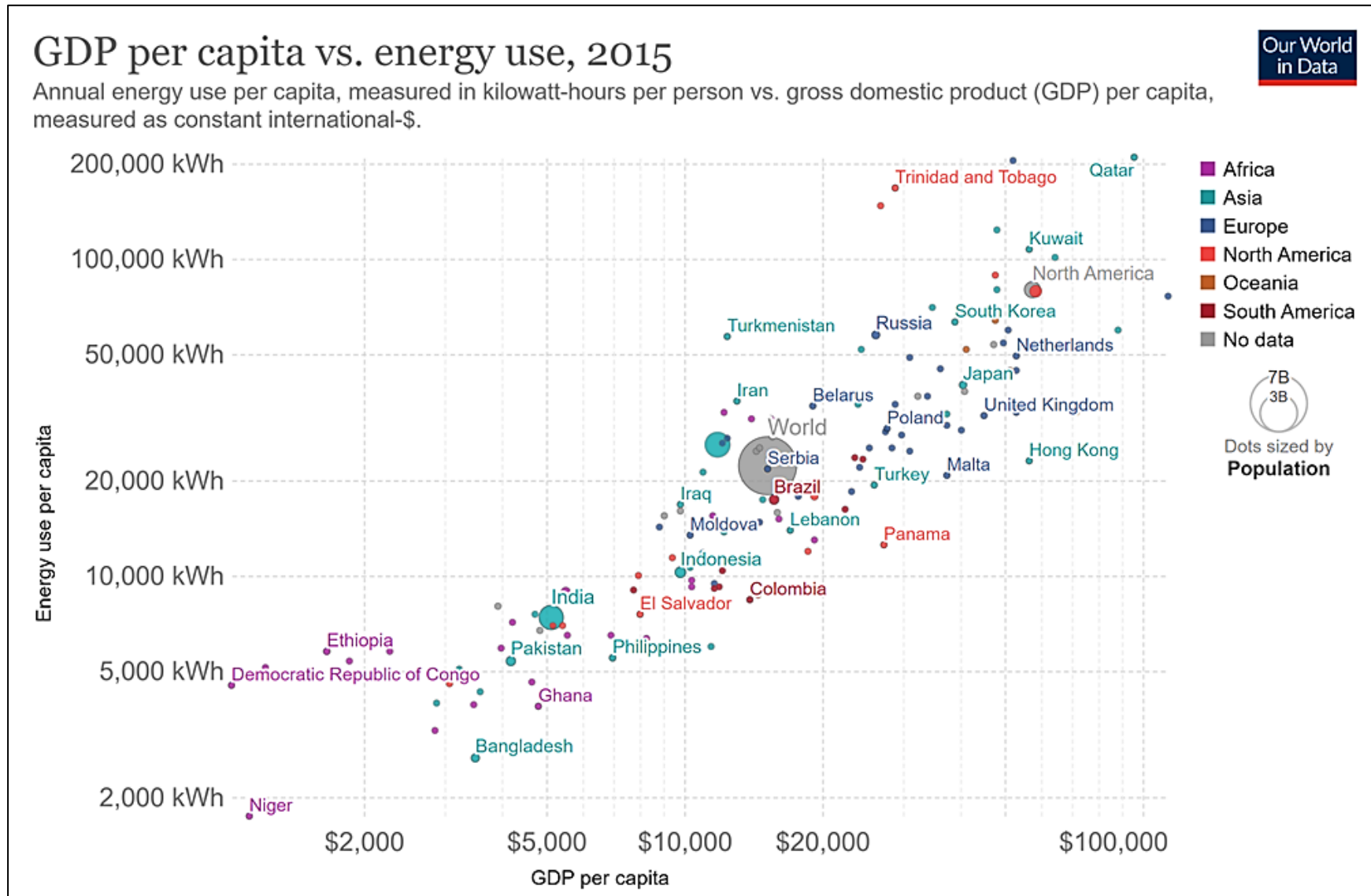


NCA2018, vol II, Fig 29.3 (global T; 2080-2099 rel 1980-2010)

*Climate science compels **us** to make large and rapid reductions in greenhouse gas emissions.*

The proposition is Immoral

# Energy use is essential for well-being



<https://ourworldindata.org/grapher/energy-use-per-capita-vs-gdp-per-capita>



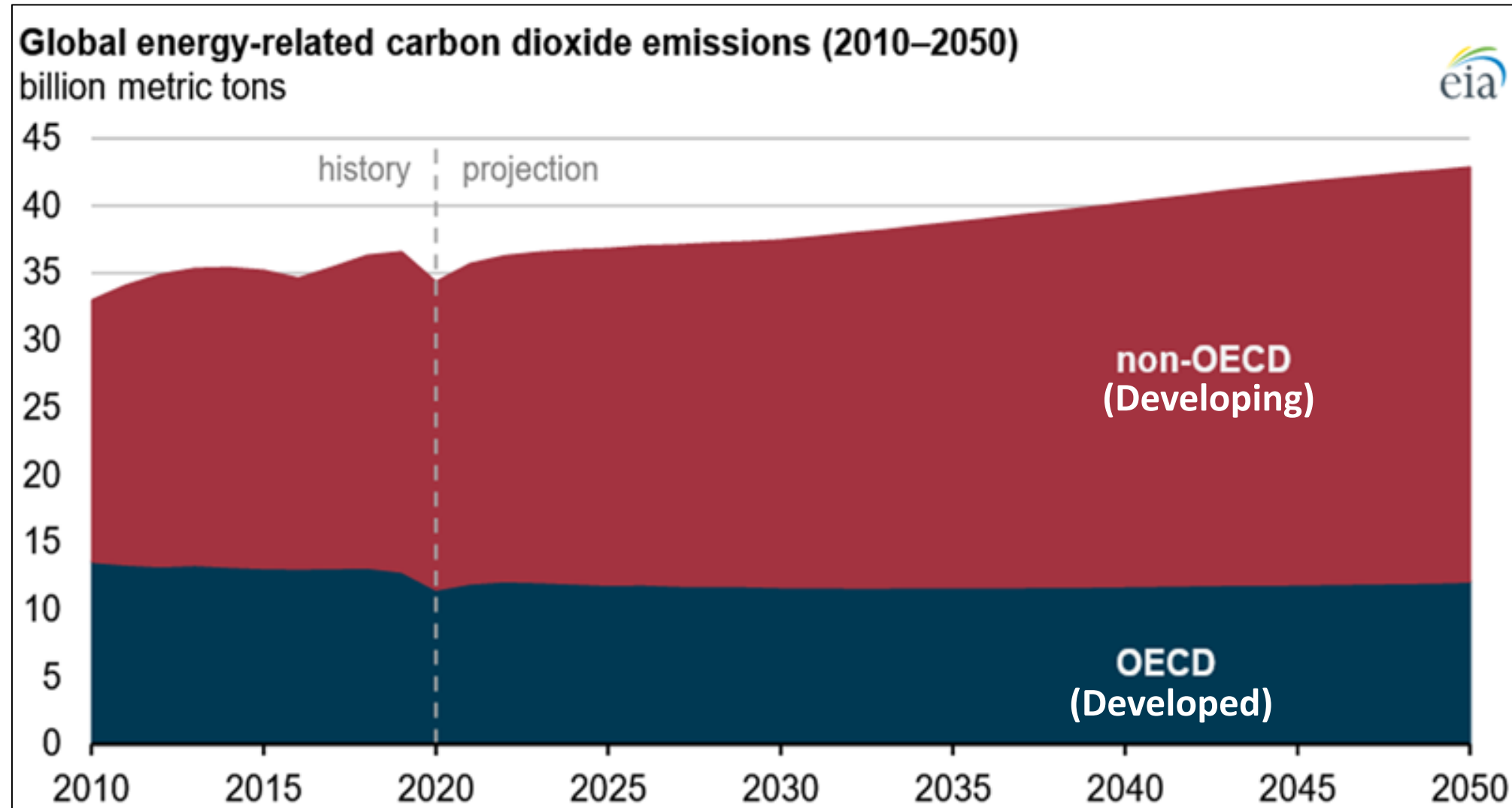
# Energy poverty





# Developing world drives increased emissions

<https://www.eia.gov/energyexplained/energy-and-the-environment/outlook-for-future-emissions.php>



*The elite's environmental deterioration is often the common man's improved standard of living*

- [Up and Down with Ecology \(1972\)](#)



Anthony Downs  
(1930-2021)

“science compels us ....” → “What do you mean ‘us’”?!

Indian PM Narendra Modi ([11/21](#)):

*The **colonial mindset** hasn't gone. We are seeing from developed nations that **the path that made them developed is being closed for developing nations***



Nigerien President Mohamed Bazoum ([6/22](#)):

*Africa is being **punished by the decisions of Western countries to end public financing for foreign fossil-fuel projects by the end of 2022...We are going to continue to fight, we have fossil fuels that should be exploited.***





# Climate alarm robs youth of their optimism



<https://www.telegraph.co.uk/global-health/climate-and-people/eco-anxiety-fear-environmental-doom-overcome/>



*We're getting handed a piece-of-shit planet, and I refuse to hand that down to my child. Until I feel like my kid would live on an earth with fish in the water, I'm not bringing in another person to deal with that.*

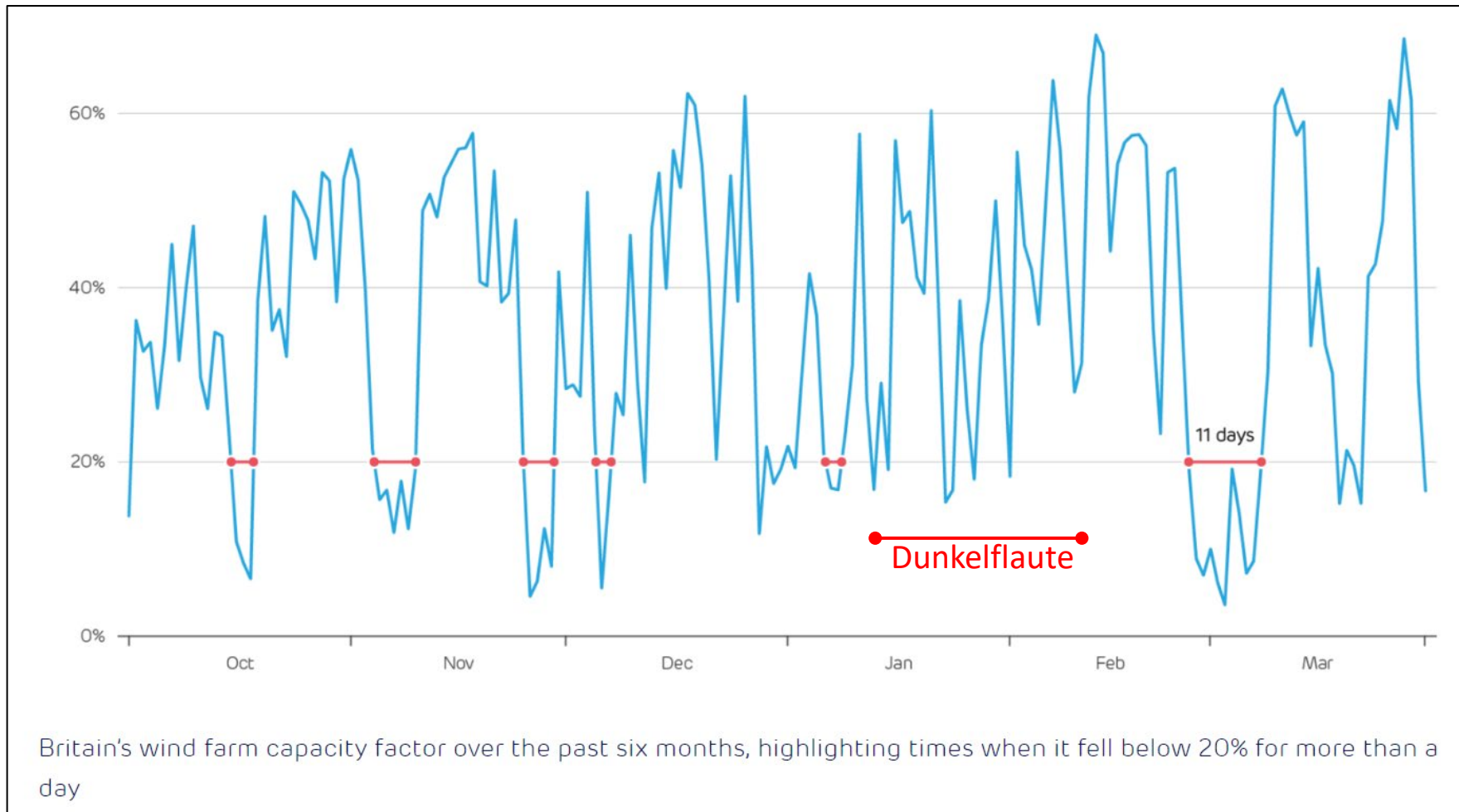
- [Miley Cyrus \(2019\)](#)

*Climate science compels us to make **large and rapid reductions** in greenhouse gas emissions.*

The proposition is Fantastical

# Daily wind generation in the UK (2020-21)

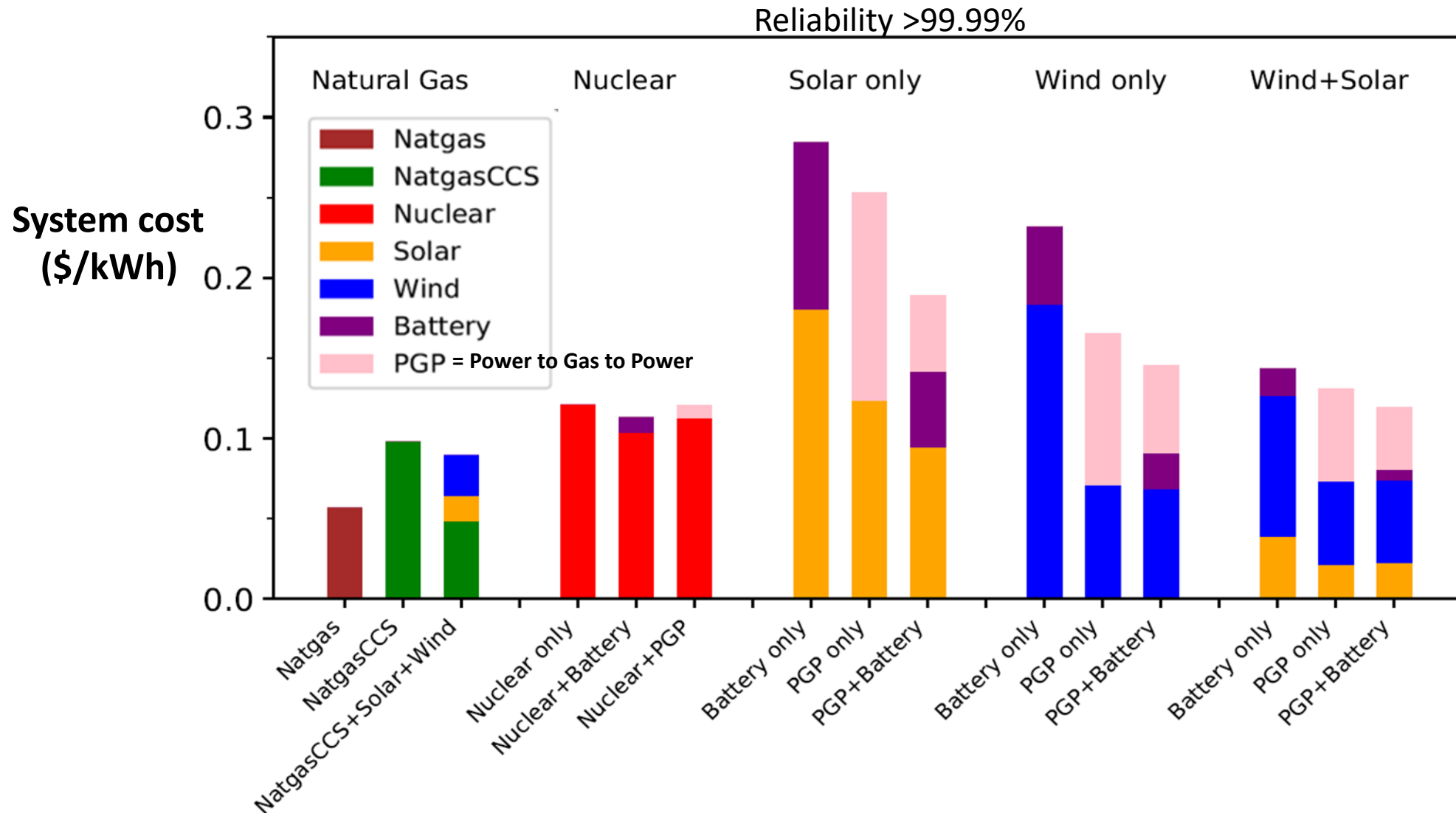
<https://reports.electricinsights.co.uk/q1-2021/when-the-wind-goes-gas-fills-in-the-gap/>





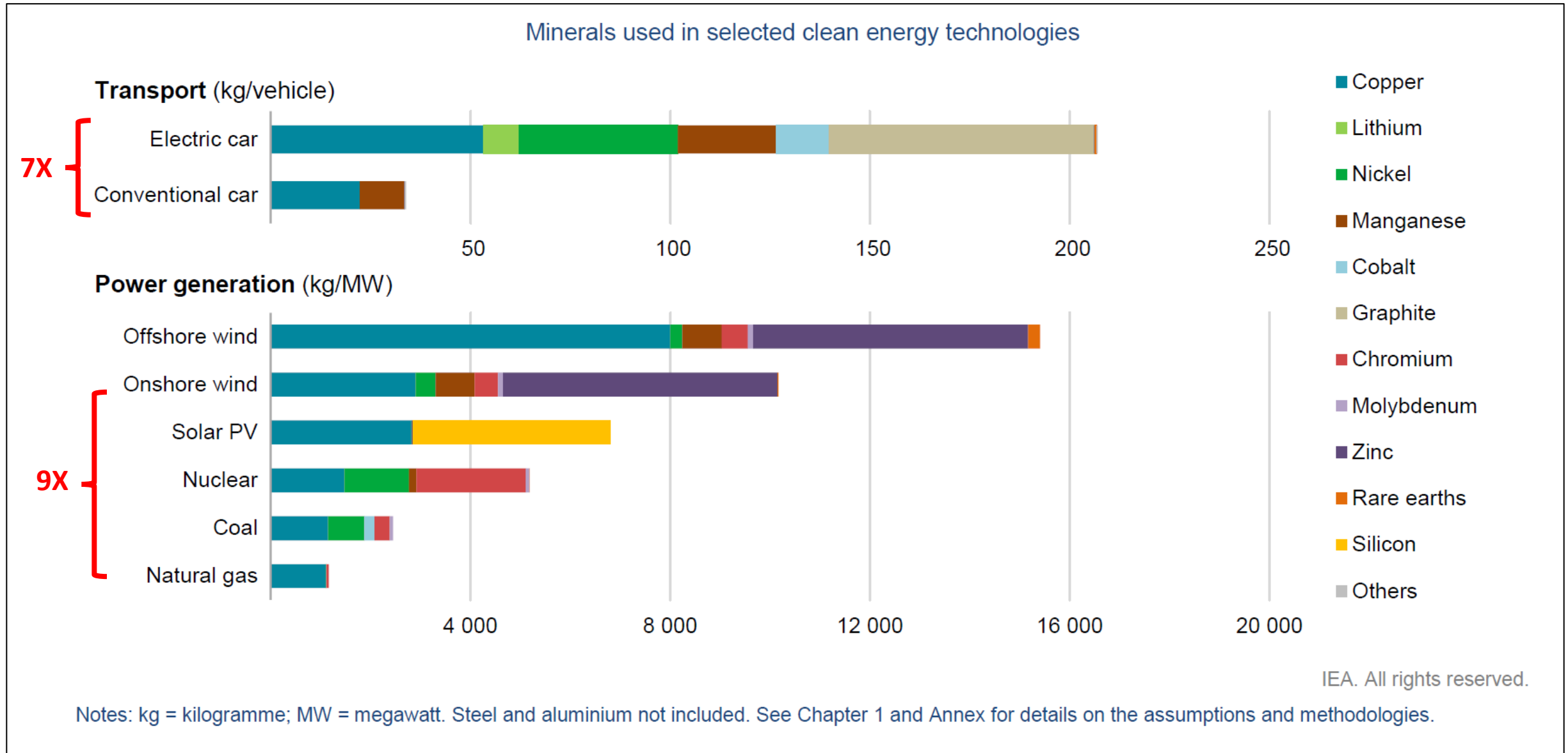
# Reliable renewable grids are very expensive

[Dowling, Caldeira, and Lewis \(2020\)](#) and related papers



# Modern energy technologies use more high-value materials

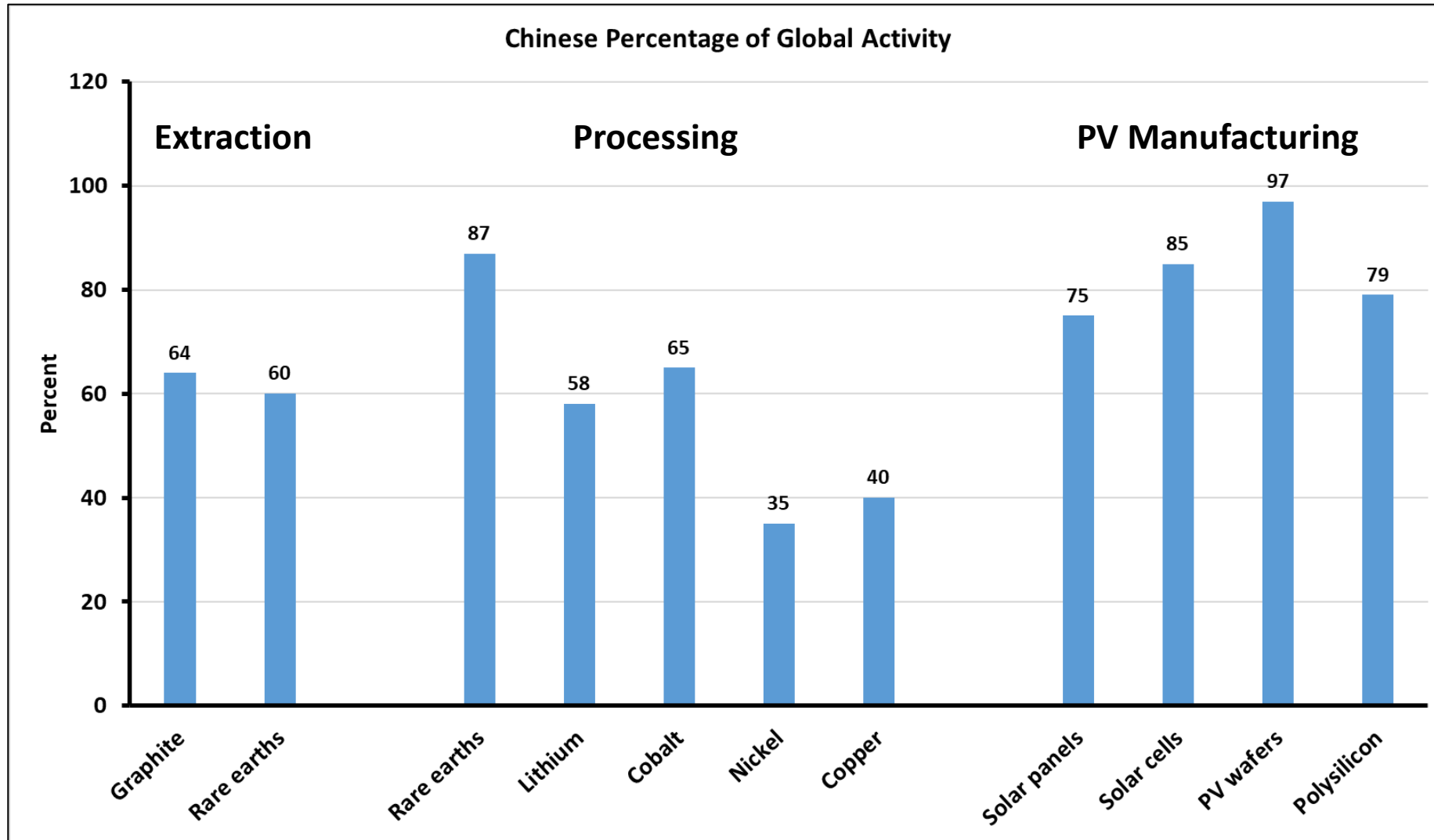
<https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>





# China is a major player in critical materials and PV manufacturing

<https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>



# Uyghur forced labor at a Chinese factory

<https://m.koreaherald.com/view.php?ud=20210429000923>



*Climate science compels us to make large and rapid reductions in greenhouse gas emissions.*

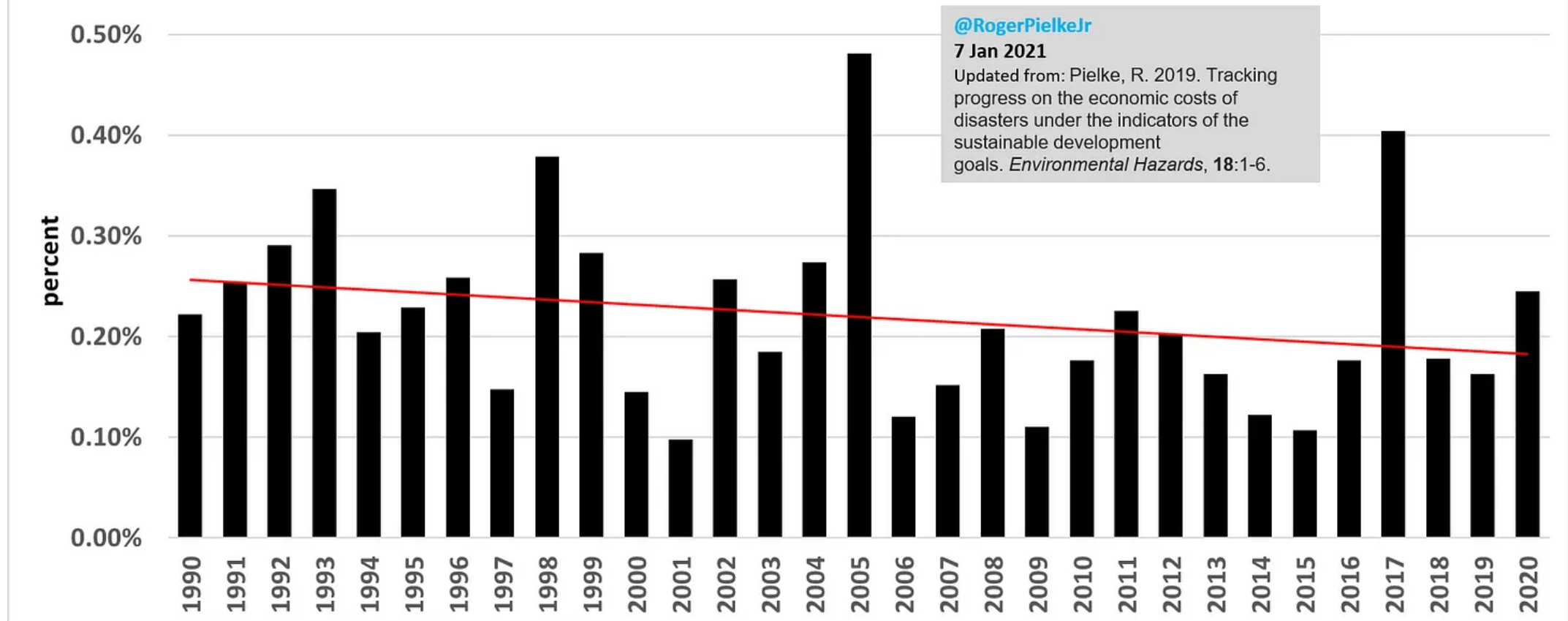
- The proposition is **Unjustified**                      **Needn't do it**
- The proposition is **Immoral**                      **Shouldn't do it**
- The proposition is **Fantastical**                      **Can't do it**

**The proposition must be rejected**

# Rebuttal

## Global Weather Losses as Percent of Global GDP: 1990-2020

(Sources: Munich Re, World Bank)



<https://rogerpielkejr.substack.com/p/global-disasters-a-remarkable-story>

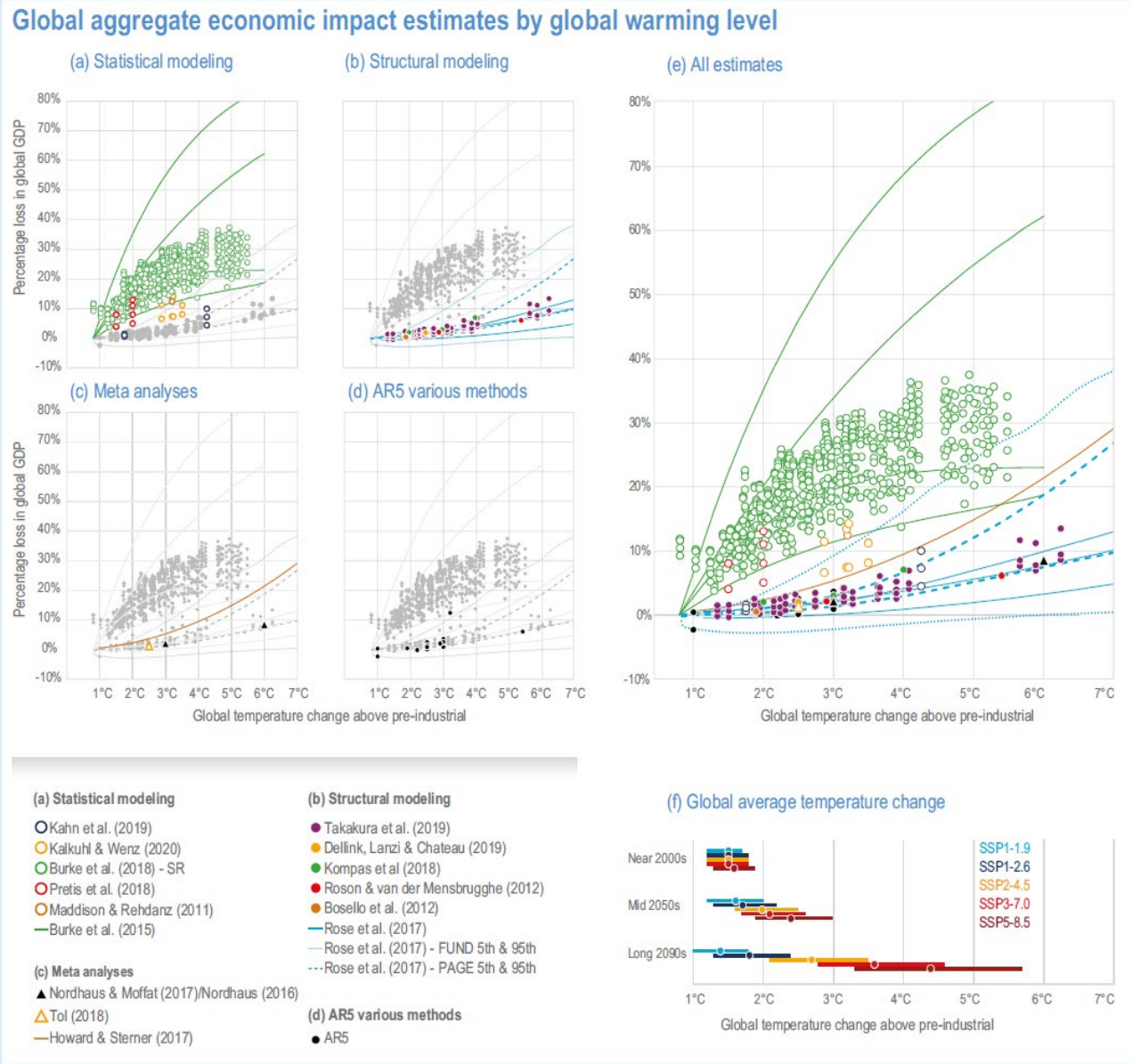
... global average mortality and economic **loss rates that have dropped by 6.5 and nearly 5 times**, respectively, from 1980–1989 to 2007–2016.

- [Formetta and Feyen \(2019\)](#), *Empirical evidence of declining global vulnerability to climate-related hazards*

# AR6 on extreme weather trends

- “There is low confidence in most reported long-term (multidecadal to centennial) **trends in TC** frequency- or intensity-based metrics”
- “There is low confidence in observed recent changes in the total number of **extratropical cyclones** over both hemispheres. There is also low confidence in past-century trends in the number and intensity of the **strongest extratropical cyclones** over the Northern Hemisphere...”
- **Thunderstorms, tornadoes, hail, lightning**: “observational trends in tornadoes, hail, and lightning associated with severe convective storms are not robustly detected due to insufficient coverage of the long-term observations”
- **Extreme winds (between 60S and 60N)**: “the observed intensity of extreme winds is becoming less severe in the lower to mid-latitudes, while becoming more severe in higher latitudes poleward of 60 degrees (low confidence)”
- **Hydrological drought**: “There is still limited evidence and thus low confidence in assessing these trends at the scale of single regions, with few exceptions”
- **Meteorological drought**: “The regional evidence on attribution for single AR6 regions generally shows low confidence for a human contribution to observed trends in meteorological droughts at regional scale, with few exceptions”
- **Ecological and agricultural drought**: “There is medium confidence that human influence has contributed to changes in agricultural and ecological droughts and has led to an increase in the overall affected land area”
- **Fire weather**: “There is medium confidence that weather conditions that promote wildfires (fire weather) have become more probable in southern Europe, northern Eurasia, the US, and Australia over the last century”
- **Precip != flood** : “the frequency and intensity of **heavy precipitation** have likely increased at the global scale over a majority of land regions with good observational coverage”
- “Confidence about **peak flow trends** over past decades on the global scale is low, but there are regions experiencing increases, including parts of Asia, southern South America, the northeast USA, northwestern Europe, and the Amazon, and regions experiencing decreases, including parts of the Mediterranean, Australia, Africa, and the southwestern USA.” “there is low confidence in the human influence on the changes in **high river flows** on the global scale”





The wide range of estimates, and the lack of comparability between methodologies, does not allow for identification of a robust range of estimates with confidence (high confidence)...**However, the existence of higher estimates than AR5 indicate that global aggregate economic impacts could be higher than previously estimated (low confidence due to the lack of comparability across methodologies and robustness of estimates).**

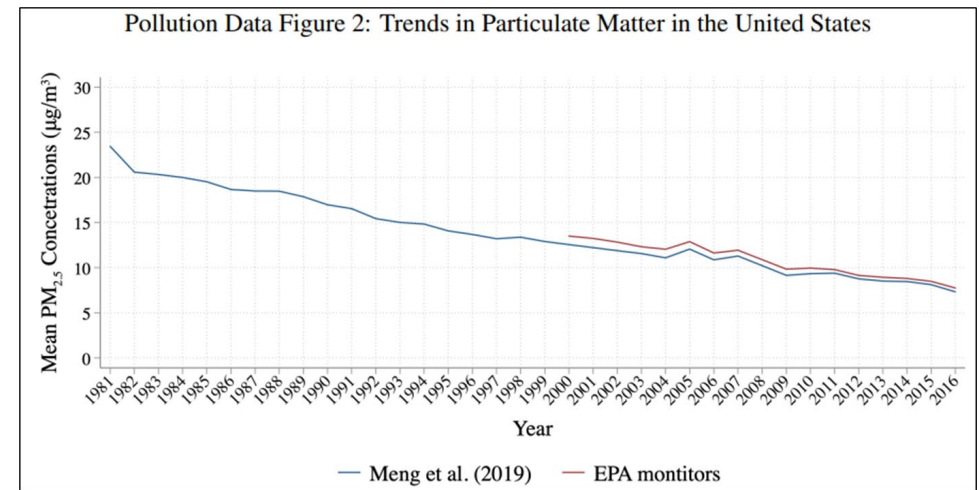
- Burke (2018) is the outlier
- [Lomborg 2020](#) notes it's implausible
  - Iceland becomes 30 times richer than today
  - Mongolia 200 times richer than today, 4X richer per person than the US (!)
- There is good reason to discard Burke [[Newell et al. \(2021\)](#)]
  - Extrapolates GDP growth rate rather than level
- Why doesn't AR6 WG2 discard outlier models as WG1 does for GCMs?



# Fossil fuel and PM<sub>2.5</sub> deaths

[https://www.hsph.harvard.edu/c-change/news/fossil-fuel-air-pollution-responsible-for-1-in-5-deaths-worldwide/Vohra et al. \(2021\)](https://www.hsph.harvard.edu/c-change/news/fossil-fuel-air-pollution-responsible-for-1-in-5-deaths-worldwide/Vohra et al. (2021))

- Exposure to particulate matter from fossil fuels in 2018 accounted for 8.7 M deaths (18% of total)
  - (China = 2.36 M + India=2.46 M) = 55% of 8.7 M
- But fossil fuels have been an overwhelmingly positive for India and China since 1980
  - India's life expectancy has increased by almost 16 years even as fossil fuel use increased 700%
  - China's life expectancy has increased by almost 10 years even as fossil fuel use increased 600%
- Developing countries make their own tradeoffs of energy vs. local pollution
- PM<sub>2.5</sub> can be controlled with modern technologies
  - PM<sub>2.5</sub> in the US dropped 70% in 35 years
- China PM<sub>2.5</sub> concentrations dropped 30-50% from 2013-2018



[Colmer et al., Science \(2020\)](#)

# Temperature-related deaths

[https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(21\)00081-4/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(21)00081-4/fulltext)

- We found that there were 5,083,173 deaths per year associated with non-optimal temperatures, accounting for 9.43% of global deaths and equating to 74 temperature-related excess deaths per 100 000 residents.
- Most excess deaths were linked to cold temperatures (8.52%), whereas fewer were linked to hot temperatures (0.91%).
- **The global daily mean temperature increased by 0.26°C per decade during 2000-2019, paralleled with a large decrease in cold-related deaths and a moderate increase in heat-related deaths.**
- The temperature-related mortality burden and its temporal changes showed disparate geographical variations.

# Closing

# Lessons from the crisis in Sri Lanka



**The farrago of magical thinking, technocratic hubris, ideological delusion, self-dealing, and sheer shortsightedness that produced the crisis in Sri Lanka implicates both the country's political leadership and advocates of so-called sustainable agriculture**

– T Nordhaus and S Shah, [\*Foreign Policy\* 03/22](#)

*Precipitous emissions reductions are far more dangerous than climate change itself*

CLIMATE CHANGE | OPINION

## That 'Obama Scientist' Climate Skeptic You've Been Hearing About ...

His track record on getting climate science right is extremely poor

By

Naomi Oreskes, Michael E. Mann, Gernot Wagner, Don Wuebbles, **Andrew Dessler**, Andrea Dutton, Geoffrey Supran, Matthew Huber, Thomas Lovejoy, Ilissa Ocko, Peter C. Frumhoff, Joel Clement  
on June 1, 2021

<https://www.scientificamerican.com/article/that-obama-scientist-climate-skeptic-youve-been-hearing-about/>  
Rebuttal at <https://steven-koonin.medium.com/my-response-to-a-scientific-american-hit-piece-7b5811141137>

*[Koonin is] a crank who's only taken seriously by far-right disinformation peddlers hungry for anything they can use to score political points. He's just another denier trying to sell a book.*

# Unsettled



WHAT CLIMATE SCIENCE  
TELLS US, WHAT IT DOESN'T,  
AND WHY IT MATTERS

## Steven E. Koonin

FORMER UNDERSECRETARY FOR SCIENCE,  
U.S. DEPARTMENT OF ENERGY  
UNDER THE OBAMA ADMINISTRATION



# Thank you

<https://steven-koonin.medium.com/>