

??1600??????????

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- Natural as well as anthropogenic factors cause warming
- Warming is far slower than predicted
- Climate policy relies on inadequate models
- Global warming has not increased natural disasters
- Policy must respect scientific and economic realities
- CO2 is not a pollutant. It is essential to all life on Earth. Photosynthesis is a blessing. More CO2 is beneficial for nature, greening the Earth: additional CO2 in the air has promoted growth in global plant biomass. It is also good for agriculture, increasing the yields of crop worldwide.

Posted in ???, ????? | No Comments »

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?? ?? · Thursday, August 24th, 2023



NithidPhoto/iStock

2023?8?22??

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Posted in ??????????, ??? | No Comments »

?????2??????CO2????????????????????

?? ?? · Tuesday, August 22nd, 2023



Artur/iStock

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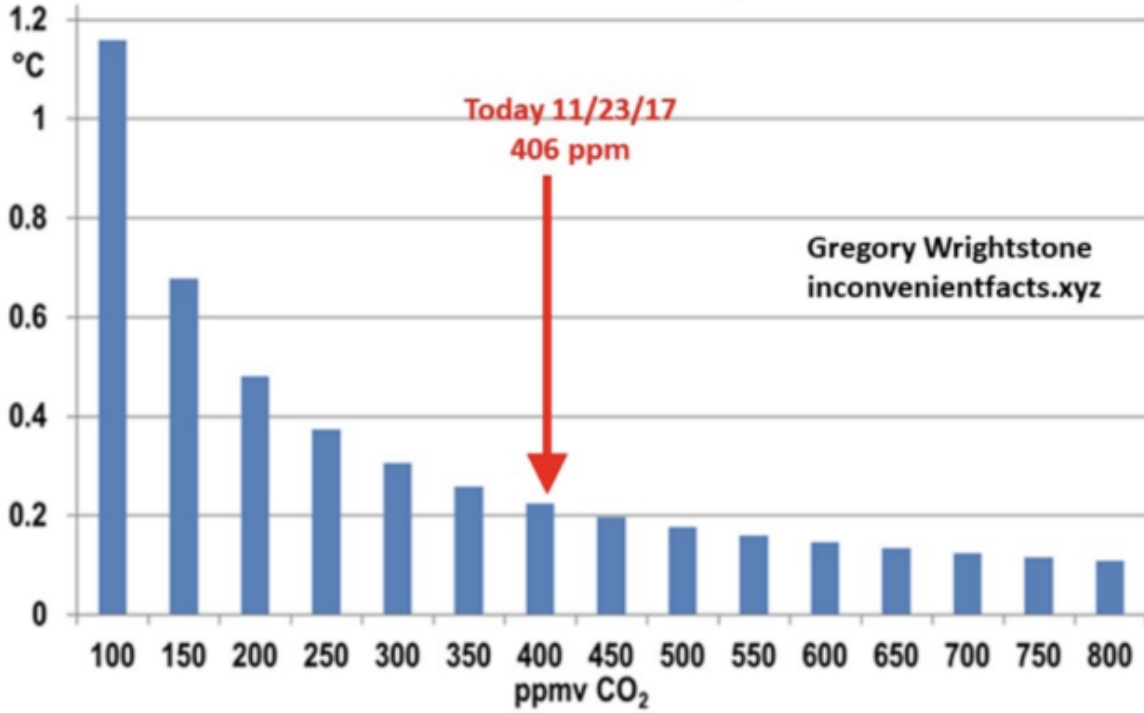
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“CO₂ heavily saturated”

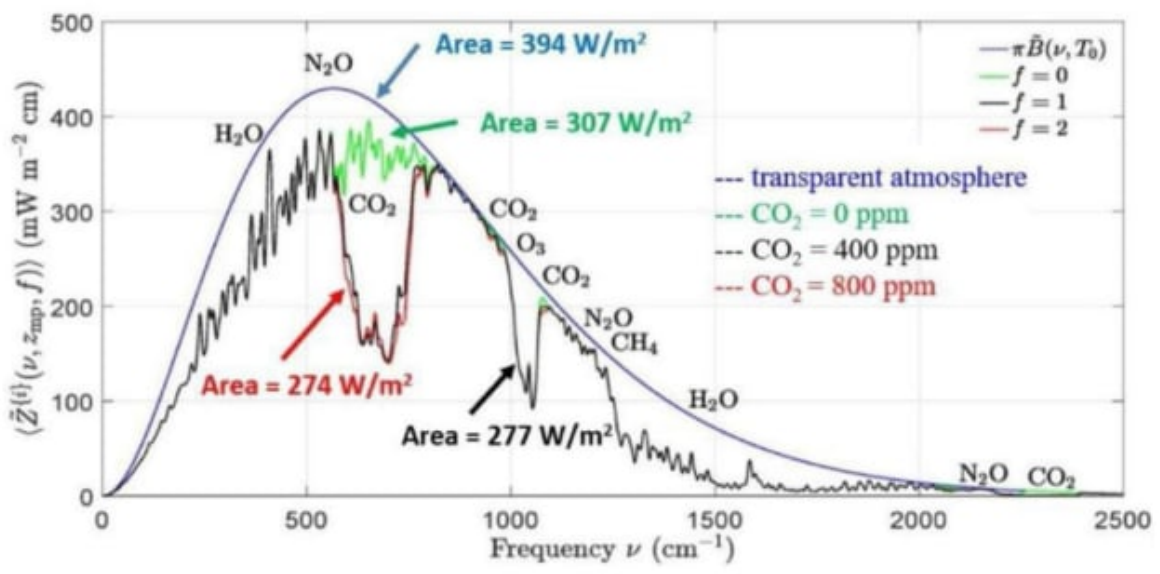
CO₂ 50ppm = saturation “CO₂ heavily saturated”

Figure I-3: Less global warming for each additional 50 parts-per-million-by-volume of CO₂ concentration



CO₂ 800ppm = saturation “CO₂ heavily saturated”

CO₂, N₂O, O₃, CH₄ 394 W/m² @ transparent atmosphere



$$\frac{400 \text{ ppm} \times 394 \text{ W/m}^2 + 277 \text{ W/m}^2}{70 \text{ ppm} \times 400 \text{ ppm} + 800 \text{ ppm} \times 274 \text{ W/m}^2} = 69.5\%$$

$$\frac{3 \text{ W/m}^2}{1} = 3 \text{ W/m}^2$$

CO2

CO2

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EPA "State Farm"

? State Farm Test:

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1. EPA
2. EPA IPCC
3. ?

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CO2

EPA



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Luisa Trescher Photos/iStock

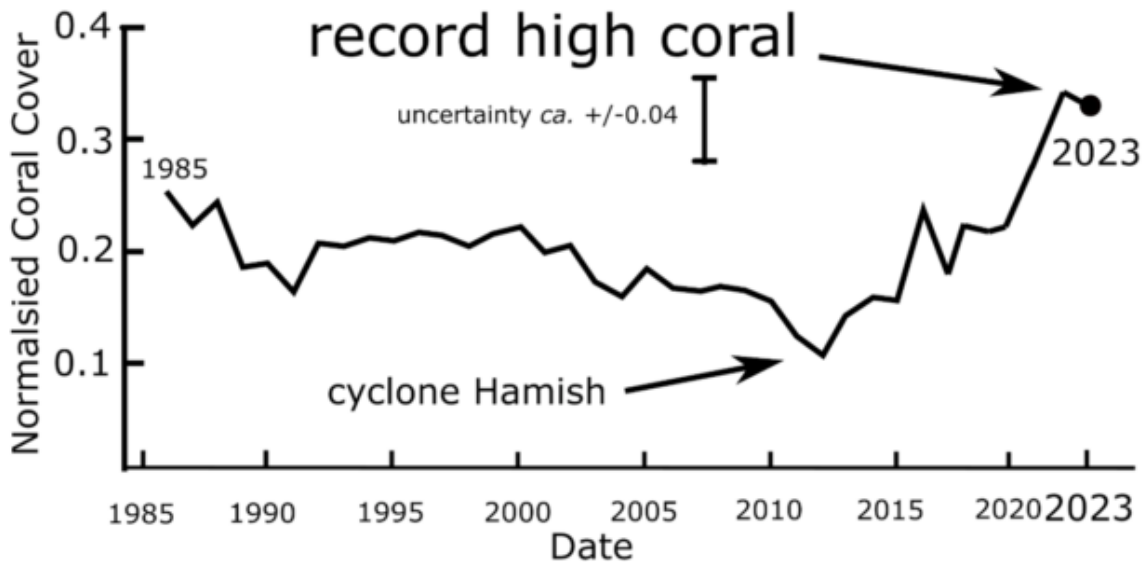


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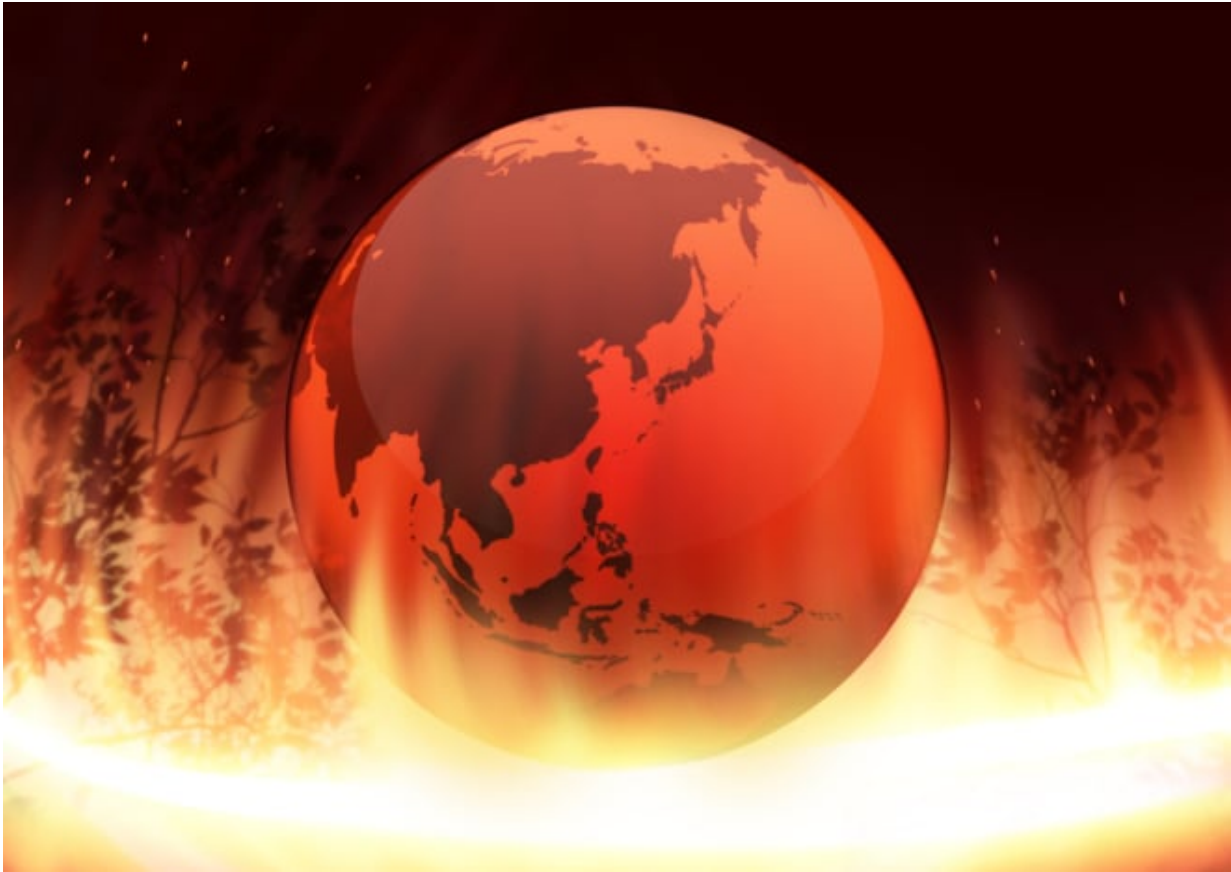
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?? ?? · Thursday, August 17th, 2023



Tr6/iStock

global warming global boiling

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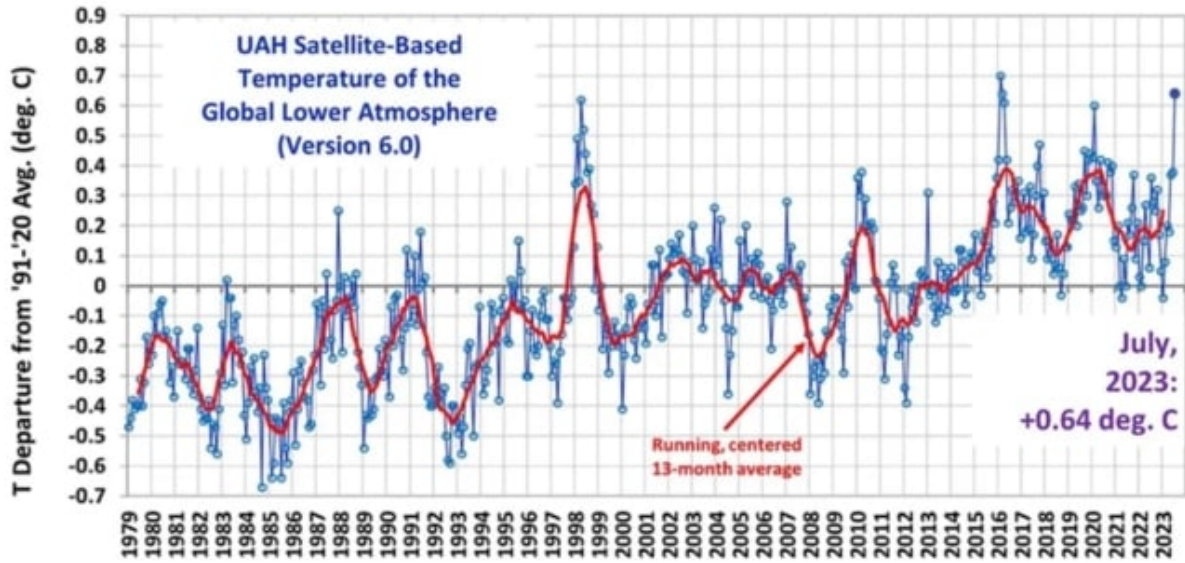
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Climate Etc.

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S. Matsuda?“ Validity of Bio-Ethanol as a Countermeasure against Global Warming”, J. Environ. Inf. Sci. , Vol.37, No.5, pp.1-6 (2009.3)?

CO2

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p.55
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Vol.44
vol.37

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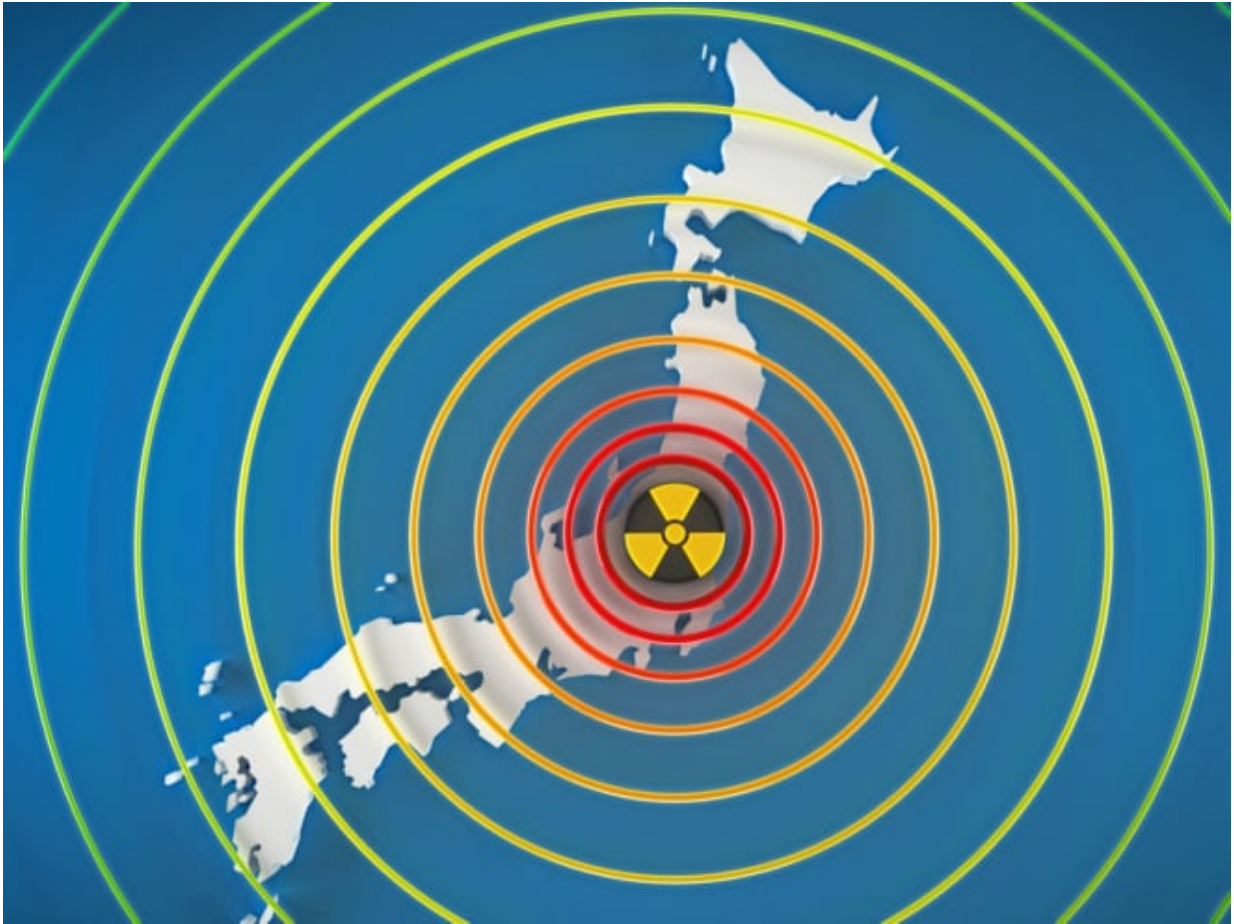
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?? ?? · Thursday, August 3rd, 2023



adventr/iStock

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← ツイート



村本大輔(ウーマンラッシュアワー)
@WRHMURAMOTO

...

事故があった時、地元の人だけじゃなく日本中が被爆しますように

NHKニュース @nhk_news · 7月28日

福井県にある関西電力の高浜原子力発電所1号機が、28日午後、原子炉を起動し、12年ぶりに再稼働します

www3.nhk.or.jp/news/html/2023...

#nhk_video

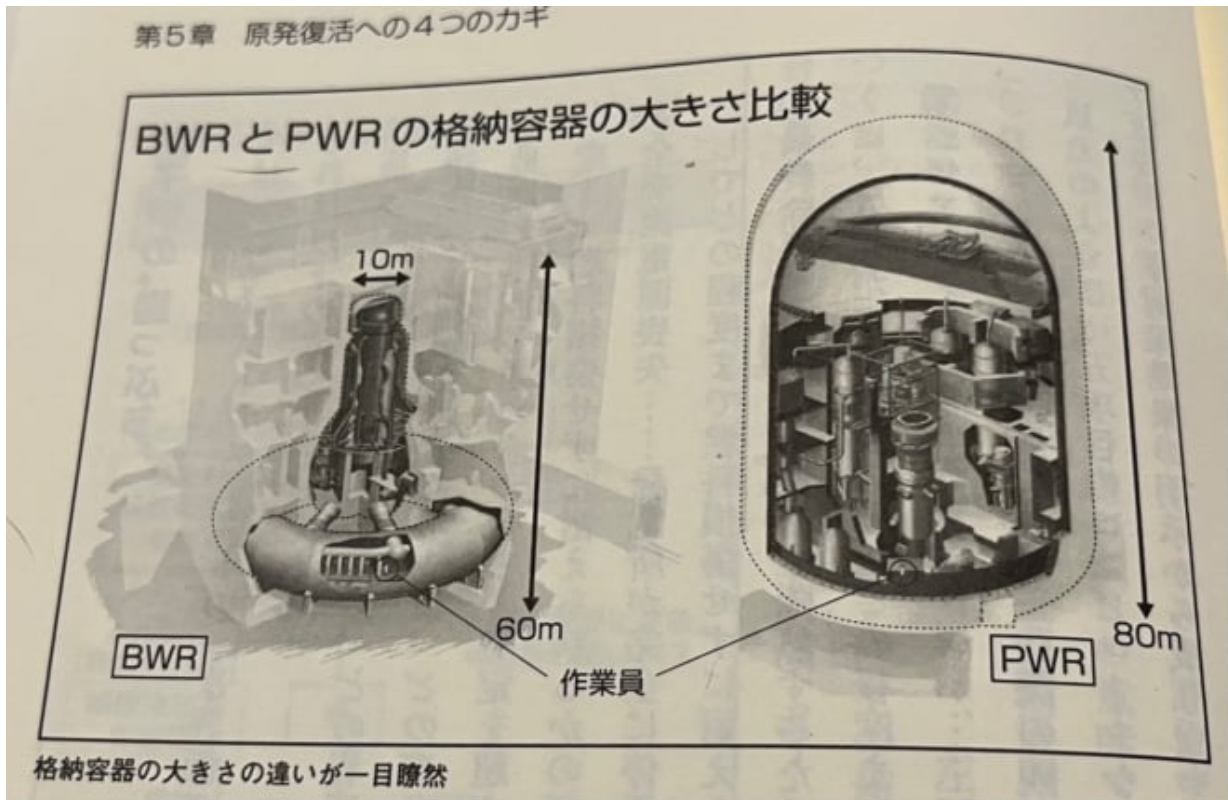
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©? japan.cnet.com

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bluejayphoto/iStock

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Posted in ???, ??, ????? | No Comments »

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?? ? · Monday, July 31st, 2023

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3 G20 G7 2030
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G20 12 COP28

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- 2030
- 2030
- 2030
- ???

G20

G20 1.5°C by or around mid century G20

1.5

Posted in [????????](#), [??](#), [????](#) | [No Comments](#) »

IPCC AR6 "Summary for Policymakers"

?? ?? · Sunday, July 30th, 2023

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NicoElNino/iStock

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AR6-SPM?C.2.4
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1.5 AR6-SPM?P26



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2030?21 GHG AR6-SPM?C.2.4

1.5 30?43?50?84 AR6-SPM?C.2.5



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?3?AR6.SPM?C.2.4?“Even without accounting for all the benefits of avoiding potential damages the global economic and social benefit of limiting global warming to 2°C exceeds the cost of mitigation in most of the assessed literature” (medium confidence)

?4?AR6-SMP P26 ??50?“The evidence is too limited to make a similar robust conclusion for limiting warming to 1.5°C. Limiting global warming to 1.5°C instead of 2°C would increase the costs of mitigation, but also increase the benefits in terms of reduced impacts and related risks, and reduced adaptation needs.”

?5?AR6.SPM C.2.5: “Ambitious mitigation pathways imply large and sometimes disruptive changes in existing economic structures, with significant distributional consequences within and between countries.”

?6?AR6-SPM E.1.3: “Strengthened and coordinated near-term actions in cost-effective modelled global pathways that limit warming to 2°C (>67%) or lower, reduce the overall risks to the feasibility of the system transitions, compared to modelled pathways with relatively delayed or uncoordinated action.”

Posted in ???, ????? | No Comments »

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?? ? · Saturday, July 29th, 2023



BrianAJackson/iStock

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Posted in ???, ????? | No Comments »

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?? ?? · Thursday, July 27th, 2023



JaCZhou/iStock

?????CO2????????????????????2023?7?4??Enrico Mariutti????????????????????????????????????The Dirty Secret of the Solar Industry???

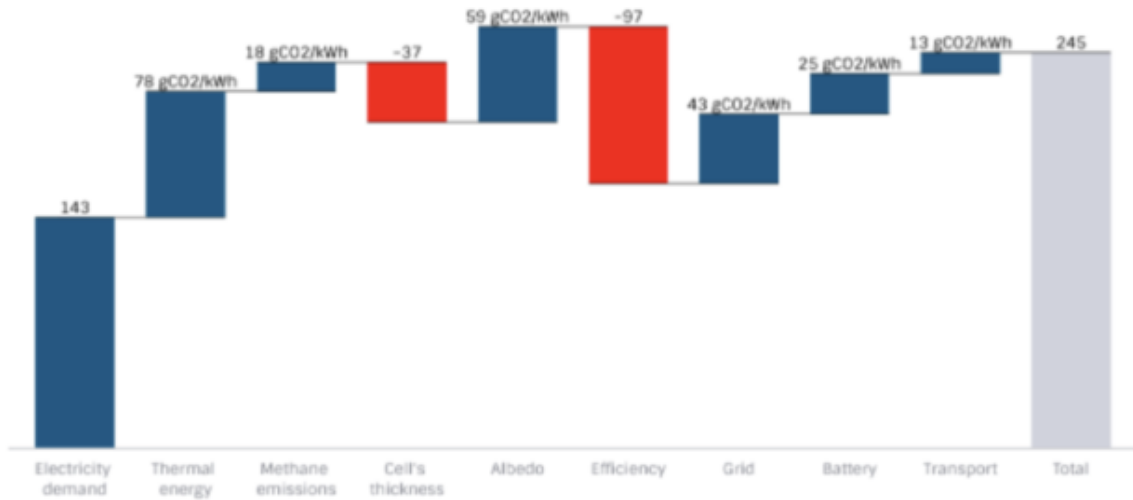
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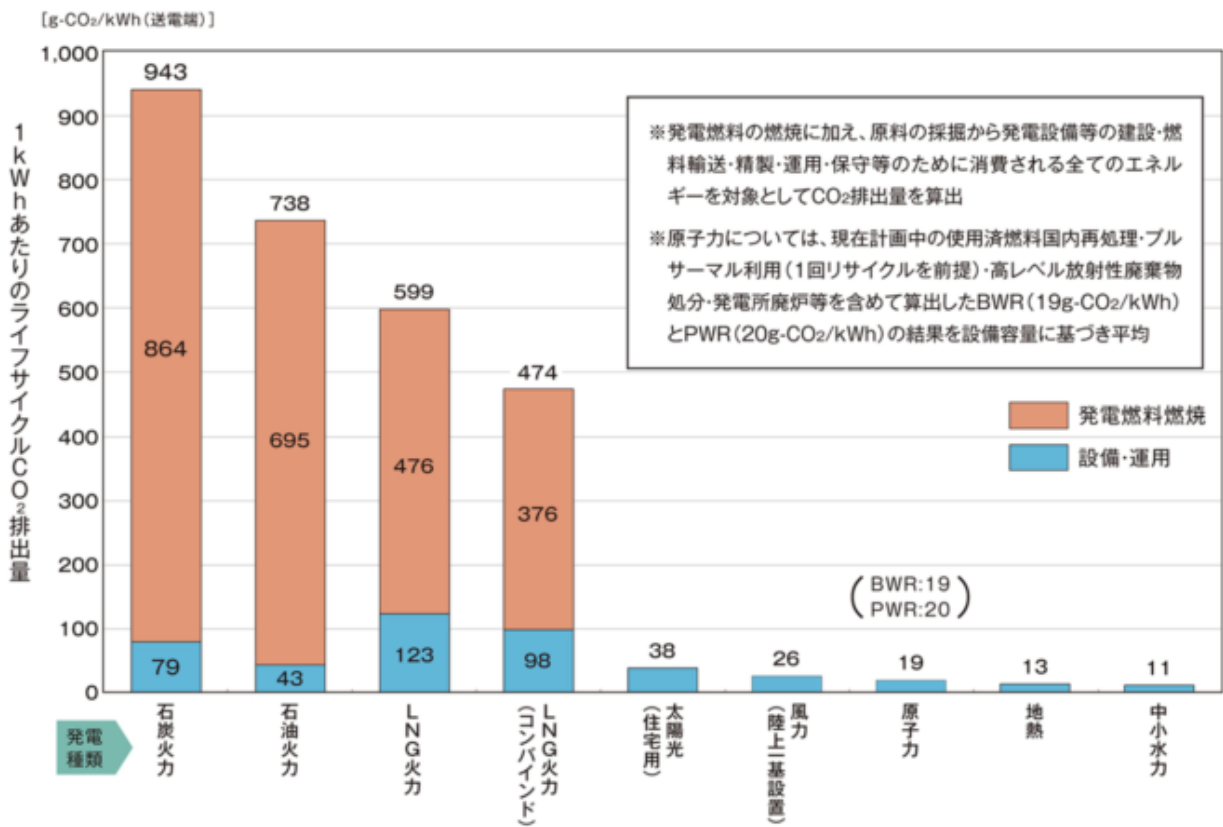
2022
Carbon intensity, Worst Scenario



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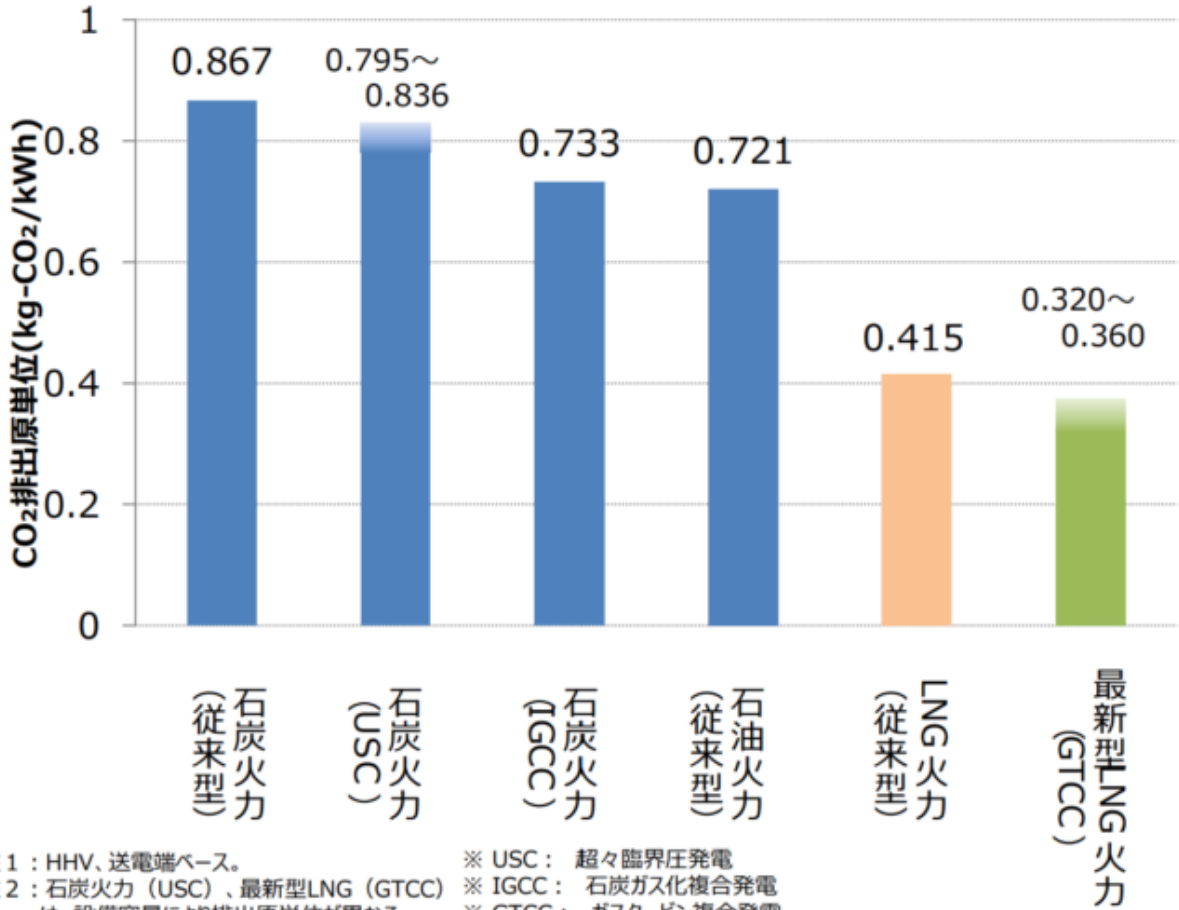
??1kWh??245??2016????????????????????????????
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CO2 9

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Vertical text block containing multiple lines of placeholder text.

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Posted in ???, ????? | No Comments »

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?? ?? · Friday, July 21st, 2023

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jetcityimage/iStock

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Posted in ???, ????? | No Comments »

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?? ?? · Wednesday, July 19th, 2023



Max Lirnyk/iStock

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Electric Vehicles for Everyone? The Impossible Dream??

????????????????????BEV??ICE??BEV????????
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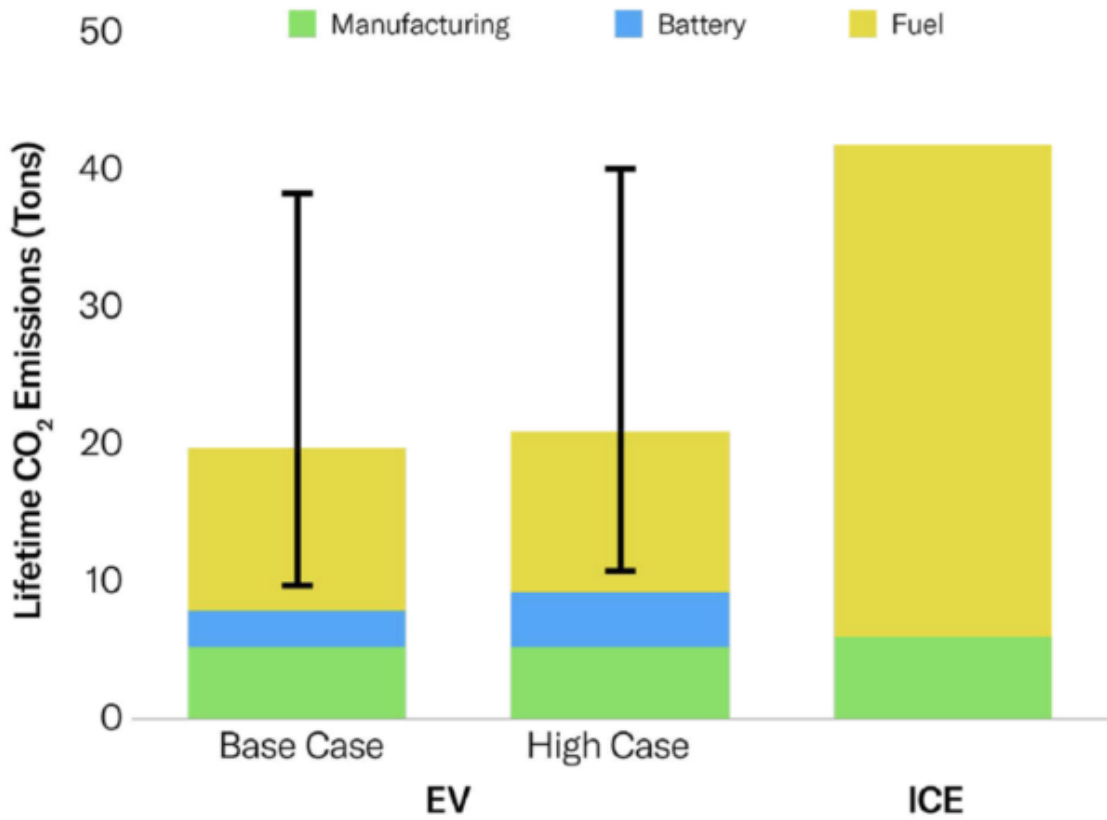
?????2??????CO2????????EV????CO2????????????????????

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Figure 3

Estimated Life-Cycle Emissions for EVs vs. ICE Cars, per IEA



Source: IEA, "The Role of Critical Minerals in Clean Energy Transitions"

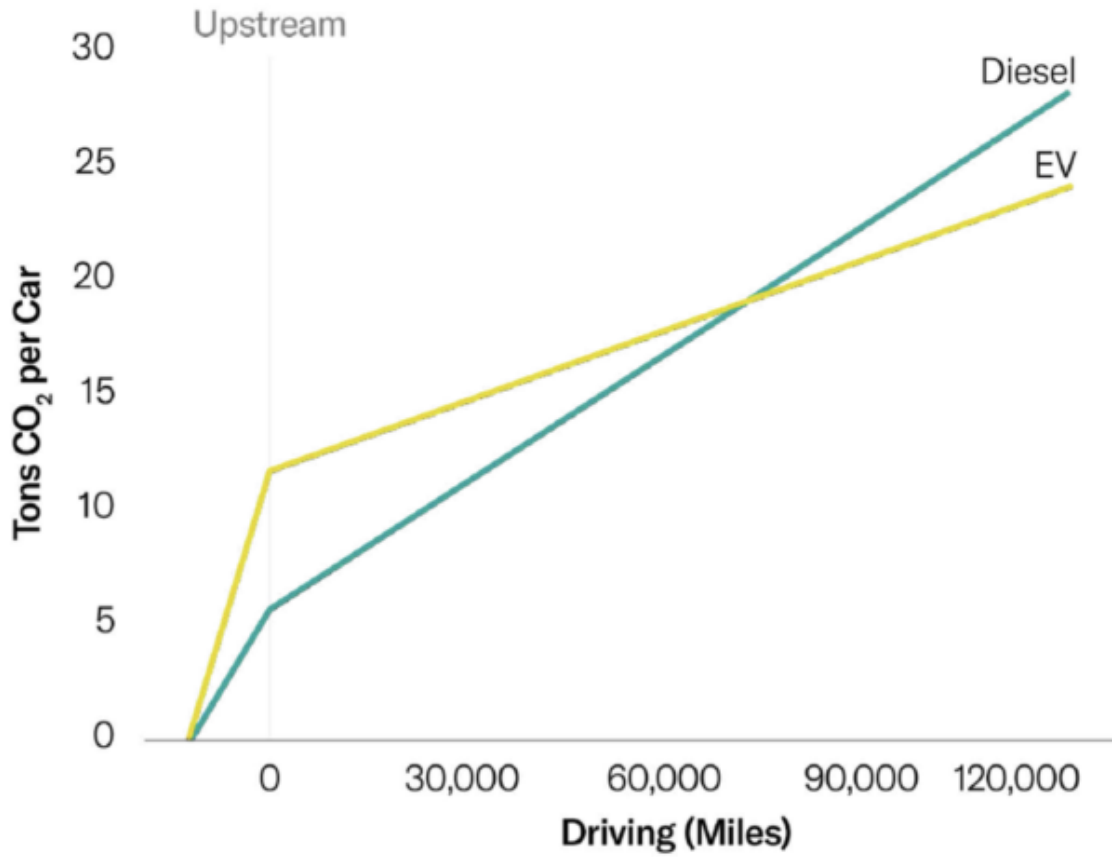
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Figure 4

Life-Cycle Emissions: Volkswagen EV vs. Diesel



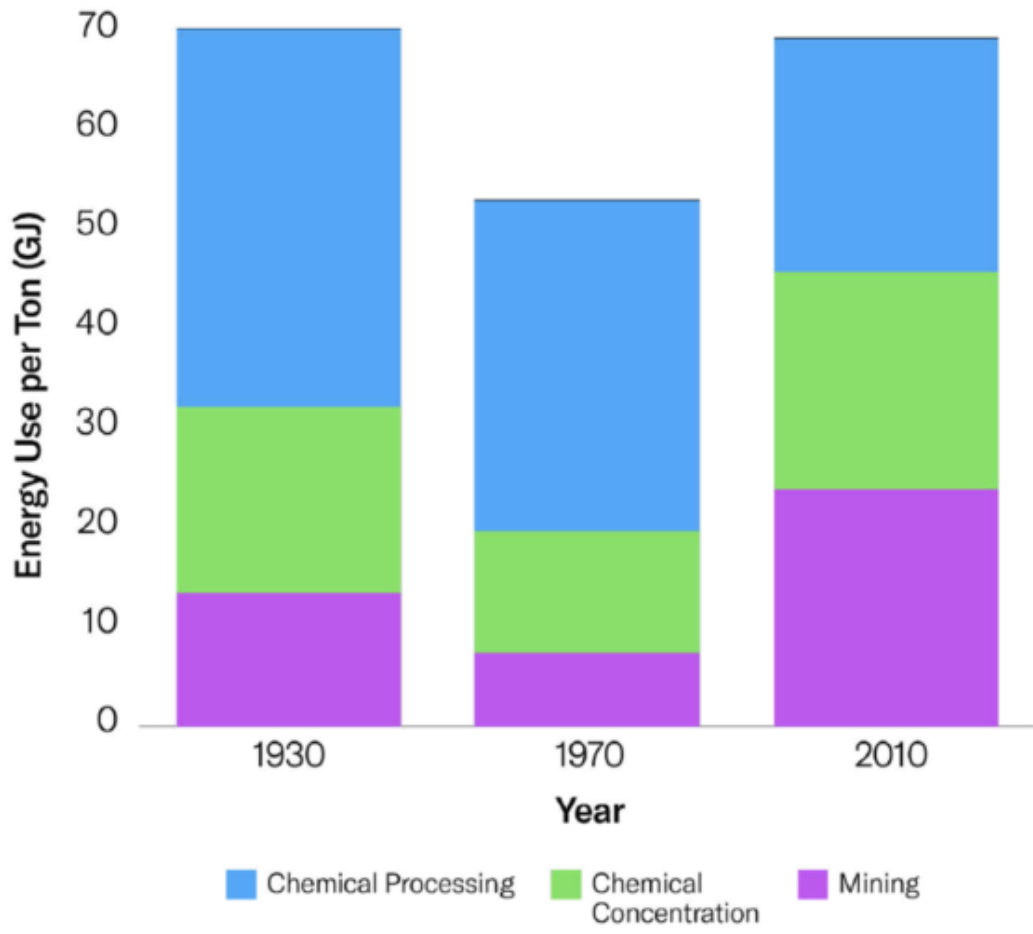
Source: Maciej Neugebauer, Adam Żebrowski, and Ogulcan Esmer, "Cumulative Emissions of CO₂ for Electric and Combustion Cars: A Case Study on Specific Models," *Energies*, Apr. 6, 2022

????????????????EV????????????????EV????CO2????????????????????????????????ICE????????????
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Figure 10

Copper Production: Technology Trends in Energy Use per Ton



Source: Nadine Rötzer and Mario Schmidt, "Historical, Current, and Future Energy Demand from Global Copper Production and Its Impact on Climate Change," Resources 9, no. 4 (April 2020)

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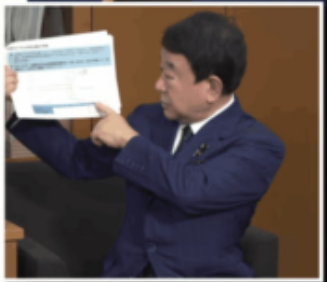
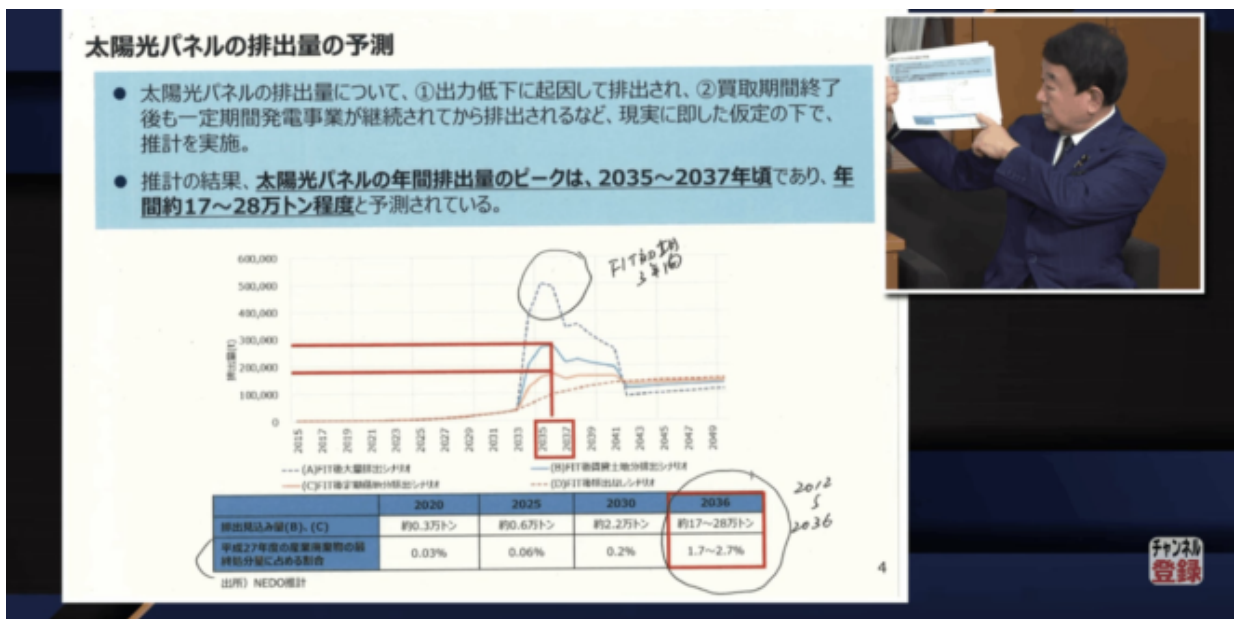
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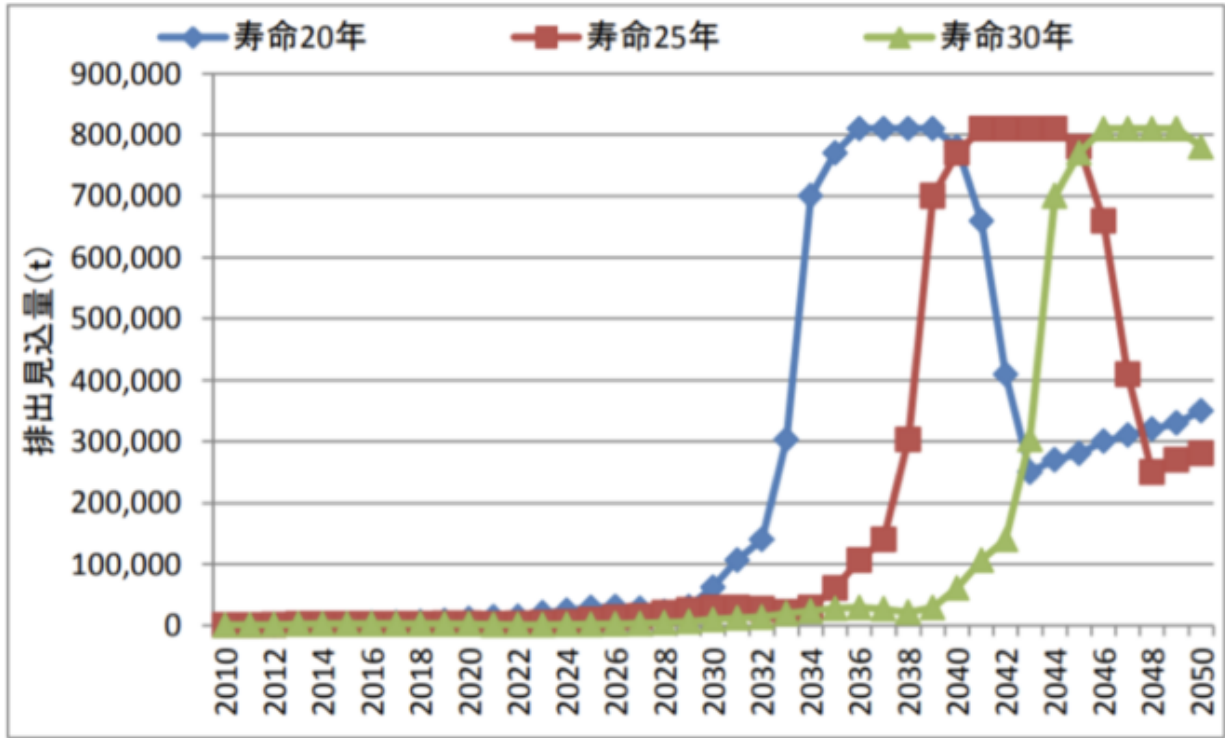


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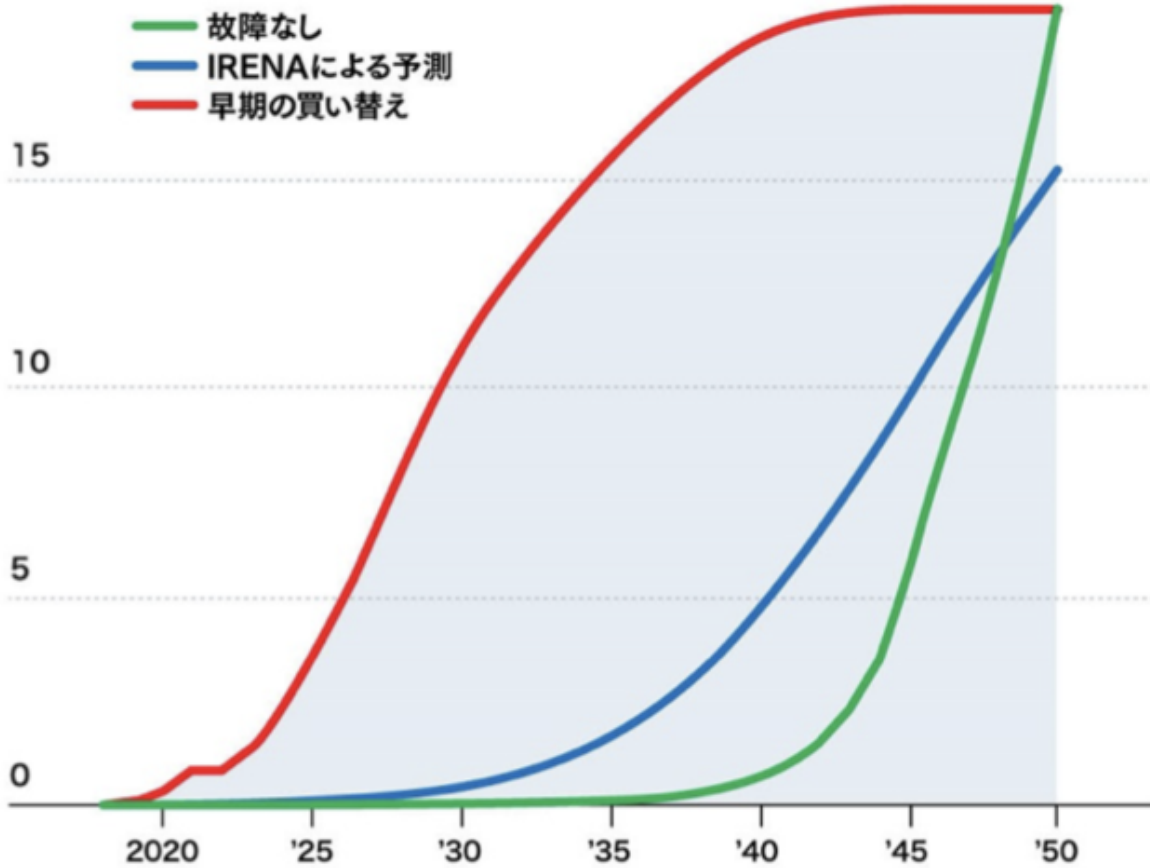
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廃棄物の累計
 (発電容量ベース)

20ギガワット



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xijian/iStock

??IEA????????????Net Zero Scenario, NZE????????????

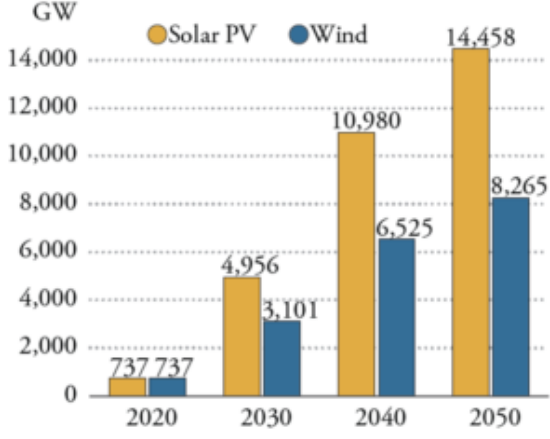
A Critical Assessment of the IEA’s Net Zero Scenario, ESG, and the Cessation of Investment in New Oil and Gas Fields.

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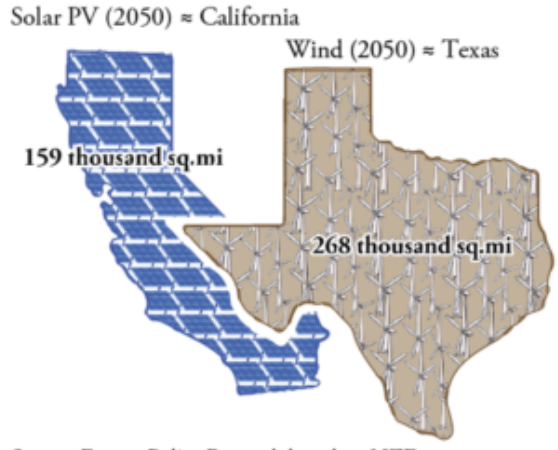
????????????????PV??PV????????????????????
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Figure 25. Global Solar and Wind Capacity in NZE



Source: IEA, Net Zero by 2050 (2021)

Figure 26. Global Land Requirements for Solar/ Wind Farms in NZE



Source: Energy Policy Research based on NZE
Assumes sufficient/optimal grid infrastructure (transmission, storage) and current rate of efficiency

	万 km2	日本=1
メキシコ	197	5.2
フランス	55	1.5
カリフォルニア	42	1.1
テキサス	70	1.8
日本	38	1.0

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CHUYN/iStock

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- 2025?????GHG?????2050?????10?????
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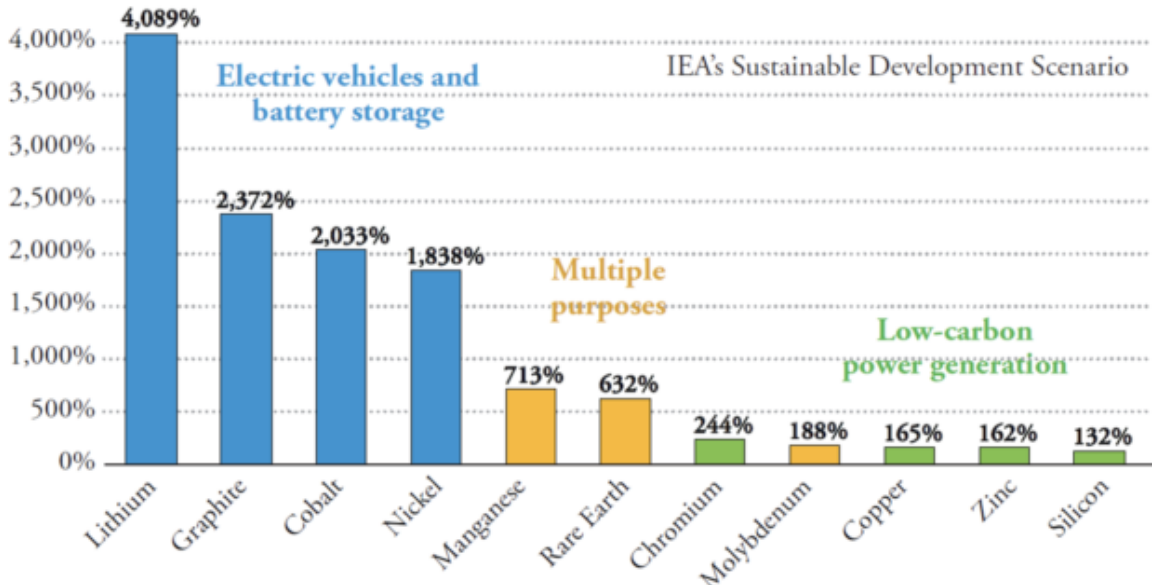
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Figure 33. Required Growth of Critical Mineral Supply (IEA's SDS scenario, 2020–40)



Source: Energy Policy Research, IEA, *The Role of Critical Minerals in Clean Energy Transitions* (2021)

EV??60kWh????????????????????????????????
 150??200????????????????????

Table 13. Battery Chemistry by Content, Kg (60 kWh Lithium-Ion)

Mineral/Metal	NMC811	NMC523	NMC622	NCA+	LFP
Lithium	5	7	6	6	6
Cobalt	5	11	11	2	0
Nickel	39	28	32	43	0
Manganese	5	16	10	0	0
Graphite	45	53	50	44	66
Aluminum	30	35	33	30	44
Copper	20	20	19	17	26
Steel	20	20	19	17	26
Iron	0	0	0	0	41

NMC811 Nickel (80%) Manganese (10%) Cobalt (10%) **NCA+** Nickel Cobalt Aluminum Oxide
NMC523 Nickel (50%) Manganese (20%) Cobalt (30%)
NMC622 Nickel (60%) Manganese (20%) Cobalt (20%) **LFP** Lithium iron phosphate

Source: Bhutada, G. VC Elements

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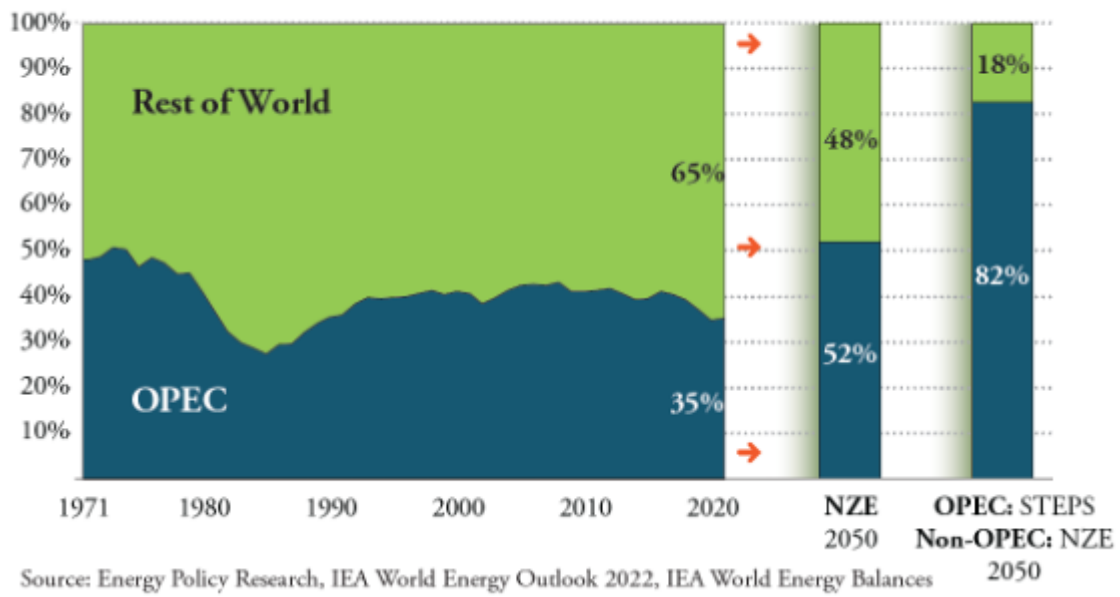
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Figure 17. OPEC Share of Global Oil Production

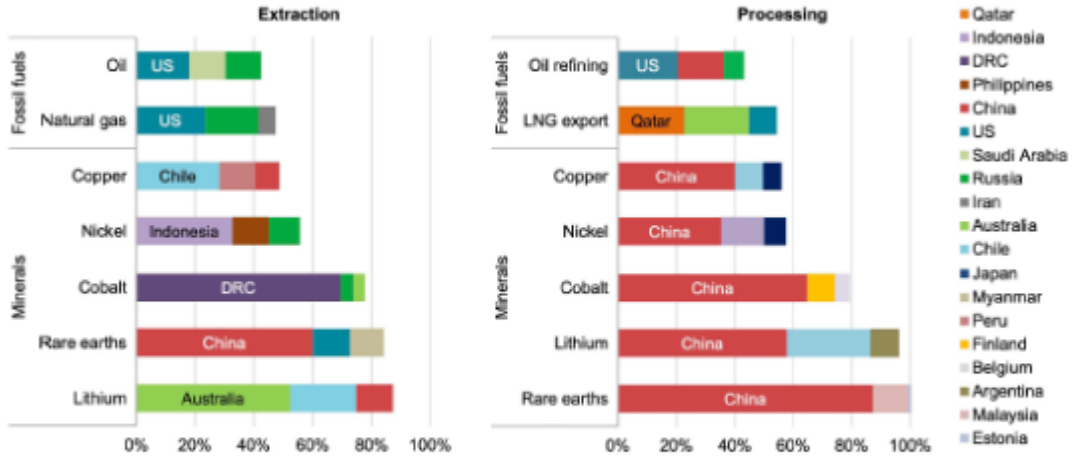


??OPEC??

NZE????????????PV????EV??
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Figure 18. Share of Top Three Producing Countries in Production of Selected Minerals and Fossil Fuels, 2019



Notes: LNG = liquefied natural gas; US = United States. The values for copper processing are for refining operations. Sources: IEA (2020a); USGS (2021); World Bureau of Metal Statistics (2020); Adamas Intelligence (2020).

Source: IEA, The Role of Critical Minerals in Clean Energy Transitions (2021)

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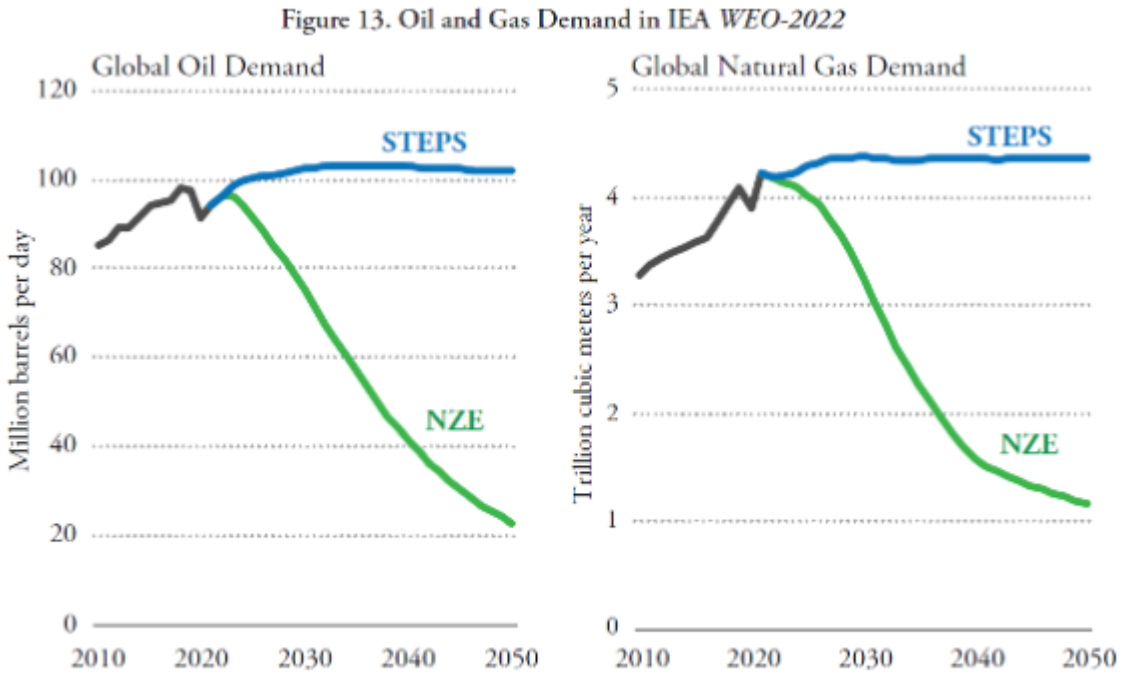
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A Critical Assessment of the IEA’s Net Zero Scenario, ESG, and the Cessation of Investment in New Oil and Gas Fields.

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Source: Data from IEA, *World Energy Outlook* (2022) & *Outlooks for gas markets and investment* (2023). The data derived and estimated from graphs in the *WEO-2022* and the IEA’s gas report for the G7, as the IEA’s data tables only show scenario data for 2030 and 2050.

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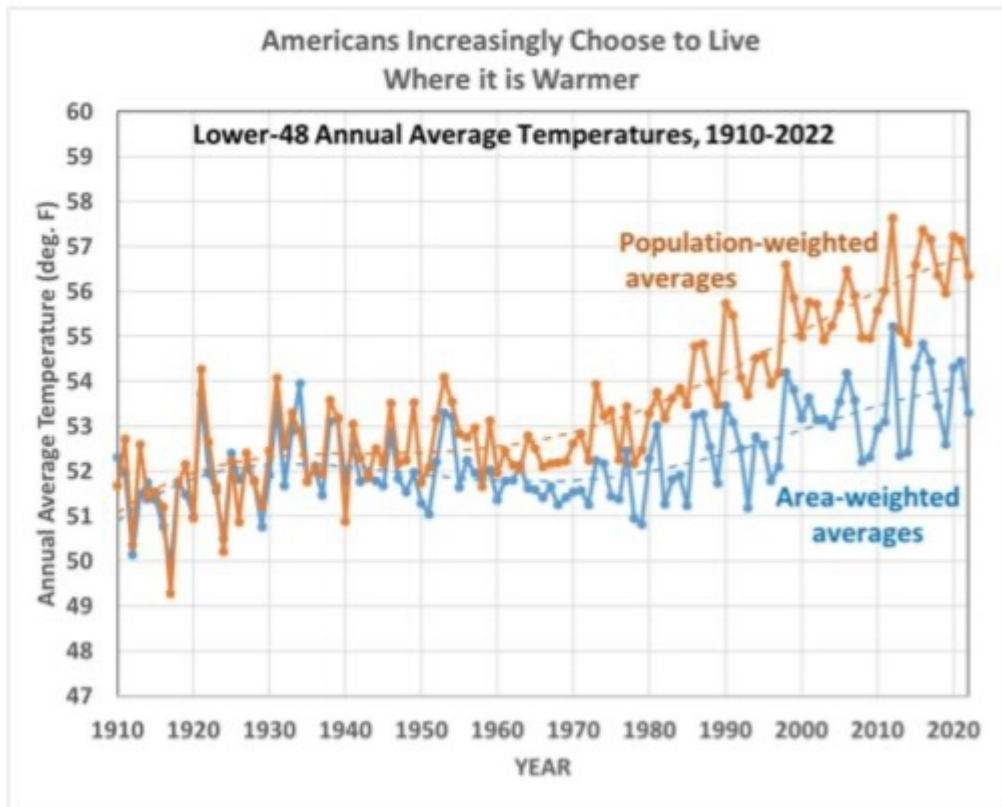
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