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NithidPhoto/iStock

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?? ?? · Tuesday, August 22nd, 2023

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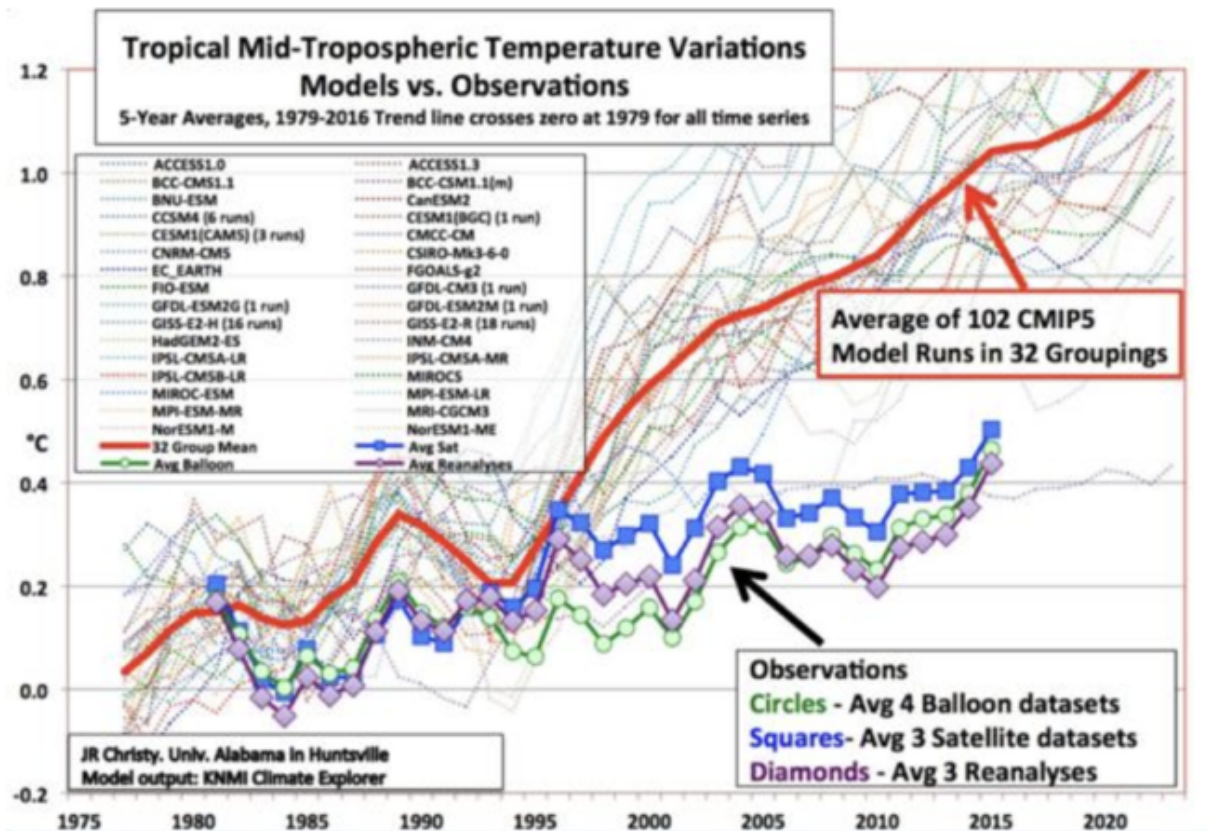
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The main conclusion of this part of the study is that even an order of magnitude increase of CO₂ in the atmosphere by human activities, which at the present rate of input is not expected within the next several thousand years, may not be sufficient to produce a runaway greenhouse effect on Earth. On the short time scale, if CO₂ is augmented by another 10 percent in the next 30 years, the increase in the global temperature may be as small as 0.1°K.

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?? ?? · Friday, August 18th, 2023

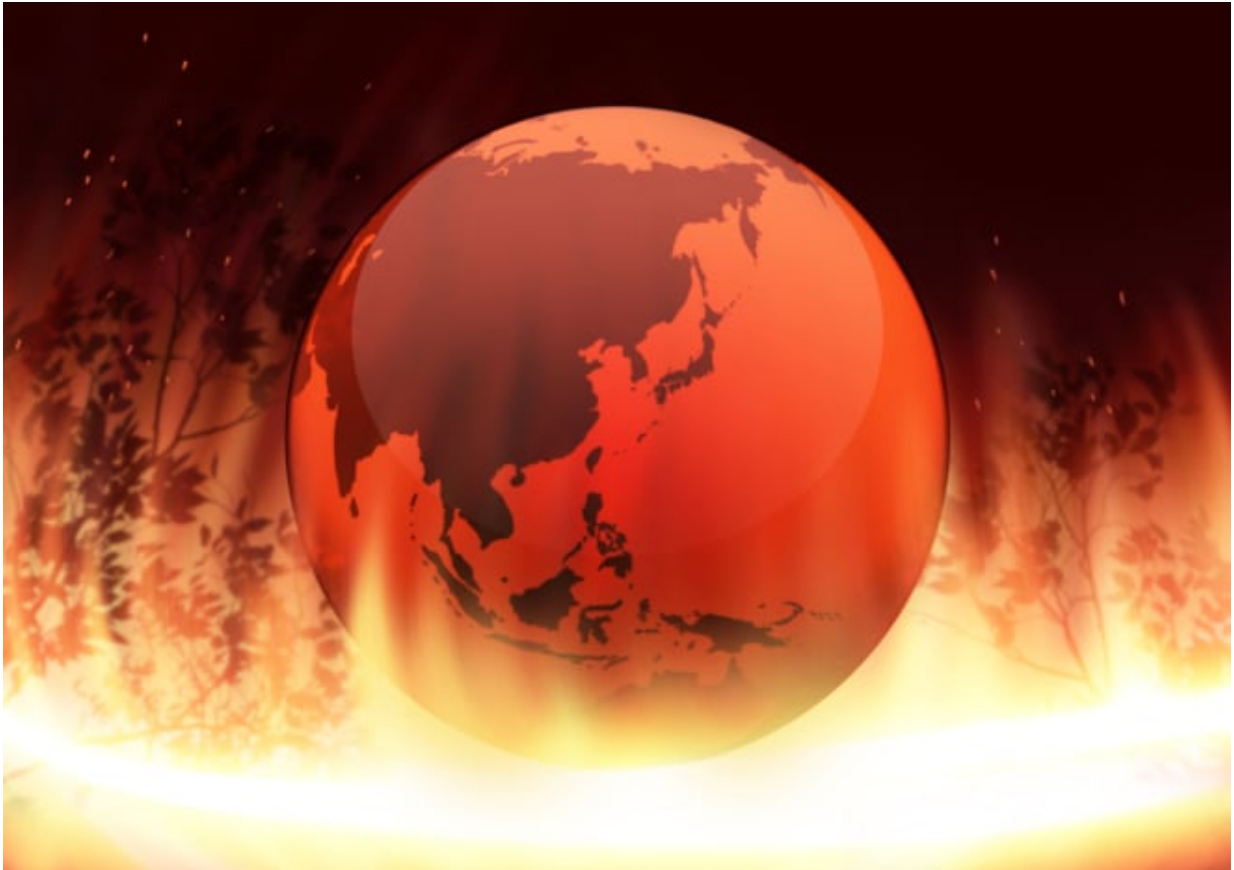


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Luisa Trescher Photos/iStock



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Tr6/iStock

global warming global boiling

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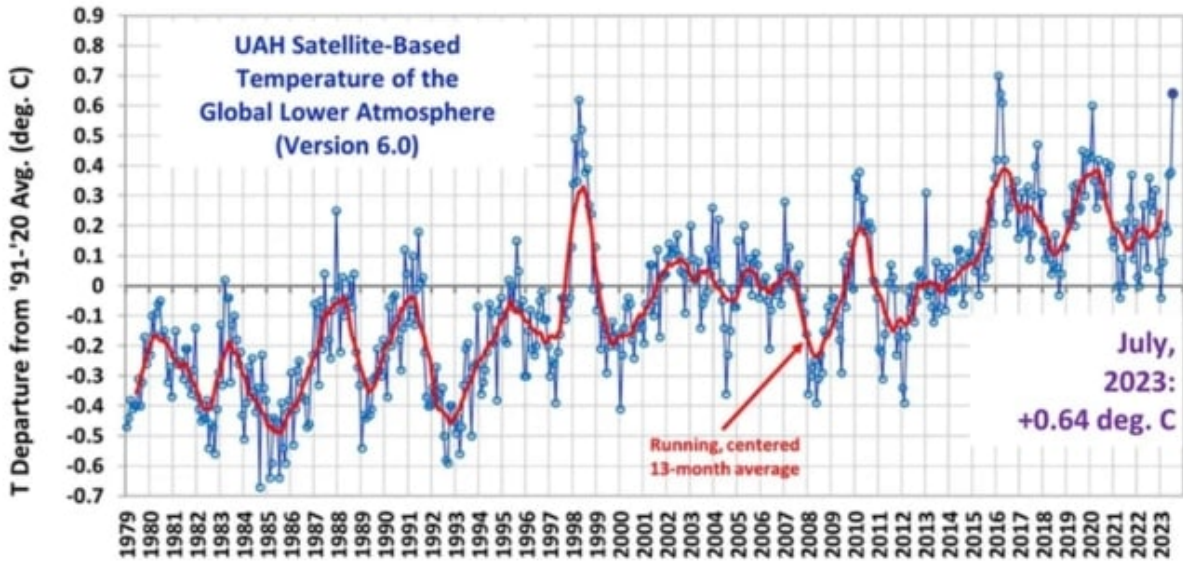
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S. Matsuda?“ Validity of Bio-Ethanol as a Countermeasure against Global Warming”, J. Environ. Inf. Sci. , Vol.37, No.5, pp.1-6 (2009.3)?

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p.55
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Vol.44
vol.37

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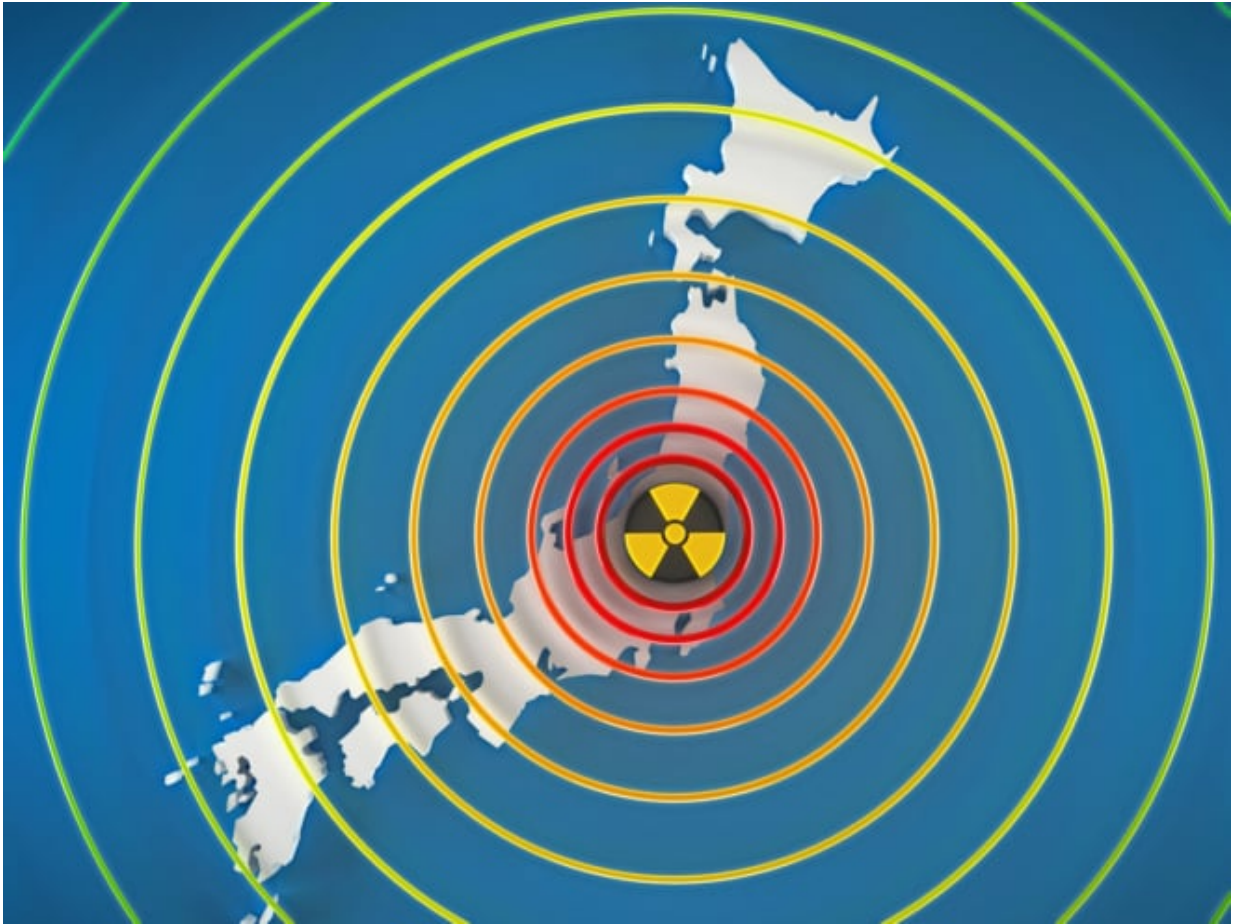
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?? ?? · Thursday, August 3rd, 2023



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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bluejayphoto/iStock

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

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

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AR6-SPM?C.2.4
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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.”

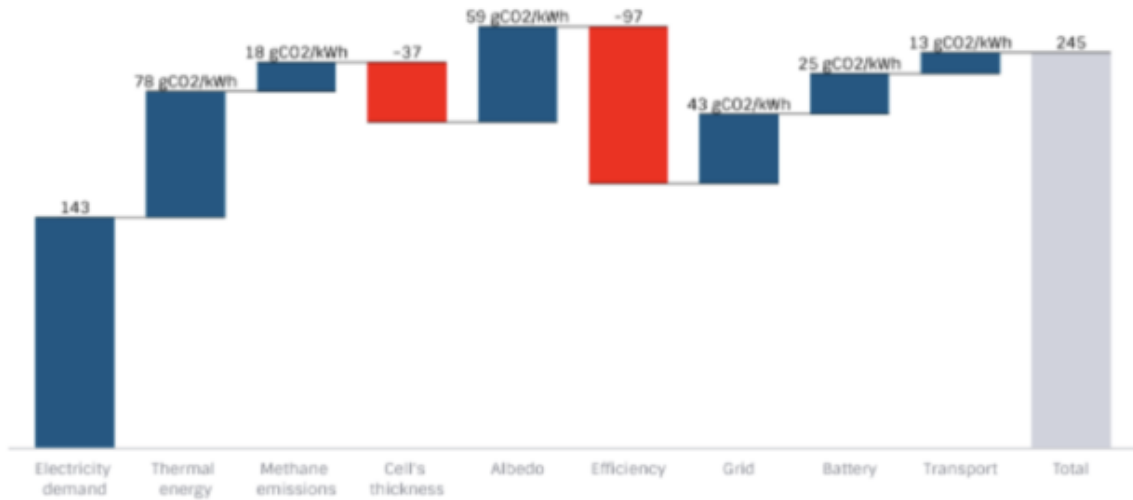
?6?AR6-SPM E.1.3: “Strengthened and coordinated near-term actions in cost-effective modelled global pathways that limit warming to 2°C (>67%) or lower, reduce the overall risks to the feasibility of the system transitions, compared to modelled pathways with relatively delayed or uncoordinated action.”

Posted in ???, ????? | No Comments »

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?? ? · Saturday, July 29th, 2023

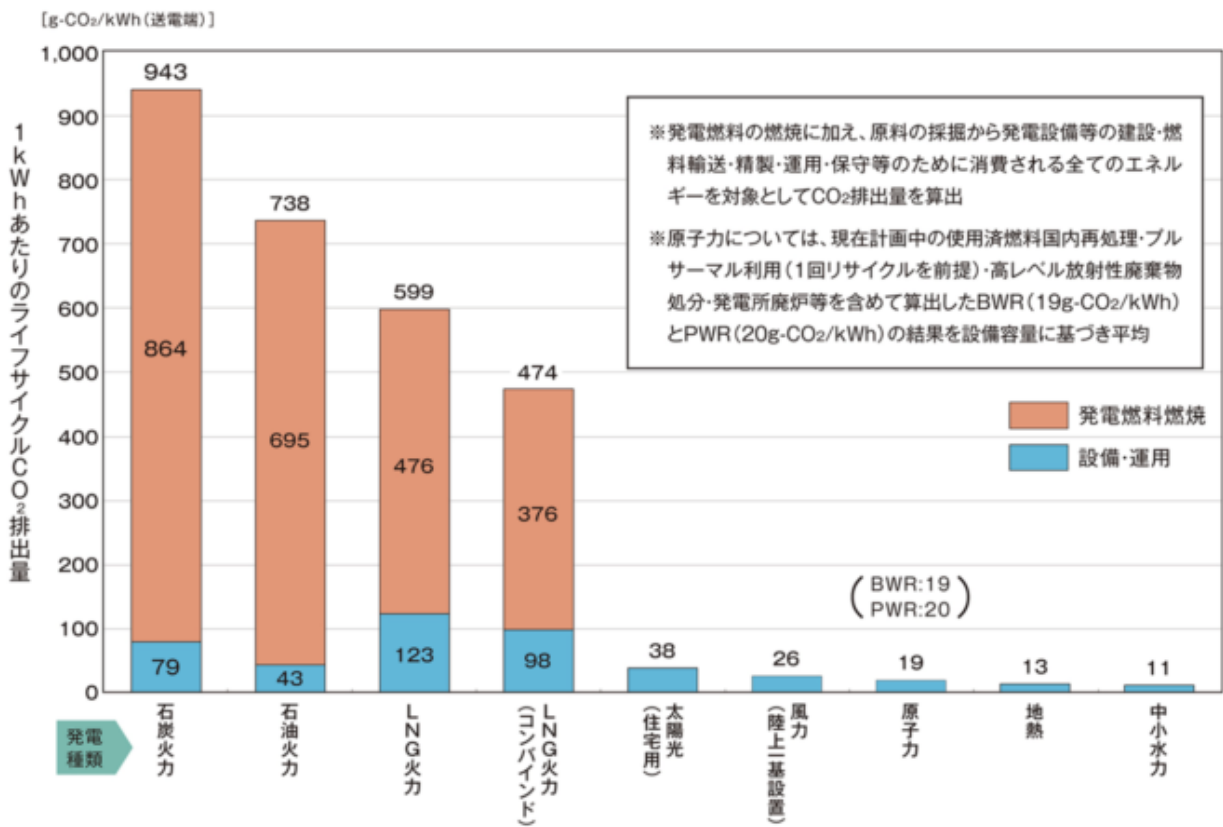
2022
Carbon intensity, Worst Scenario



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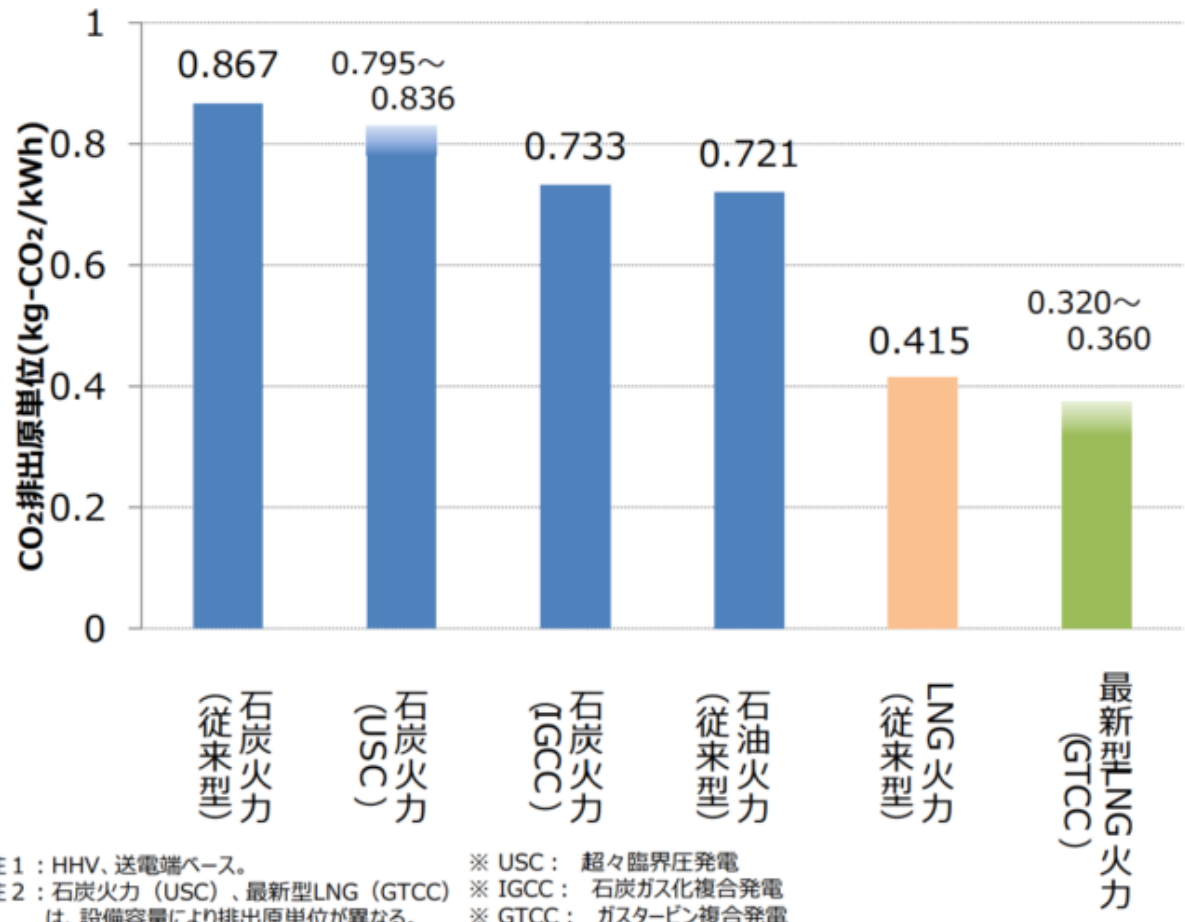
??1kWh??245??2016????????????????????????
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CO2 9

1kWh 245 CO2 2022 LNG CO2 1kWh 320 360



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jetcityimage/iStock

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NickS/iStock

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Nobel Physics Laureate 2022 Slams ‘Climate Emergency’ Narrative as “Dangerous Corruption of Science”

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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??

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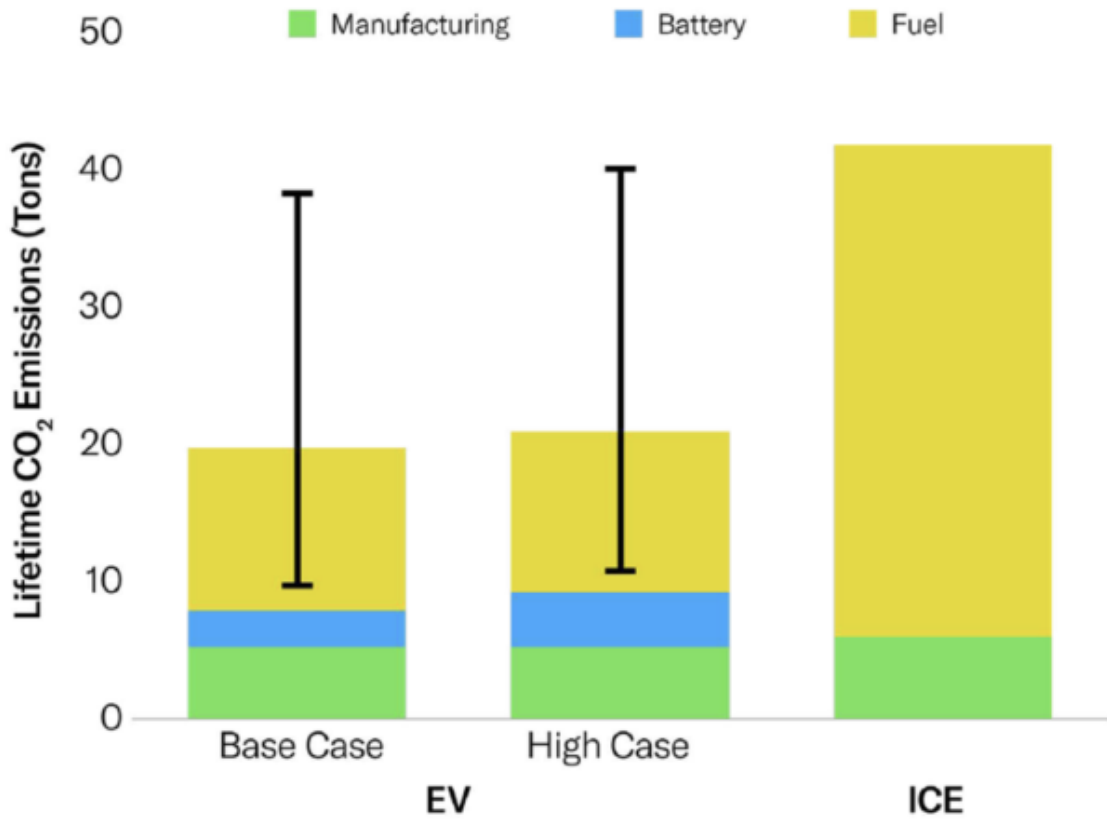
?????2??????CO2????????EV????CO2????????????????????

??1?CO2

??BEV????ICE????????????CO2????????????????

Figure 3

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



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

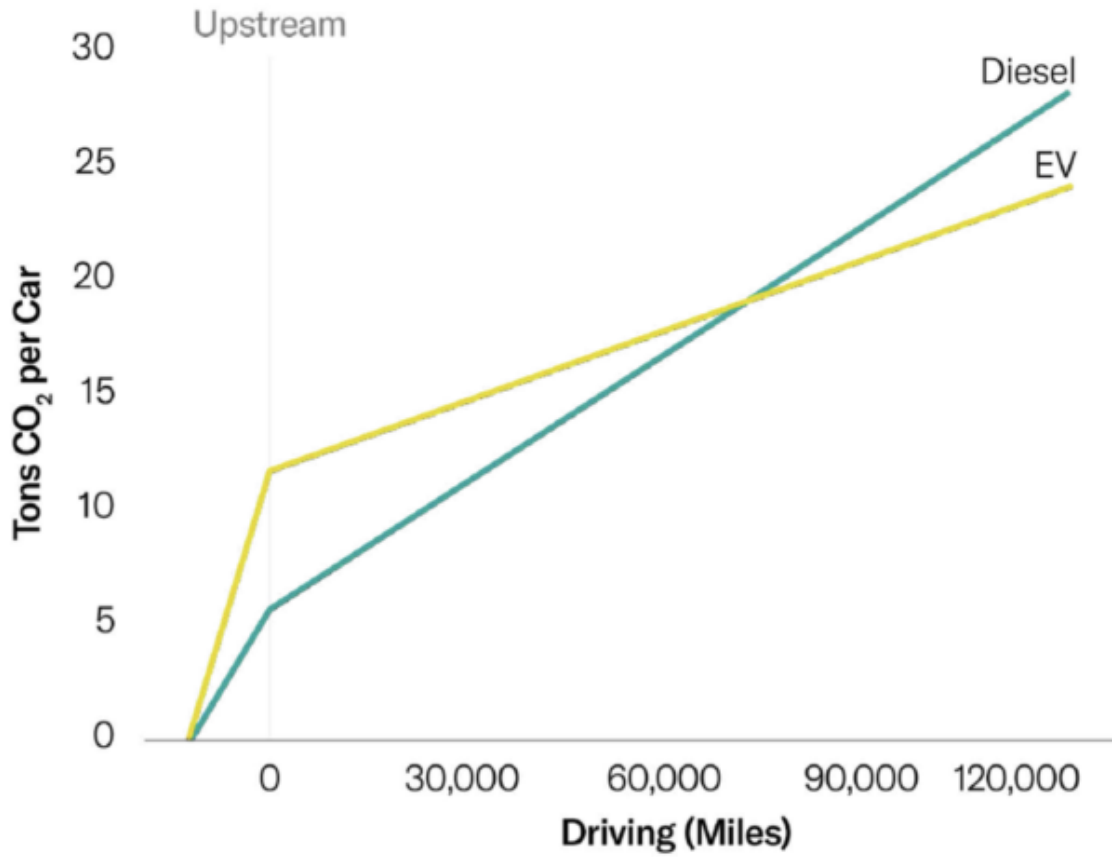
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????IEA??
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????????ICE?EV????????CO2????????????6????????????????????????EV????CO2????????????????
??EV????????????

Figure 4

Life-Cycle Emissions: Volkswagen EV vs. Diesel



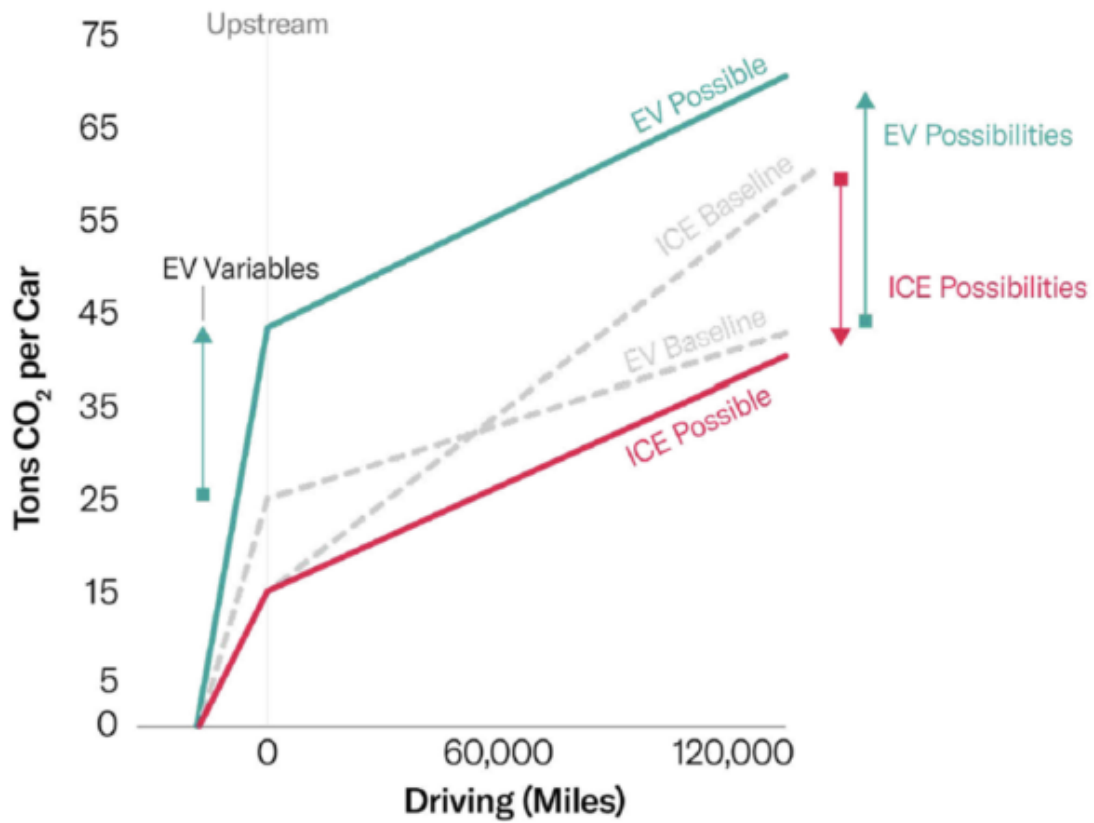
Source: Maciej Neugebauer, Adam Żebrowski, and Ogulcan Esmer, "Cumulative Emissions of CO₂ for Electric and Combustion Cars: A Case Study on Specific Models," *Energies*, Apr. 6, 2022

????????????????EV????????????????EV????CO2????????????????????????????????ICE????????????
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?EV???ICE???CO2????????????????????????????????

Figure 6

EV vs. ICE CO₂ Emissions: Scenarios with Known Unknowns



Source: Author's calculations from multiple data sources in this report; see Appendix

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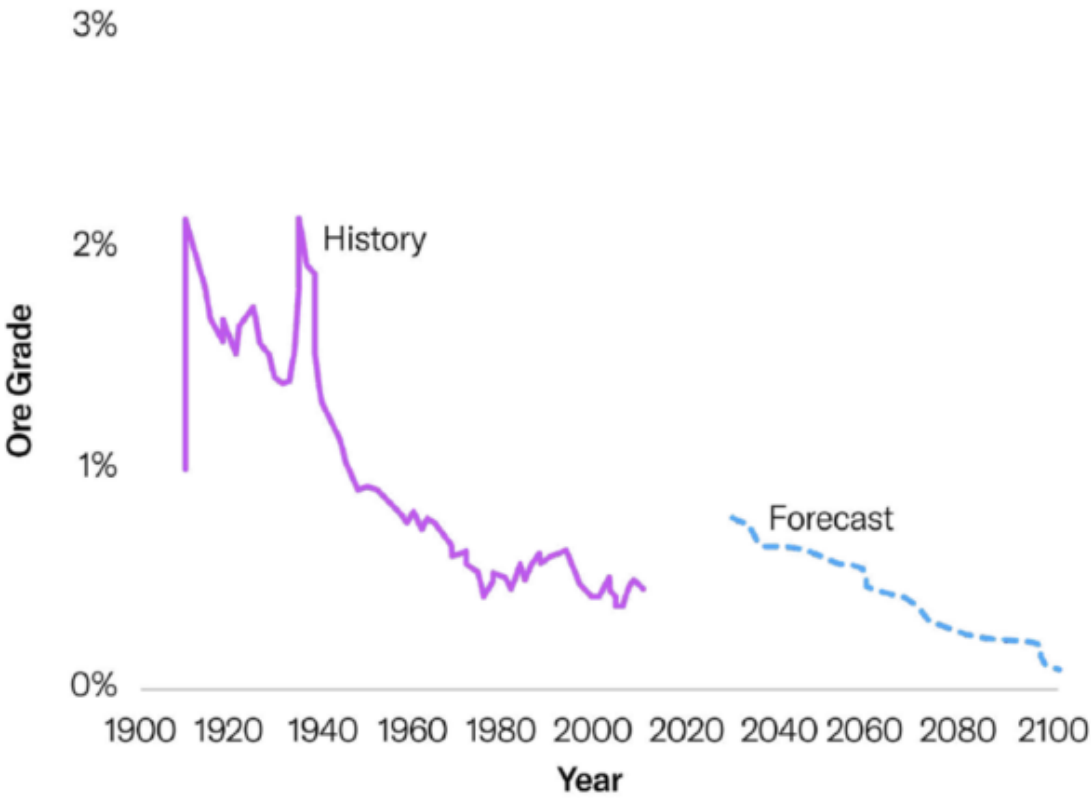
CO₂?????????1????????????????? EV??ICE????????????????????????????????????

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Figure 8

Two Centuries of Global Copper Ore Grades



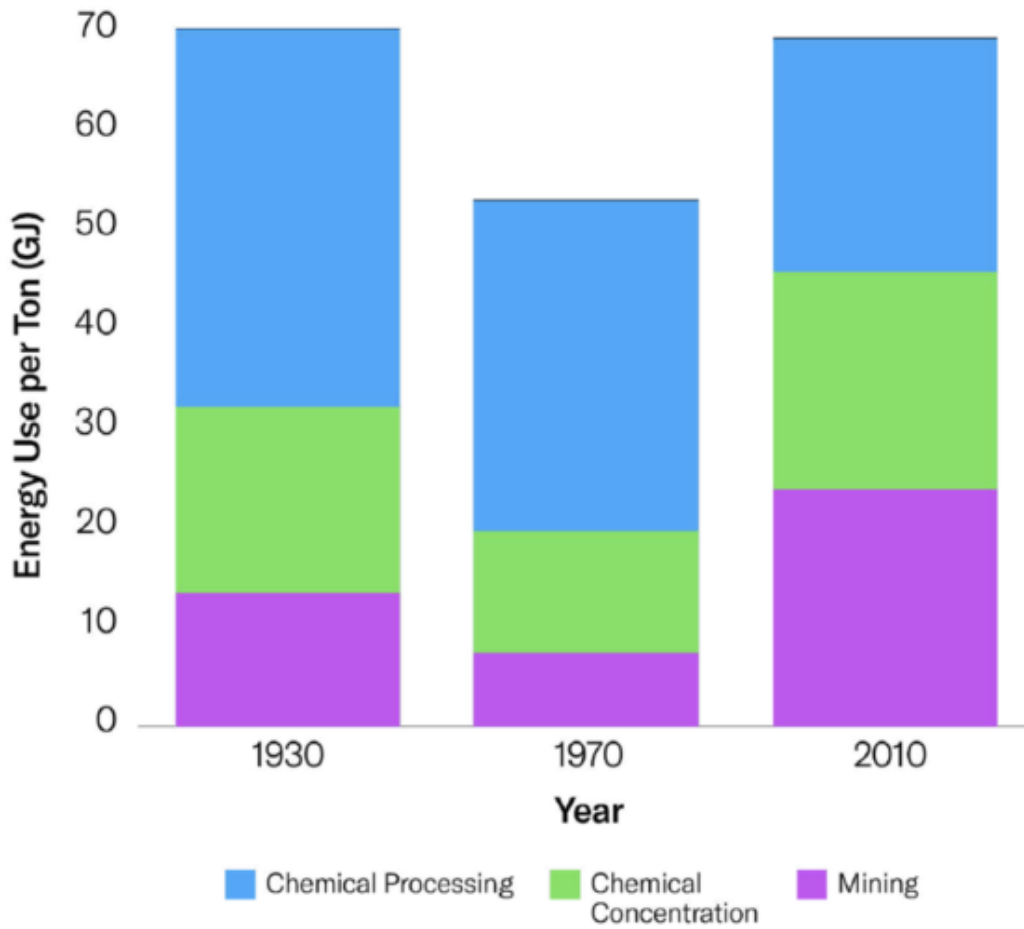
Source: S. Northey et al., “Modelling Future Copper Ore Grade Decline Based on a Detailed Assessment of Copper Resources and Mining,” *Resources, Conservation and Recycling* 83 (February 2014): 190–201

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concentration??BEV????
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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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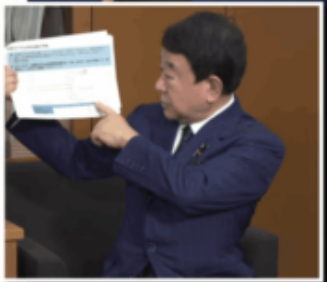
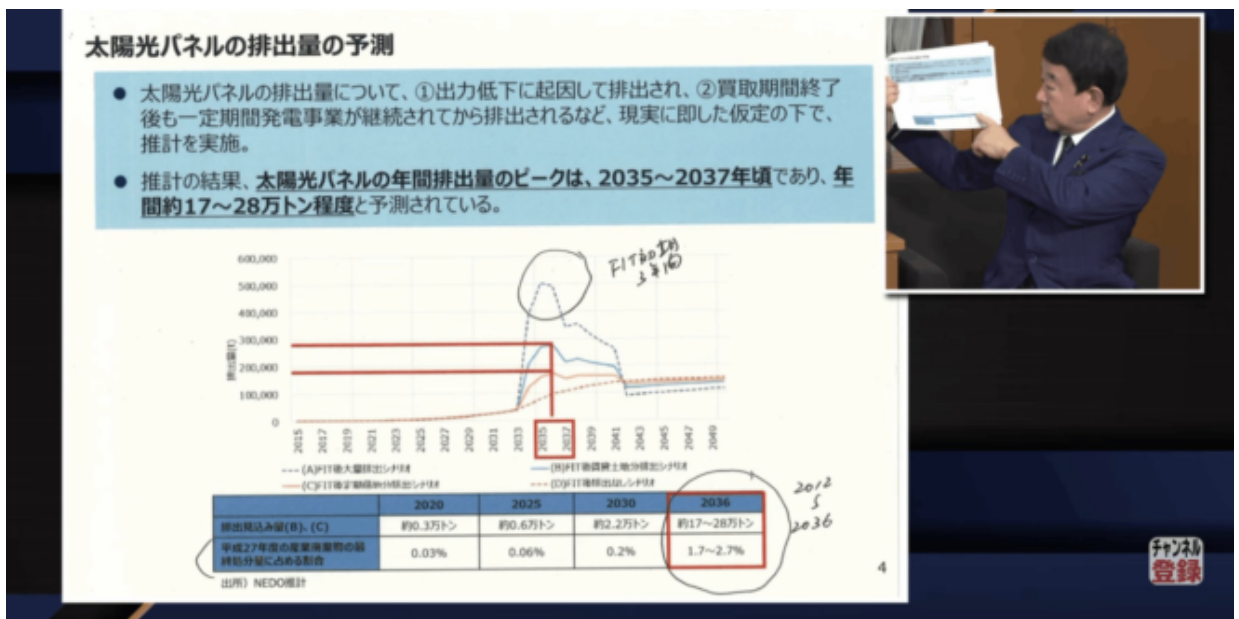
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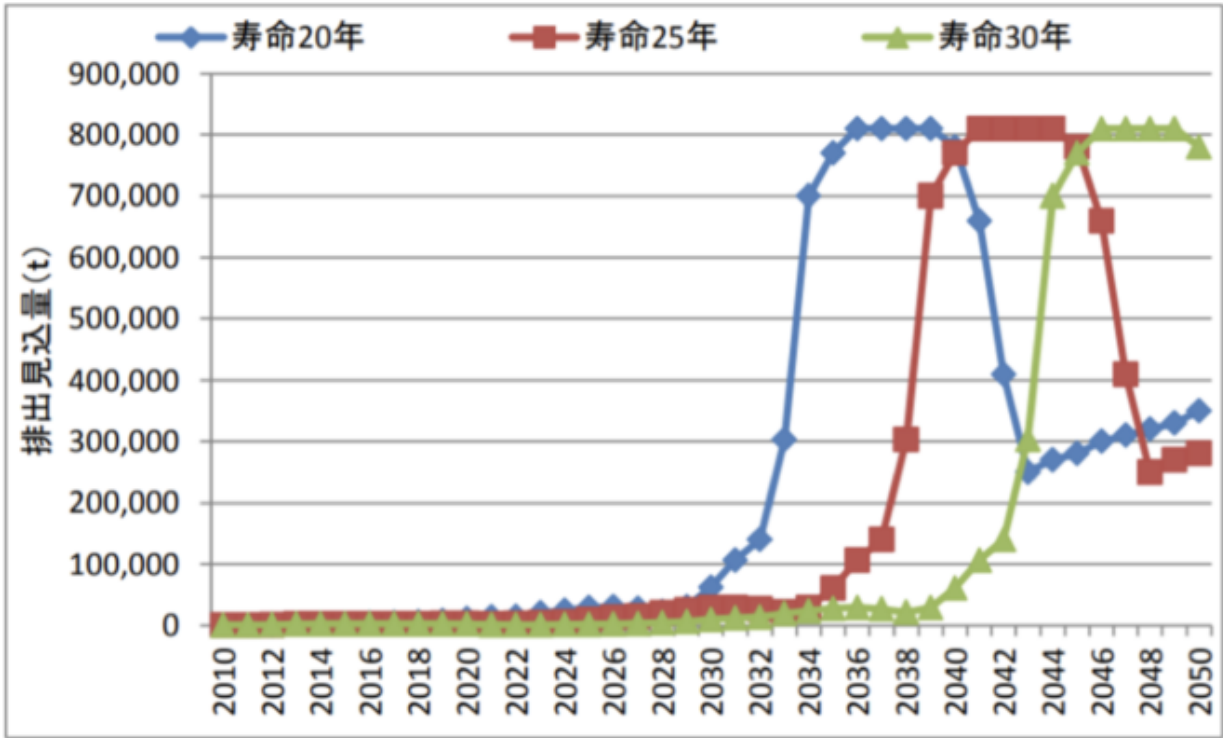


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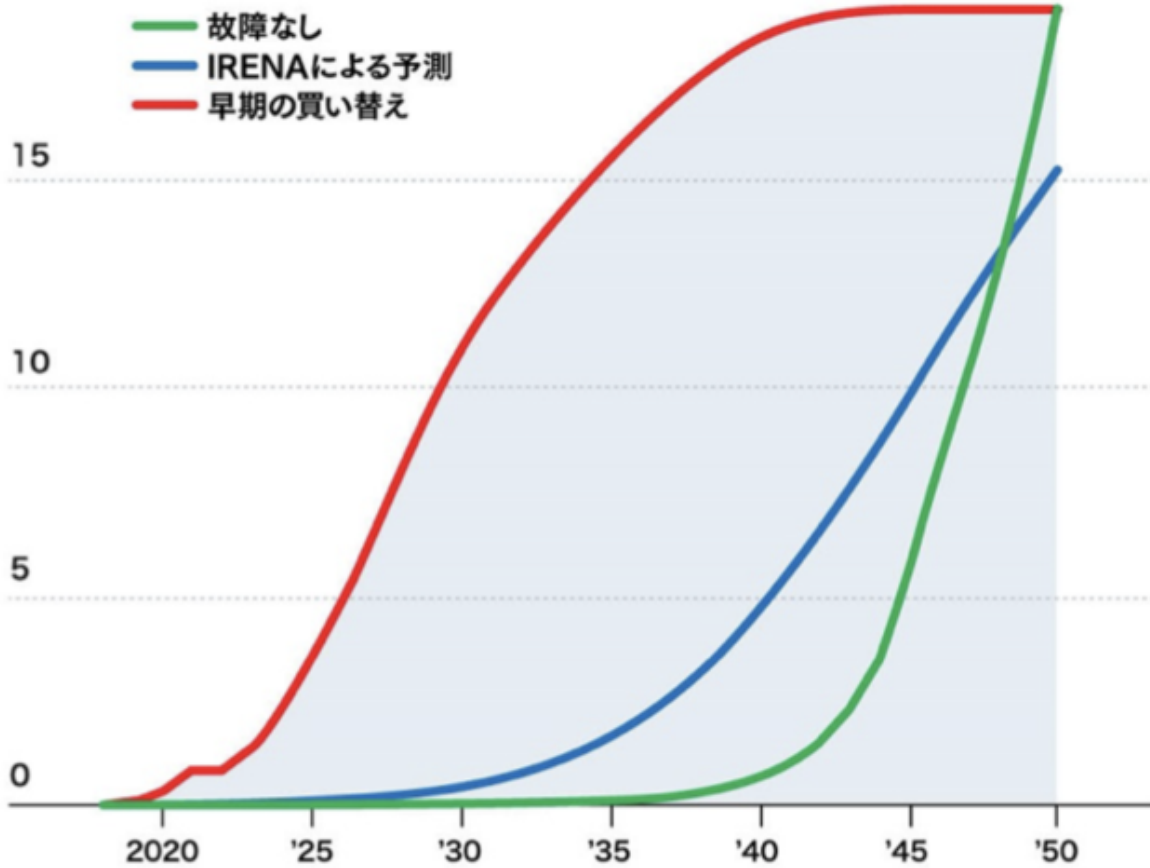
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廃棄物の累計
 (発電容量ベース)

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Pixelci/iStock

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?? ?? · Tuesday, July 4th, 2023



xijian/iStock

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

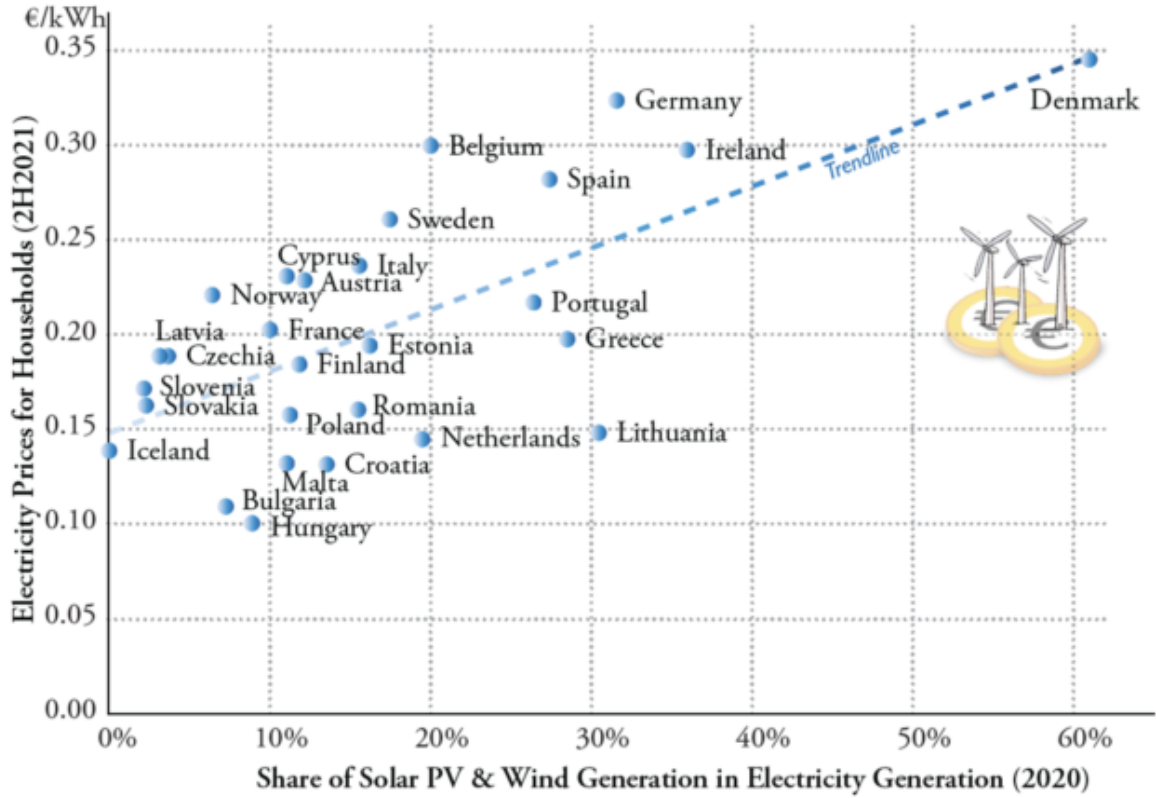
A Critical Assessment of the IEA’s Net Zero Scenario, ESG, and the Cessation of Investment in New Oil and Gas Fields.

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Figure 46: Solar and Wind Penetration and Electricity Prices in Europe

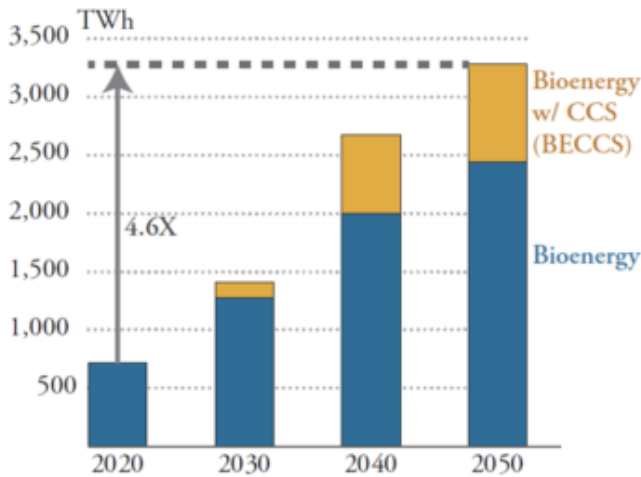


Source: Energy Policy Research, Eurostat, IEA

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IEA?NZE??2050??
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Figure 23. Bioenergy for Electricity Generation in NZE



Source: IEA, Net Zero by 2050 (2021)

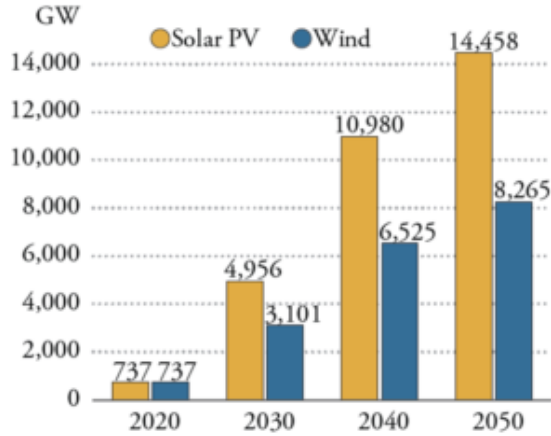
Figure 24. Global Land Requirements for Bioenergy for Electricity Generation in NZE



Source: Energy Policy Research. Land requirement calculations made using FreeingEnergy.

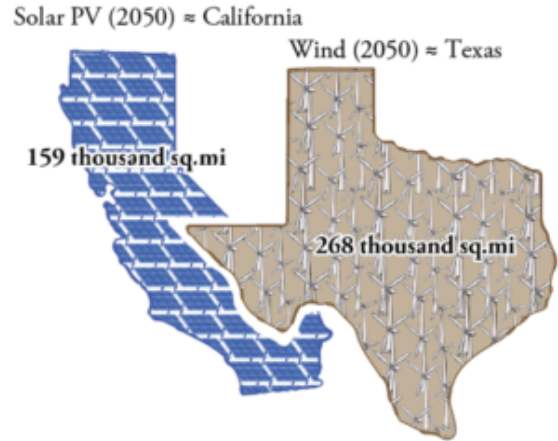
Batt Odgerel, Lucian Pugliaresi, Michael Lynch 38

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

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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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PV???1??
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????????COP28????????????????????

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CHUYN/iStock

????????G7????????????????????

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- 2025?????GHG?????2050?????10?????
?????IPCC?????2030?43%?2035?60%?????
- 2030?NDC?????GHG?????LTS?1.5?????2050?????
?????COP28?????2030?NDC?????2050?????

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?????G20?????1?30?12?12?COP28?????G7?????
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2030?45?????10?????
COP27?????LMDC?????

COP28?????GST?????GST?????
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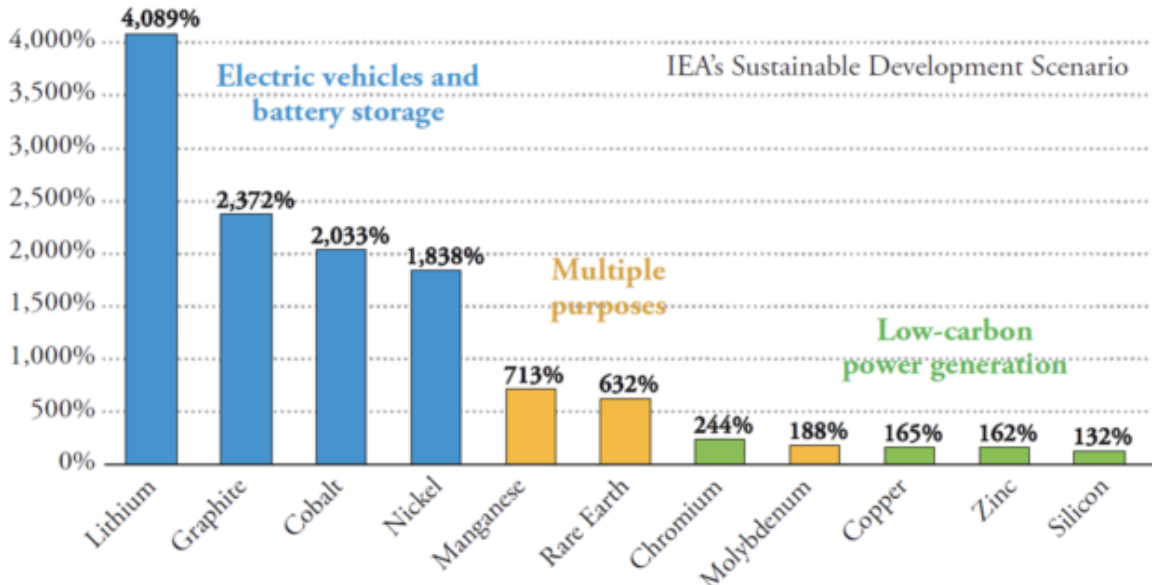
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????????????????????????????????(IEA)????????Net Zero Scenario, NZE????????????

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

????????EV????????????????????????????????????2020????2040????20????????????????????
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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

EV??7000????????????????
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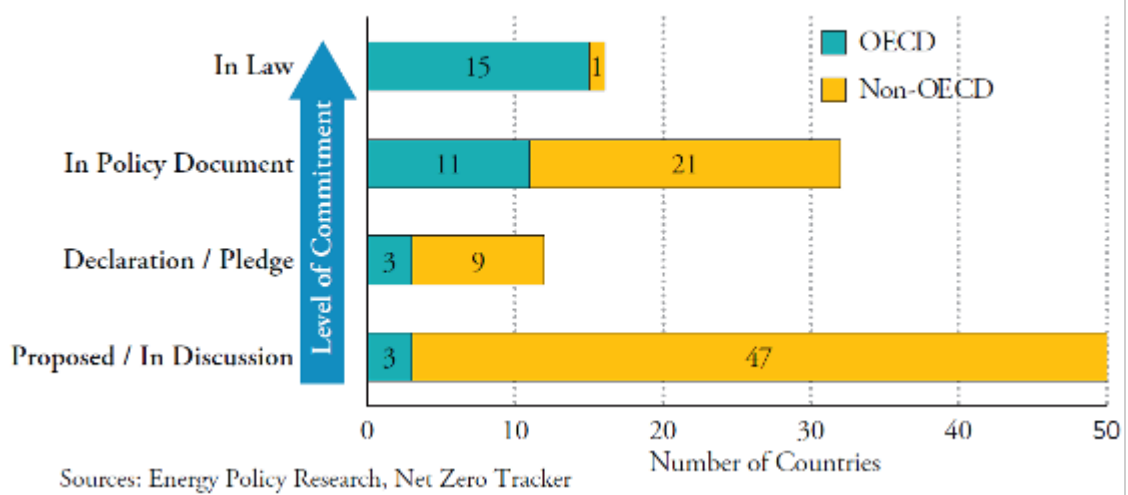
A Mokhtari/iStock

IAE 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.

OECD 2050

Figure 49. Two-Speed Transition: Net Zero by 2050 Level of Commitment

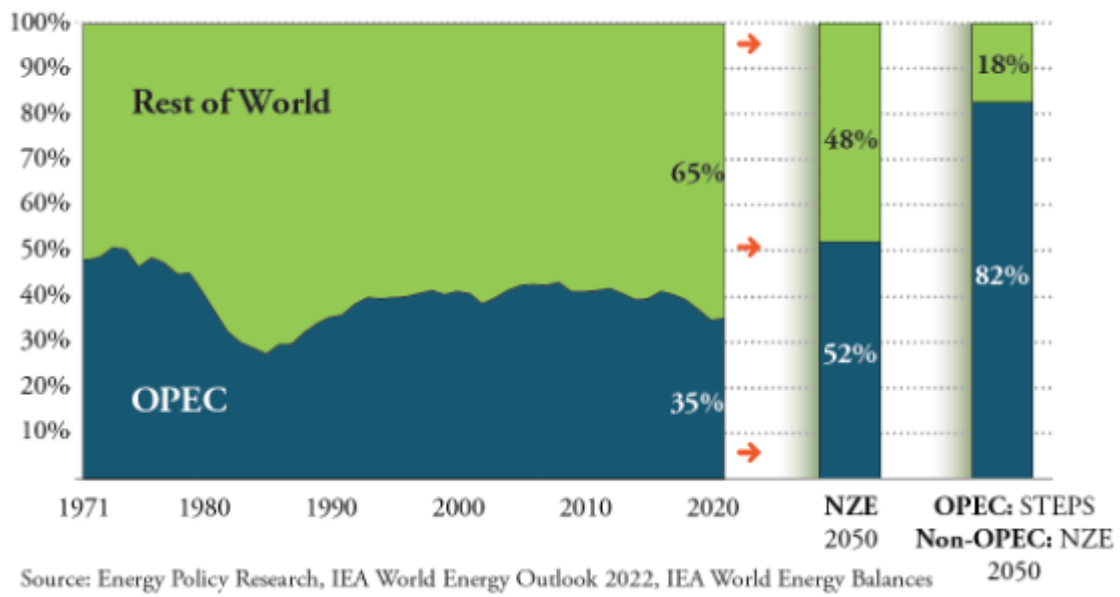


IEA NZE OPEC 35% 52% 1973

NZE OPE C

OPEC NZE OPEC NZE STEPS OPEC 82%

Figure 17. OPEC Share of Global Oil Production

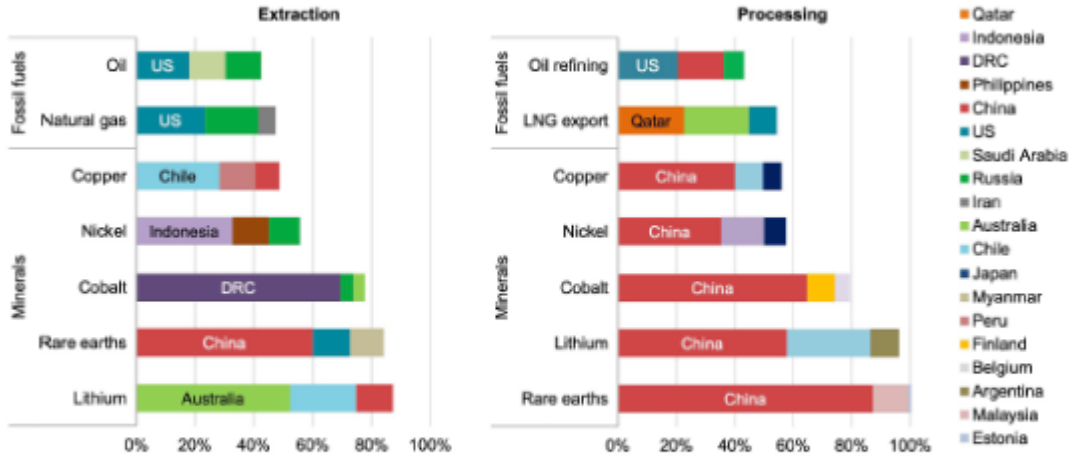


??OPEC??

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



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

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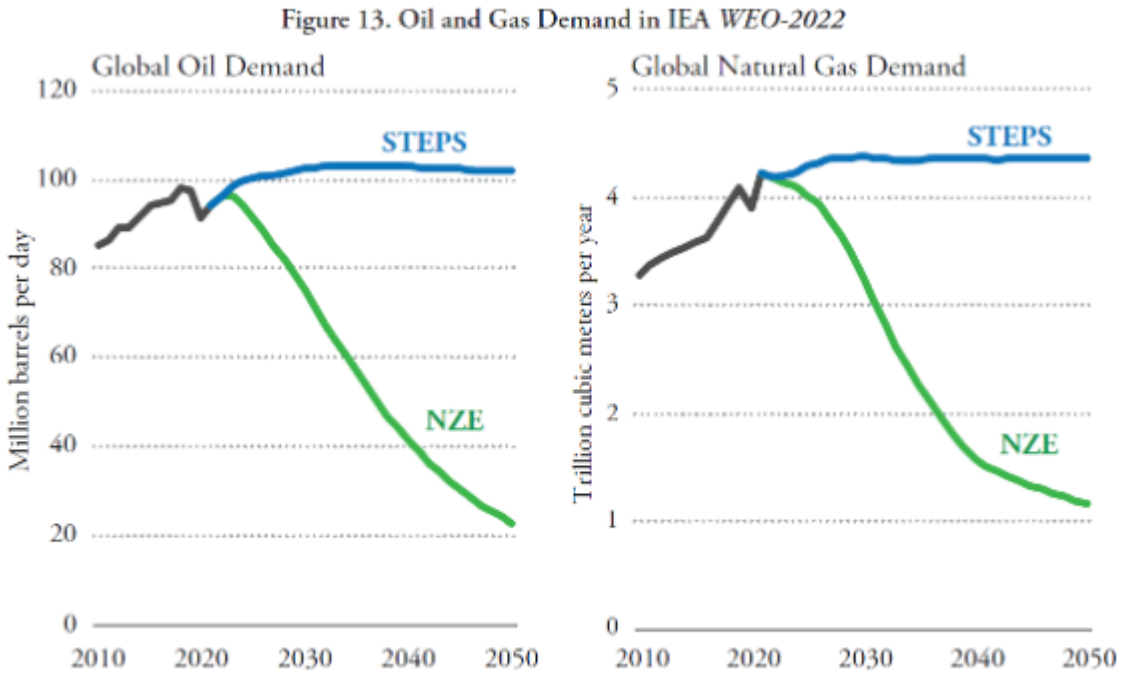
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????????IEA????????Net Zero Scenario, NZE????????

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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.

????????NZE??2050????CO2????????STEPS????????
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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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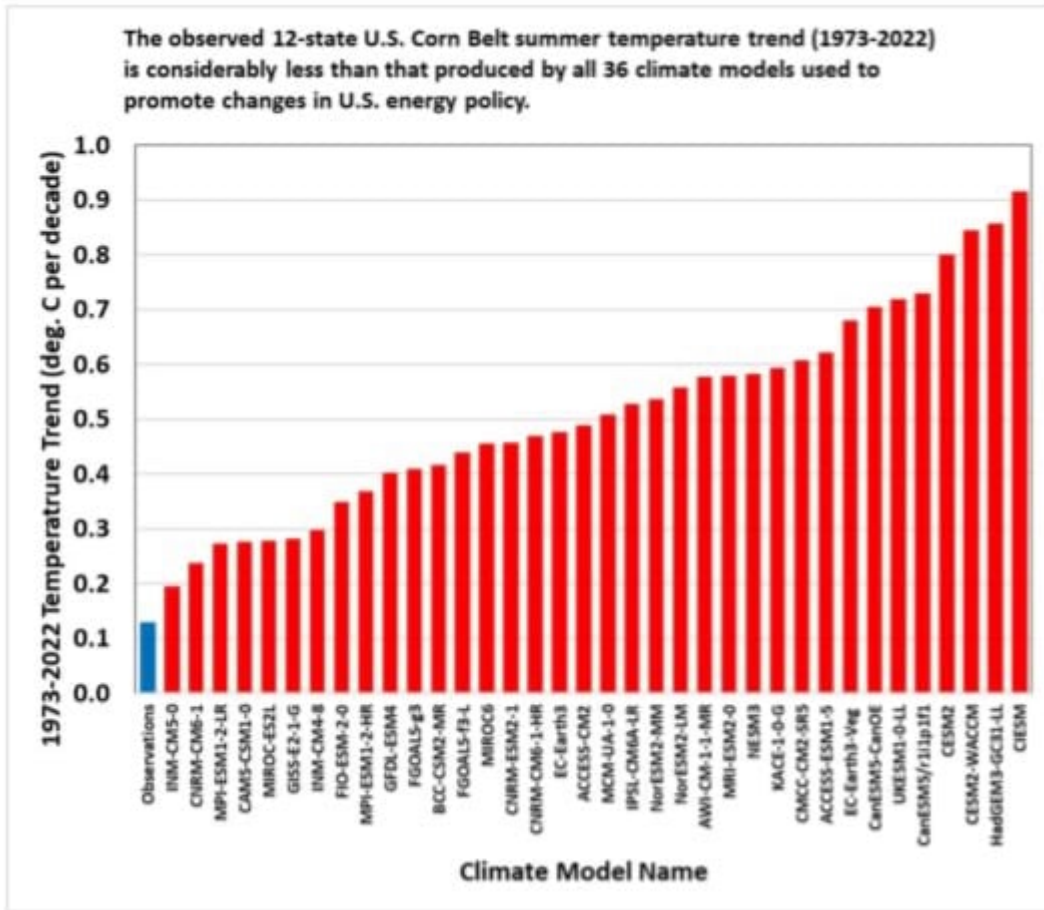
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feellife/iStock

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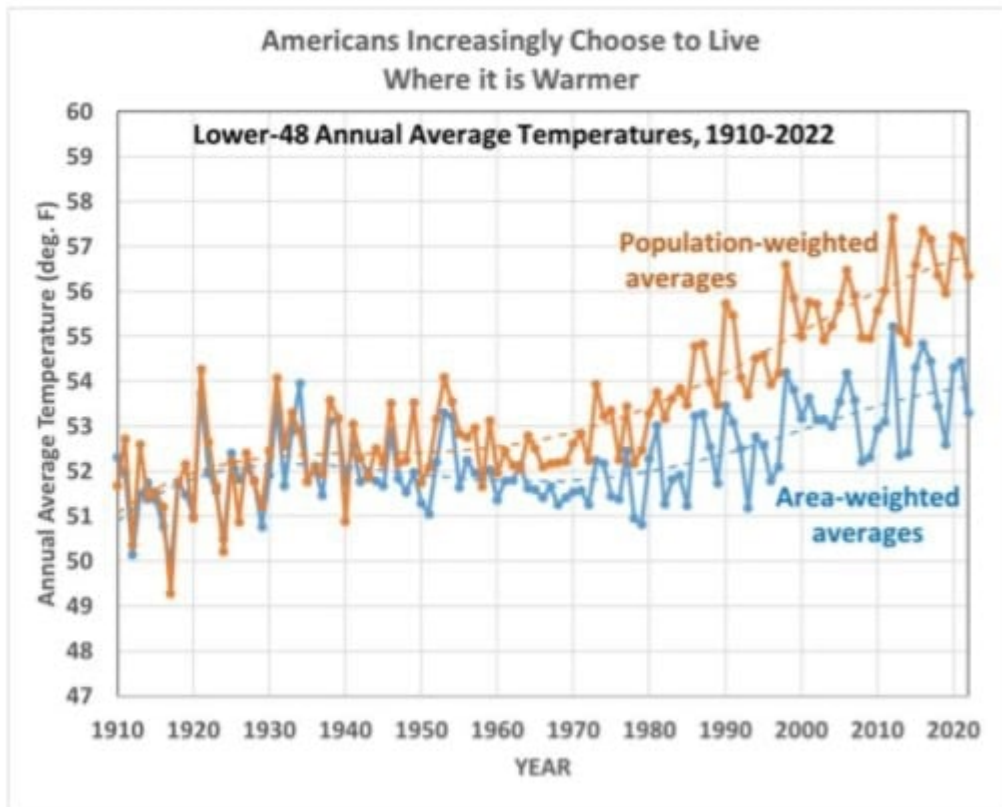
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