Global Energy Policy Research | GEPR

GEPR???
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?? ? · Monday, July 31st, 2023

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

IPCC AR6??????“???”????

?? ?? · Sunday, July 30th, 2023

??6?23??????IPCC??
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NicoElNino/iStock

AR6??COP26??????????????????????2?????1.5??????????????????IPCC????????????2014???5????
?AR5????2021?????????1.5??

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???AR6-SPM?TableSPM.1?????2???????????????????????????GHG?????2050??2019??64?????????2030??21??????????????????????2070??????????????Table

SPM.1?1.5?????????????????2030?43??2050?84??????????????????????????????[22?]?

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?1?AR6-SPM?B5.2????????1.5??

?2????????GHG??????CO2???????????1.5????2050?99????2030?48????????????30????50??????????????

?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.”

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?? ? · Saturday, July 29th, 2023

BrianAJackson/iStock

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Posted in ???, ????? | No Comments »

??????CO2???????????????????

?? ?? · Thursday, July 27th, 2023

JaCZhou/iStock

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

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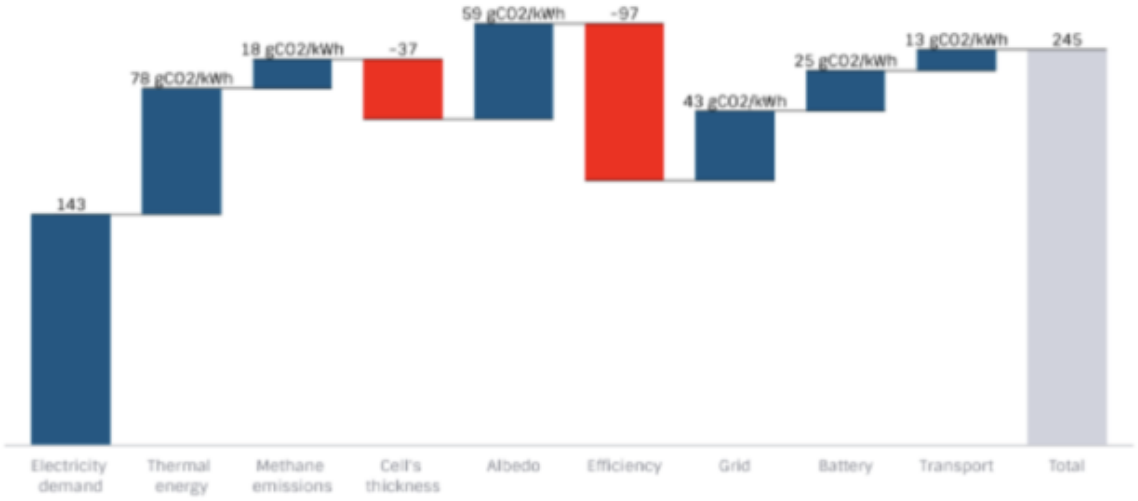
2022

Carbon intensity, Worst Scenario



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?245???????

??1kWh???245??2016?????????????????????
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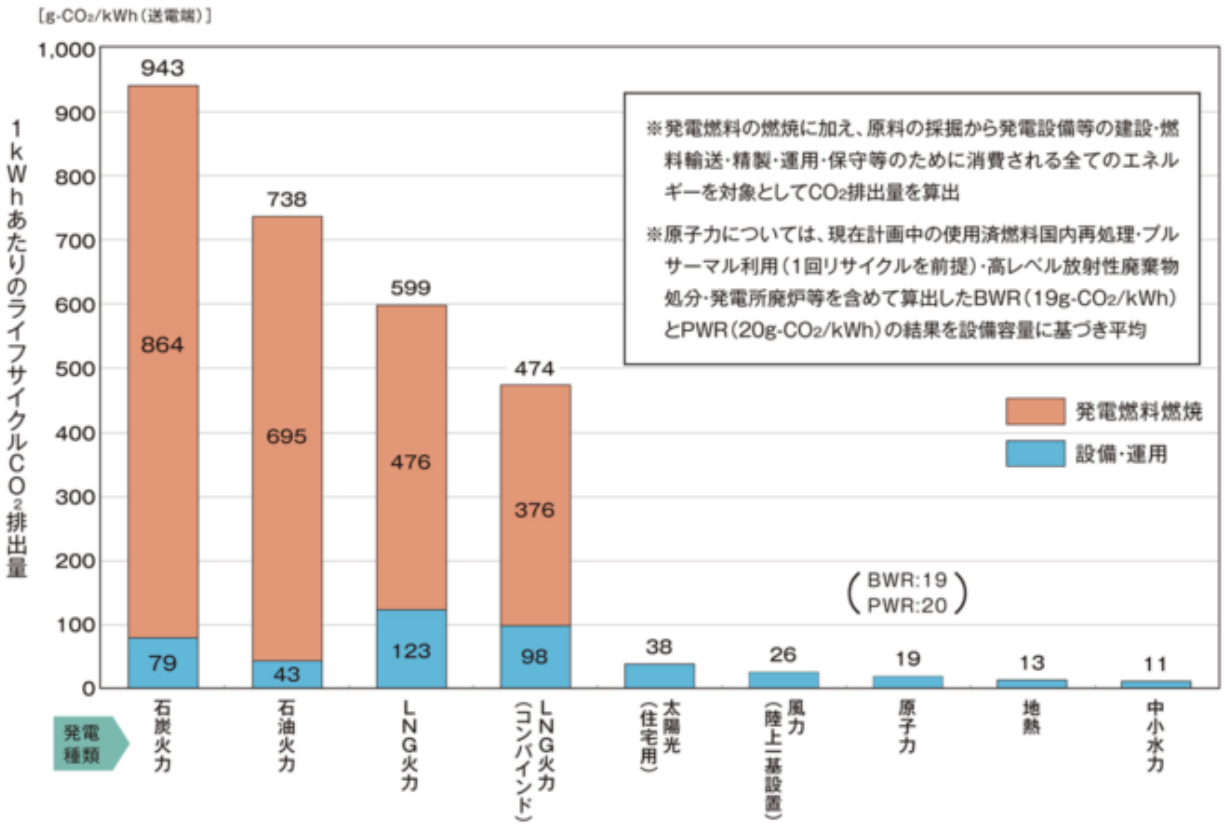

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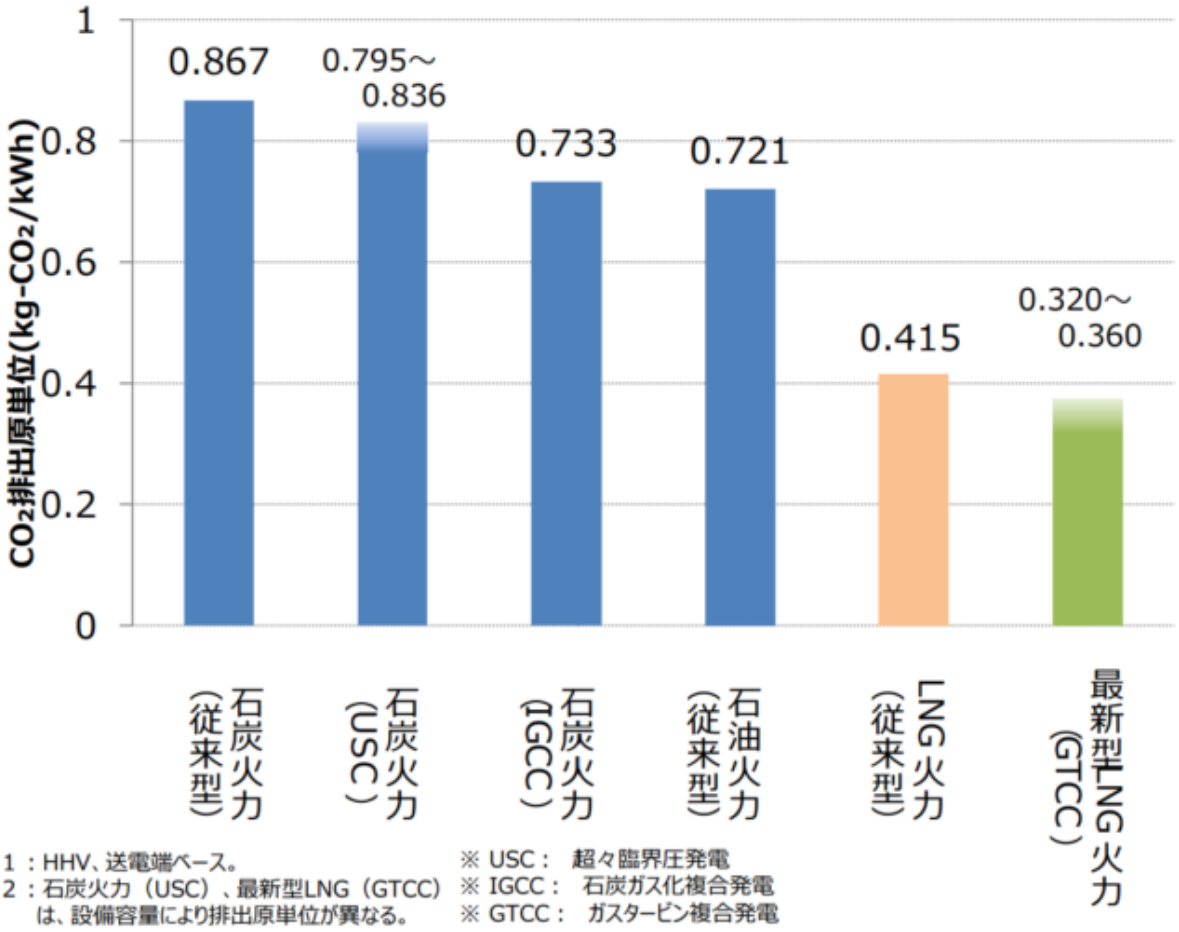
1kWh???245????CO2????????????????????????????????2022????????????????????????????????
??LNG??????????CO2??????1kWh???320??360?????????????3??



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Posted in ???, ????? | No Comments »

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?? ?? · Friday, July 21st, 2023

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EV????????????????????????????????

jetcityimage/iStock

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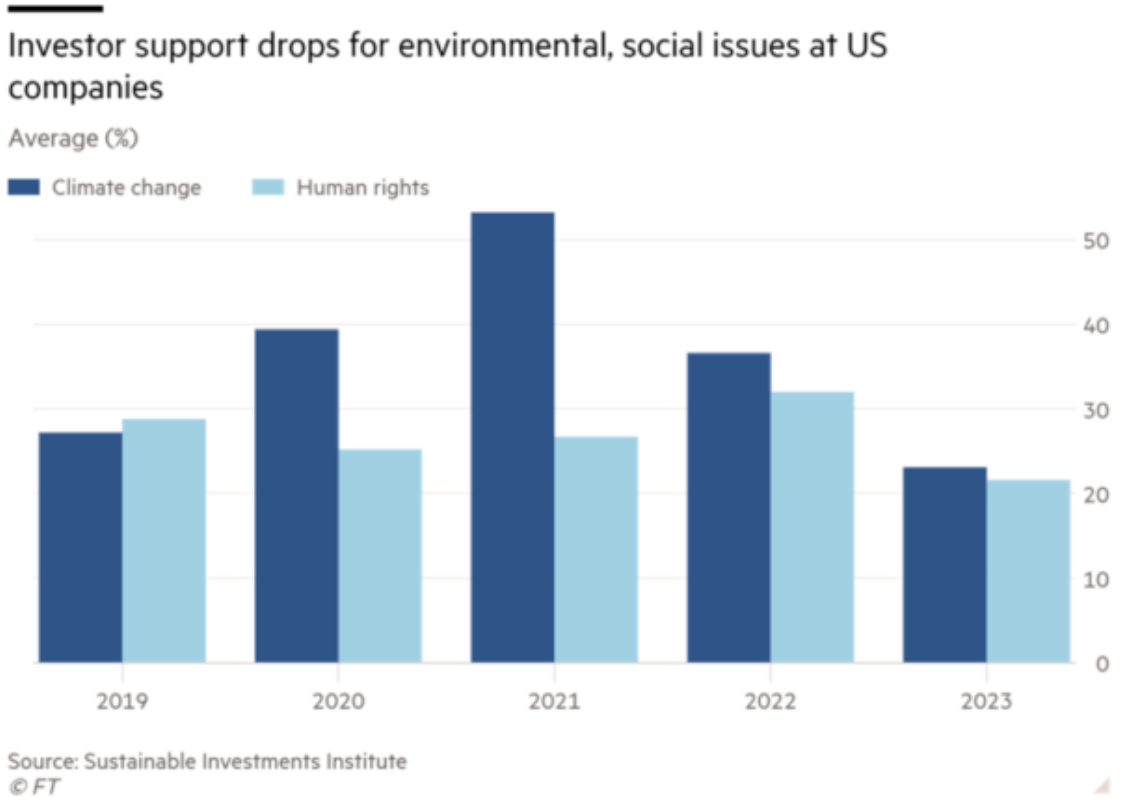

FINANCIAL TIMES??

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4?12??EPA??2032??????????????????????67??EV??????????????????50??????????????35??????????????25??EV????????

?????EPA???67???????????EV??

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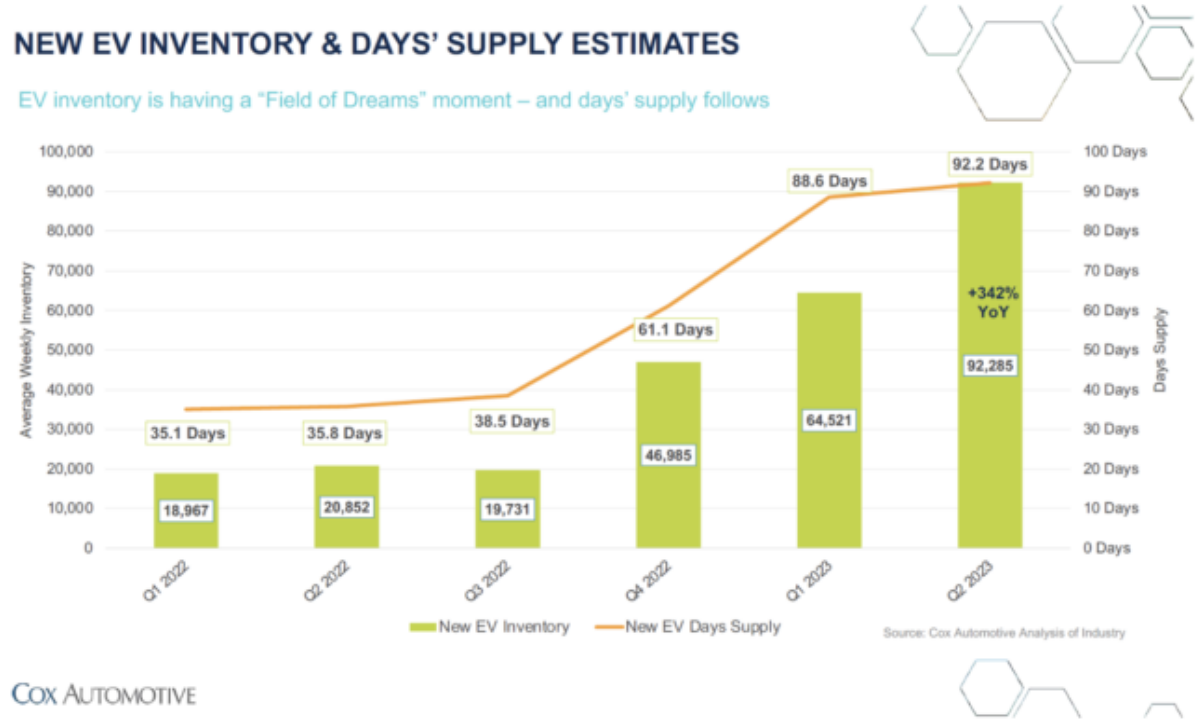
2023 Cox Automotive Mid-year Review???????2023???2??????????????????????????????92,000??????????2022????2?????????342% ????????



EV??????????????????

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

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?? ? · Thursday, July 20th, 2023

??G7??COP??

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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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??????????????????BEV????????????????????????????????ICE????????????????????????????????BEV??????
?????????ICE???????????HEV????????????????????????????????

> EV??ICE????EV????????????????????????

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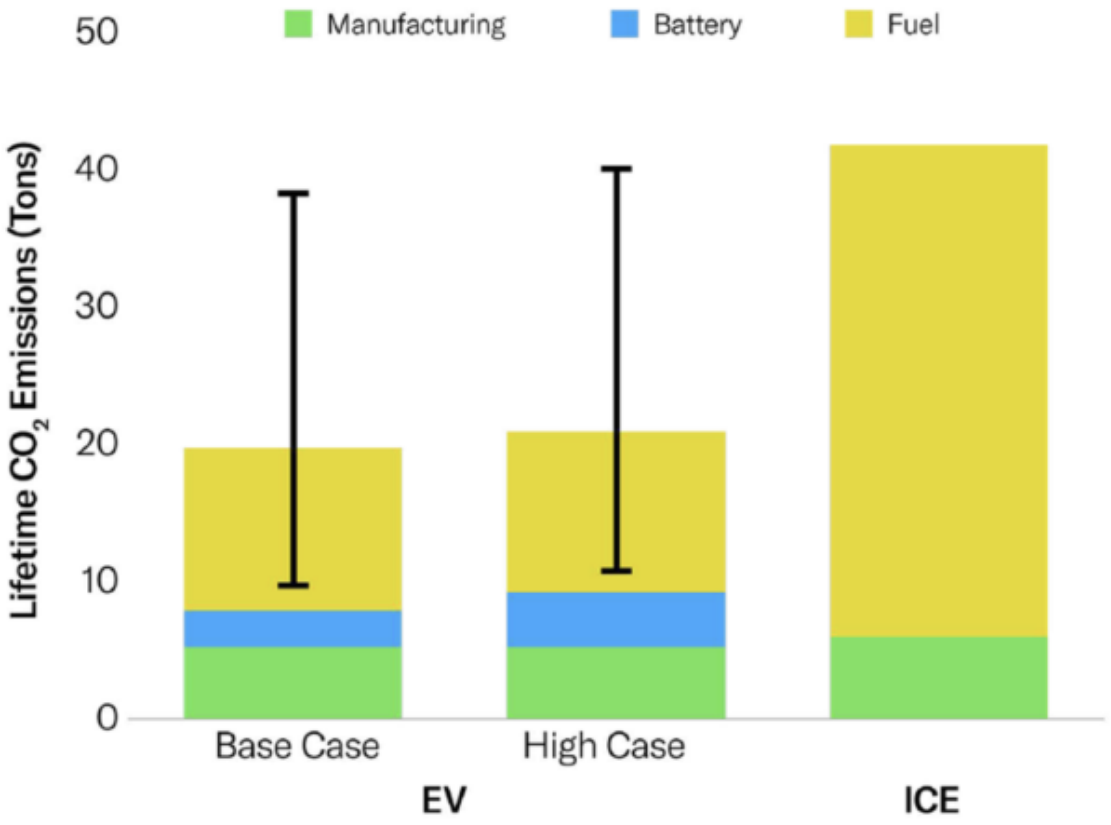
??1?CO2

??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????????????????????????????????????NZE??
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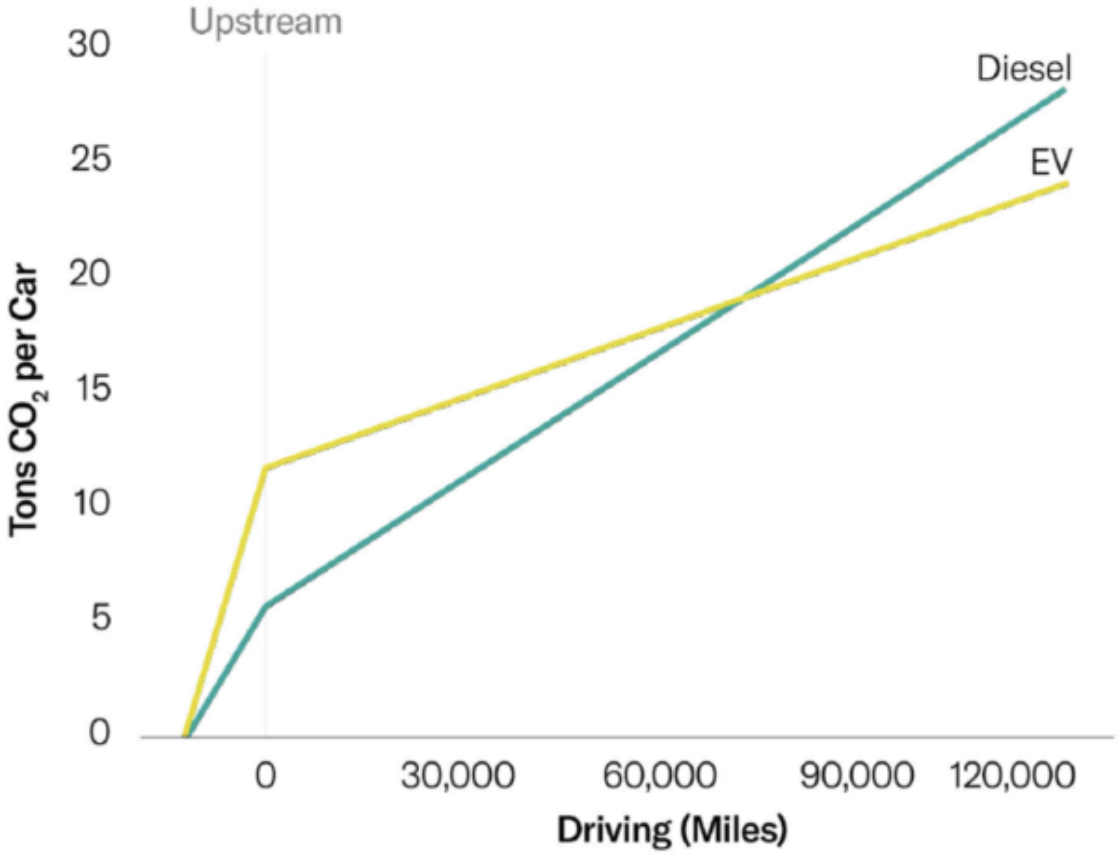
?????????ICE?EV????????CO2??????????6????????????????????EV?????CO2????????????????????
???EV?????????????

Figure 4

Life-Cycle Emissions: Volkswagen EV vs. Diesel



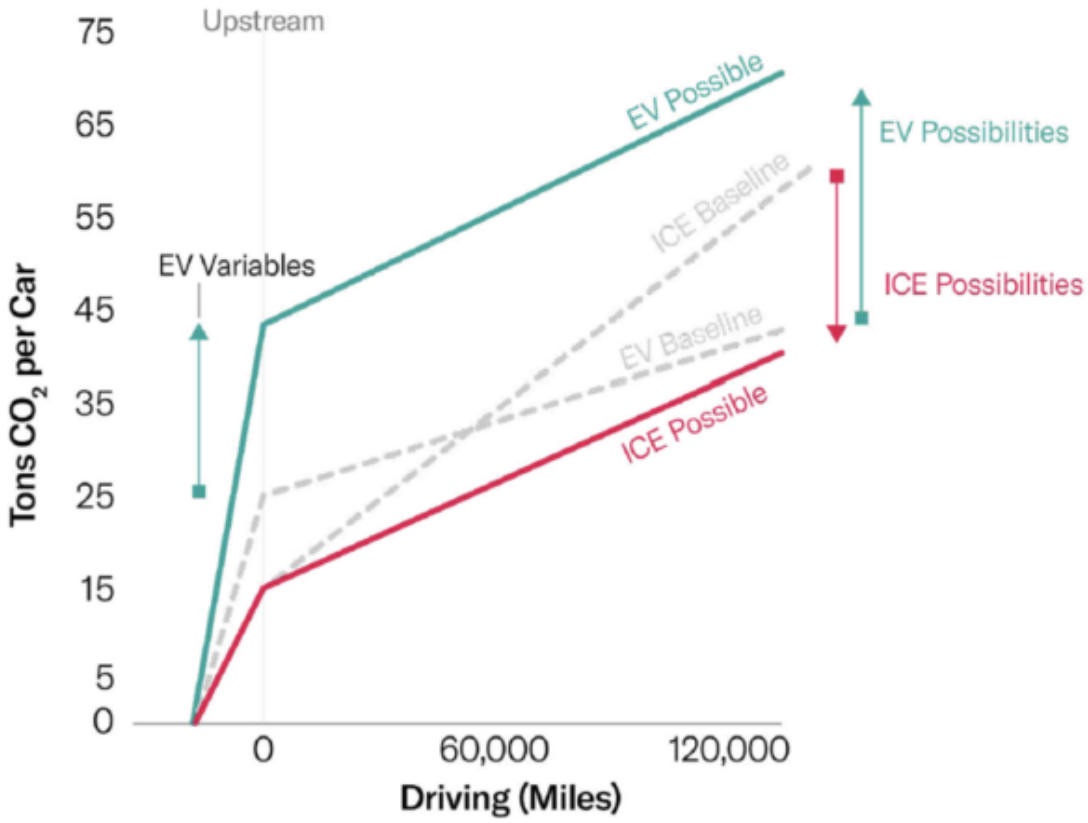
Source: Maciej Neugebauer, Adam Żebrowski, and Ogulcan Esmer, "Cumulative Emissions of CO_2 for Electric and Combustion Cars: A Case Study on Specific Models," *Energies*, Apr. 6, 2022

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

??????????????????EV????????CO2??????????ICE??????????????????????????????????12????????
?EV???ICE???CO2??????????????????????????

Figure 6

EV vs. ICE CO_2 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????????????????????????????

???1??????????????????EV??

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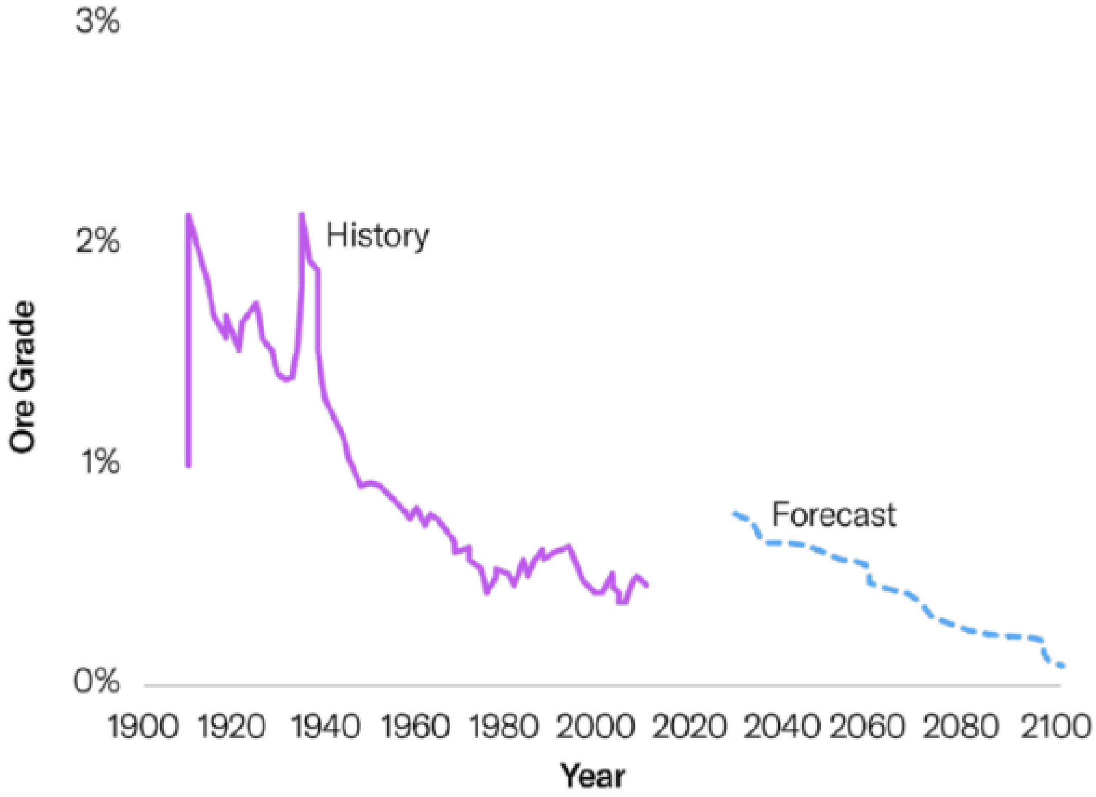
Figure 8

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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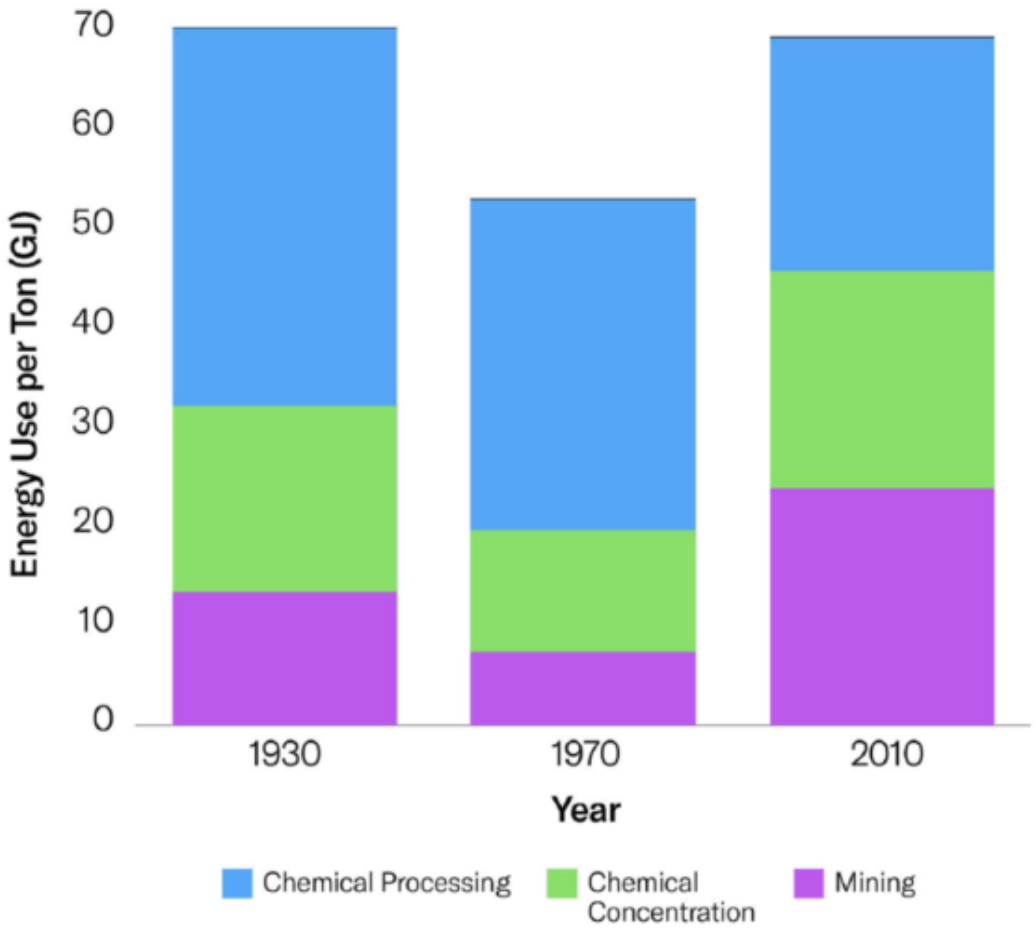
?????????????mining?????????chemical concentration??BEV?????????????????????

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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> ??ICE?HEV??????????????????
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> ??????EV??????????????????????????????????EV??????????????????ICE??EV???
> ????????????????????????CO2??????2??

> ICE??
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?? ?? · Sunday, July 16th, 2023

Douglas Rissing/iStock

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7?11???Blackout-News??

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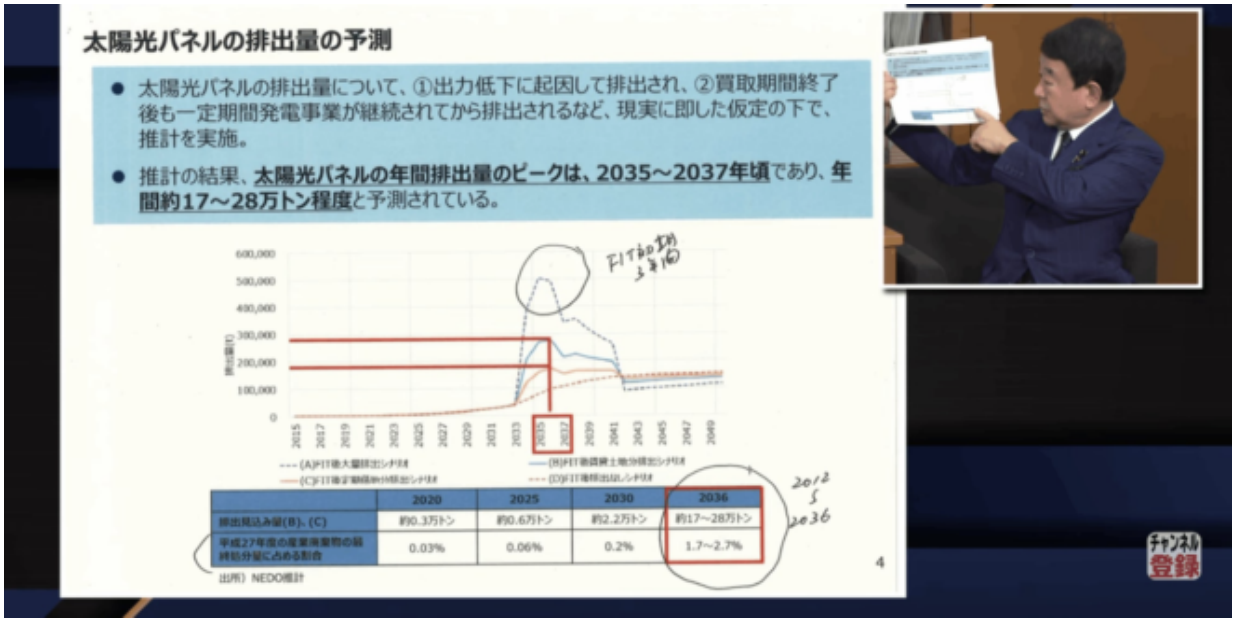

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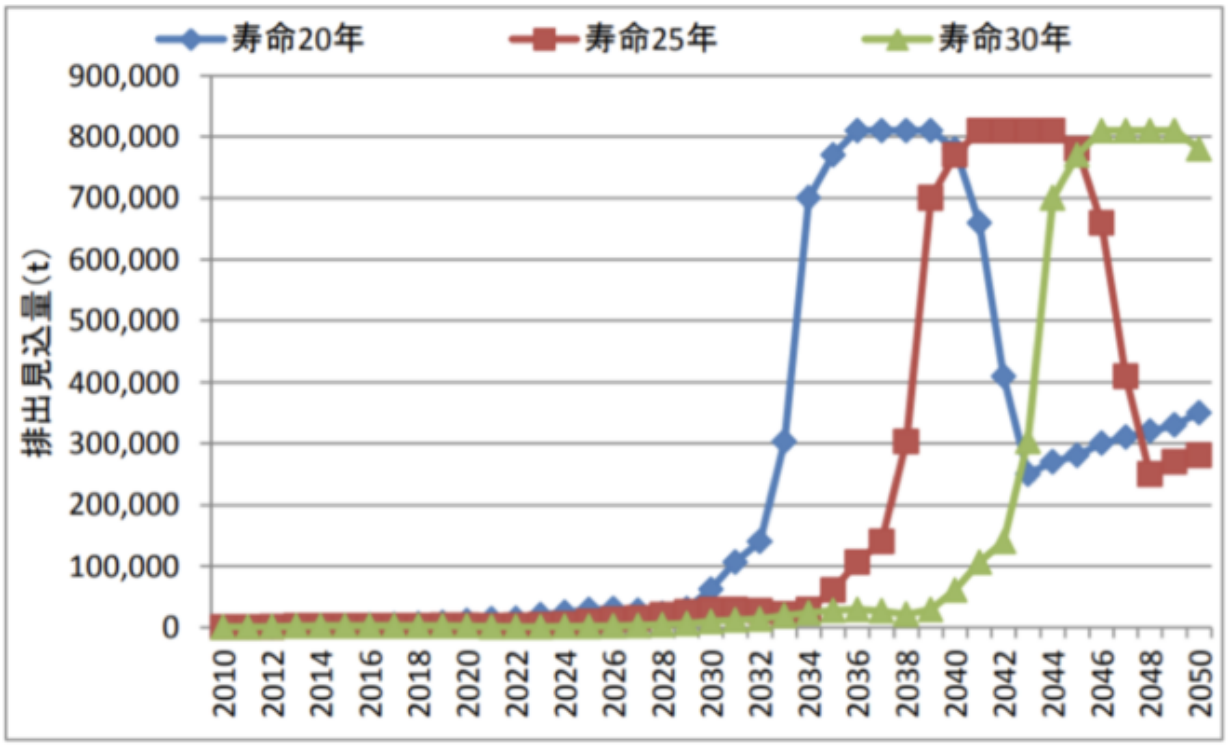
寿命20年
寿命25年
寿命30年
排出見込量(t)
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
2010
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030
2032
2034
2036
2038
2040
2042
2044
2046
2048
2050

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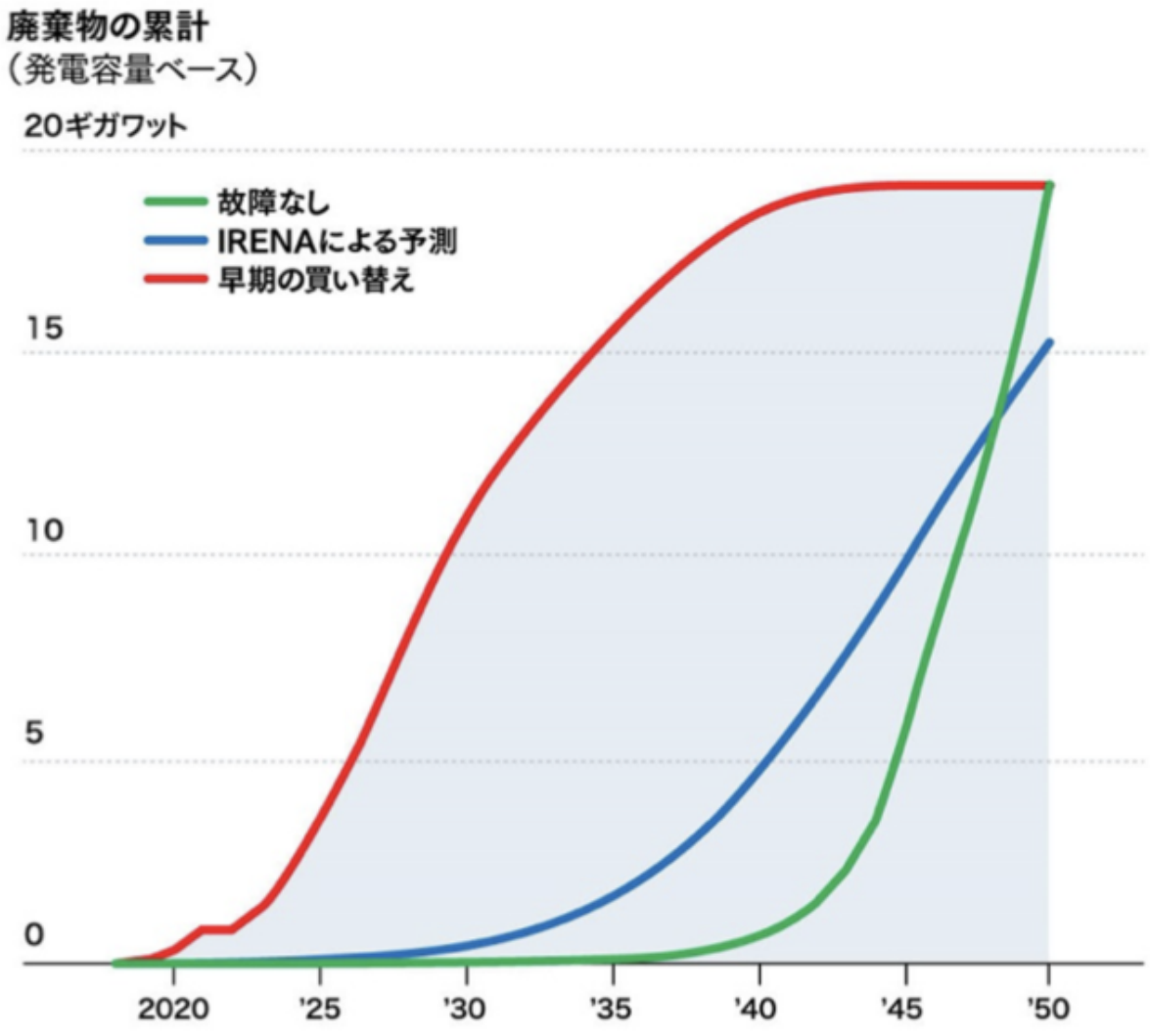
廃棄物の累計
(発電容量ベース)
20ギガワット
故障なし
IRENAによる予測
早期の買い替え
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?? ??? ?? · Sunday, July 9th, 2023

Grafissimo/iStock

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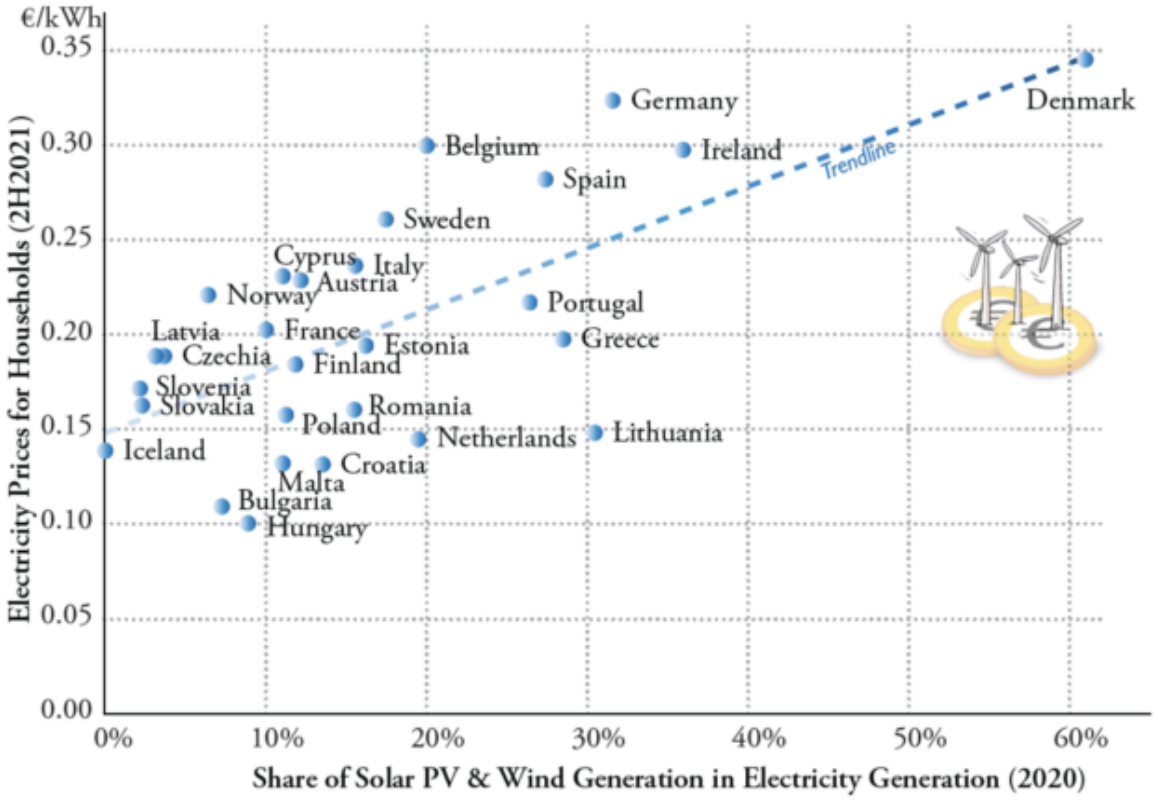
Figure 46: Solar and Wind Penetration and Electricity Prices in Europe



Source: Energy Policy Research, Eurostat, IEA

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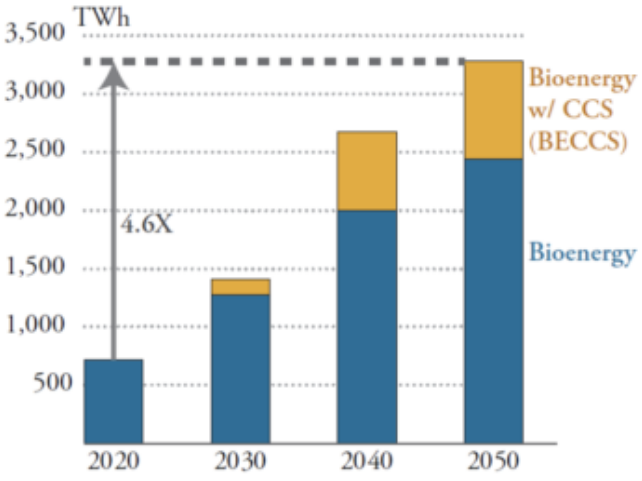
Figure 23. Bioenergy for Electricity Generation in NZE

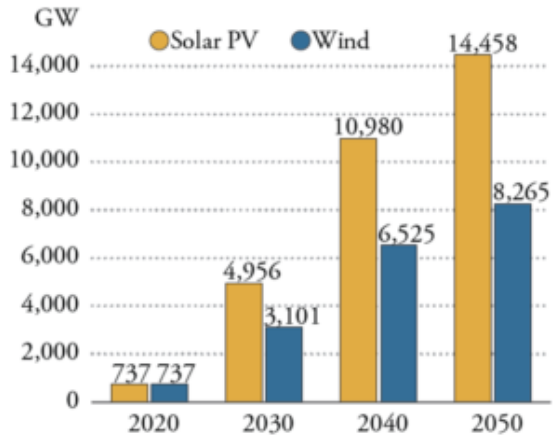


Source: IEA, *Net Zero by 2050* (2021)

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

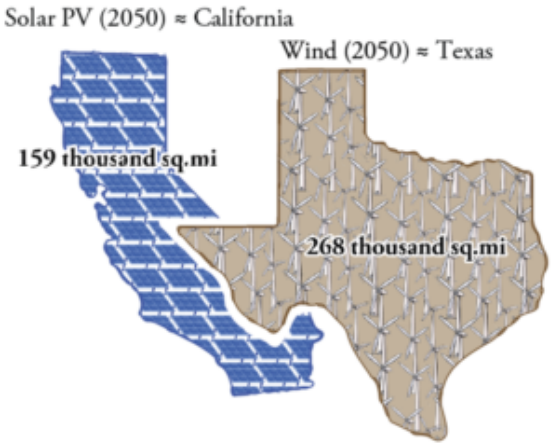
Source: Energy Policy Research. Land requirement calculations made using FreeingEnergy.

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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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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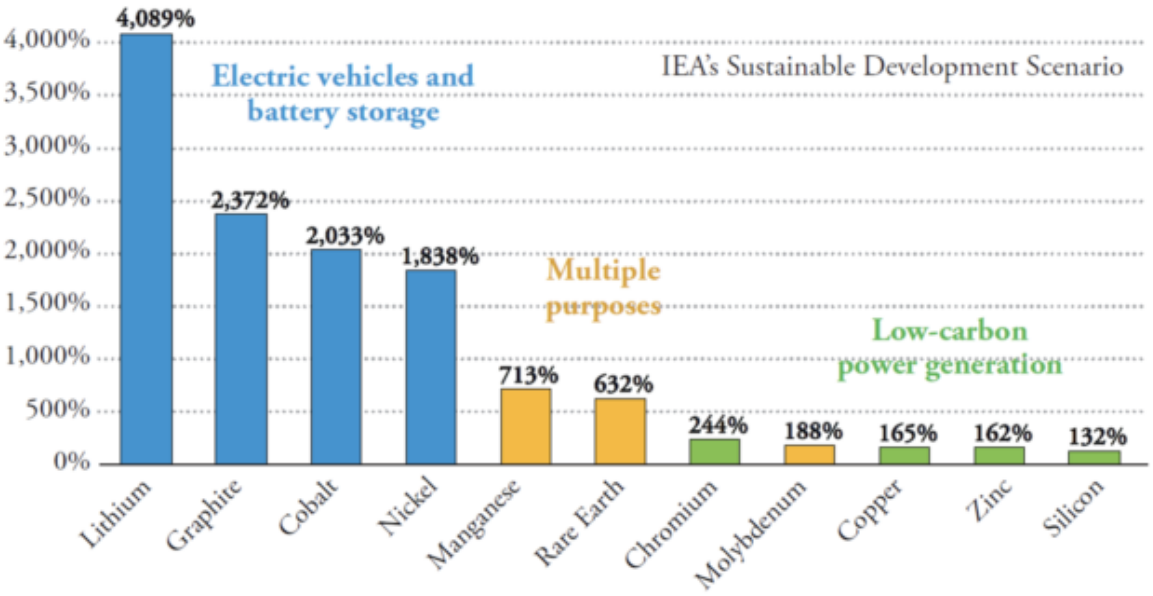
Figure 33. Required Growth of Critical Mineral Supply (IEA's SDS scenario, 2020–40)



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

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

Source: Bhutada, G. VC Elements

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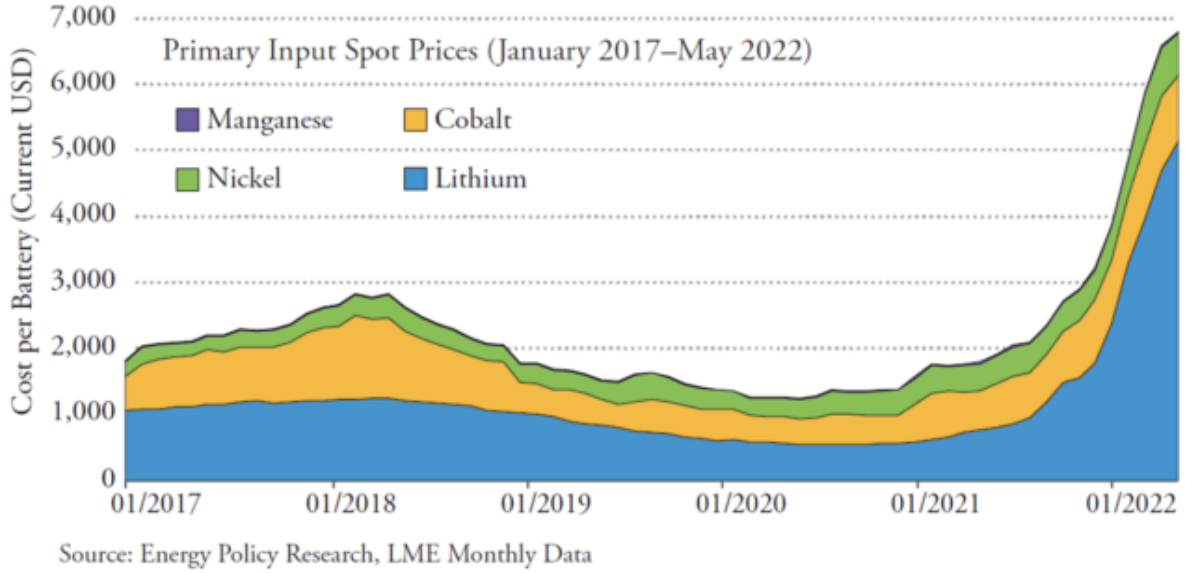
Figure 34. Tesla Battery Cost Based on Monthly Average



Source: Energy Policy Research, LME Monthly Data

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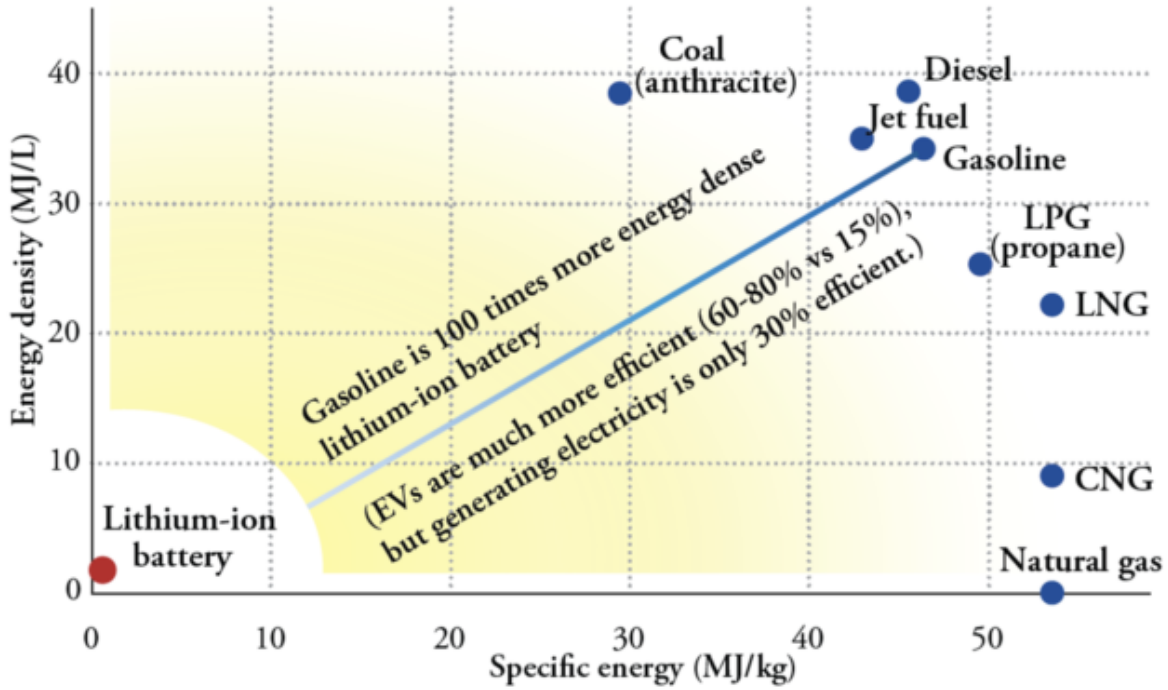
Figure 35. Energy Densities of Common Fuels, Li-ion battery



Source: Energy Policy Research, various sources

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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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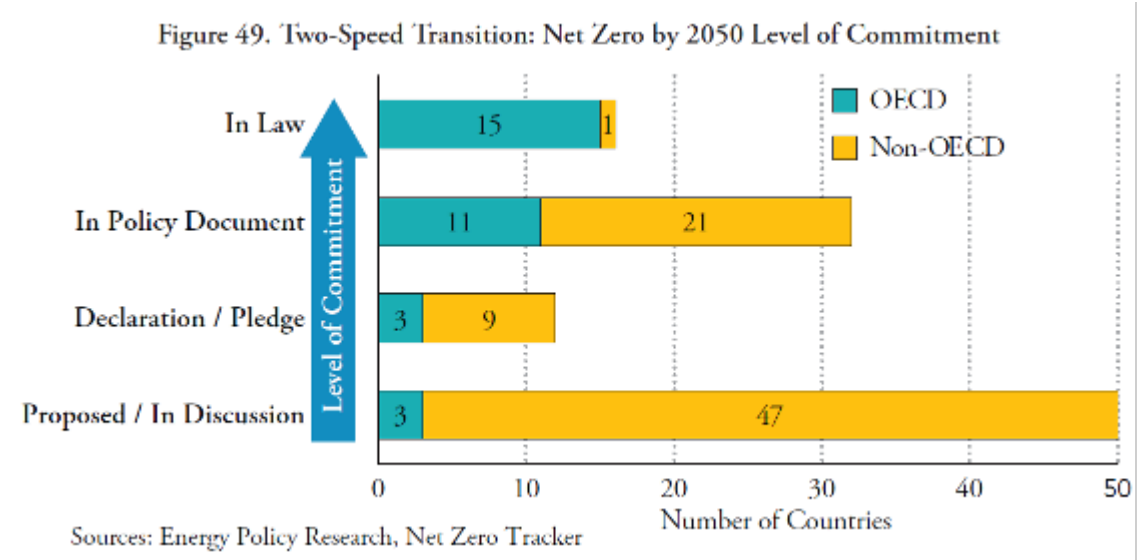

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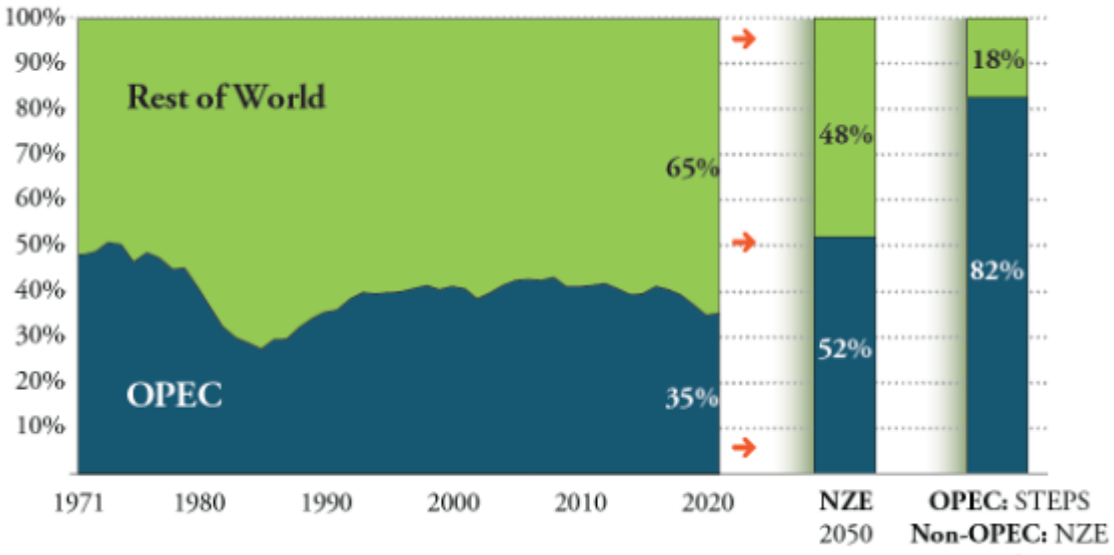
Figure 17. OPEC Share of Global Oil Production



Source: Energy Policy Research, IEA World Energy Outlook 2022, IEA World Energy Balances

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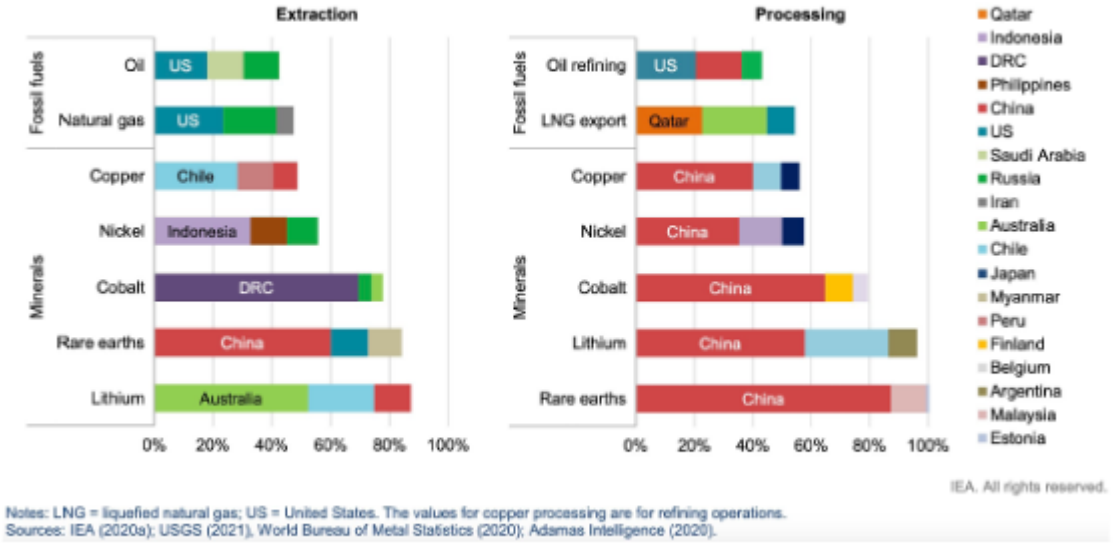
Figure 18. Share of Top Three Producing Countries in Production of Selected Minerals and Fossil Fuels, 2019



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

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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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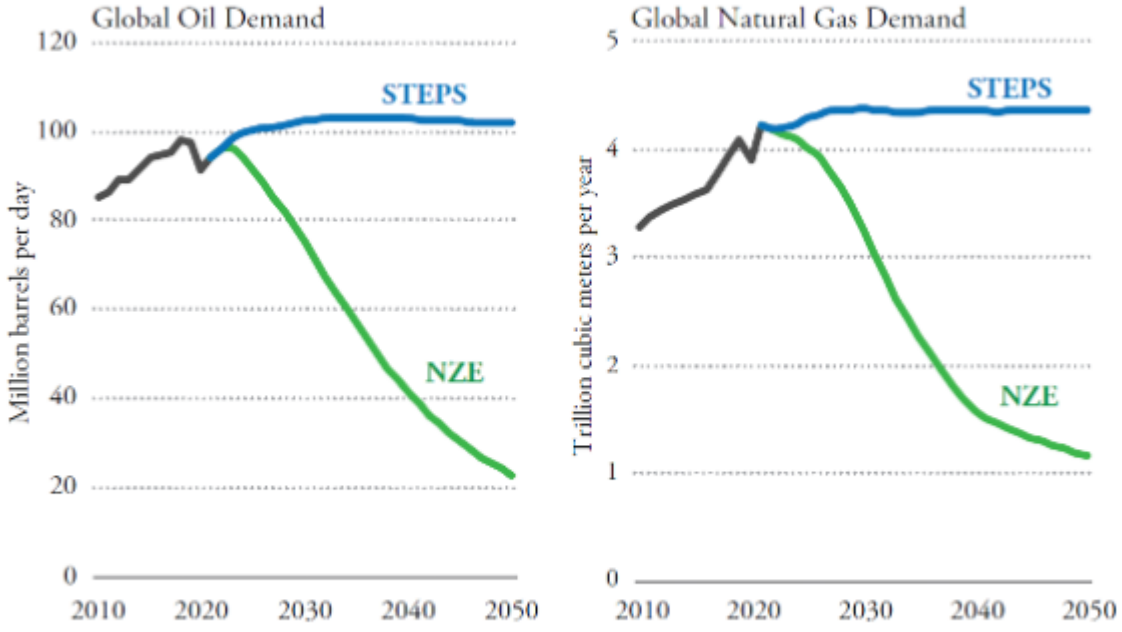
Figure 13. Oil and Gas Demand in IEA *WEO-2022*



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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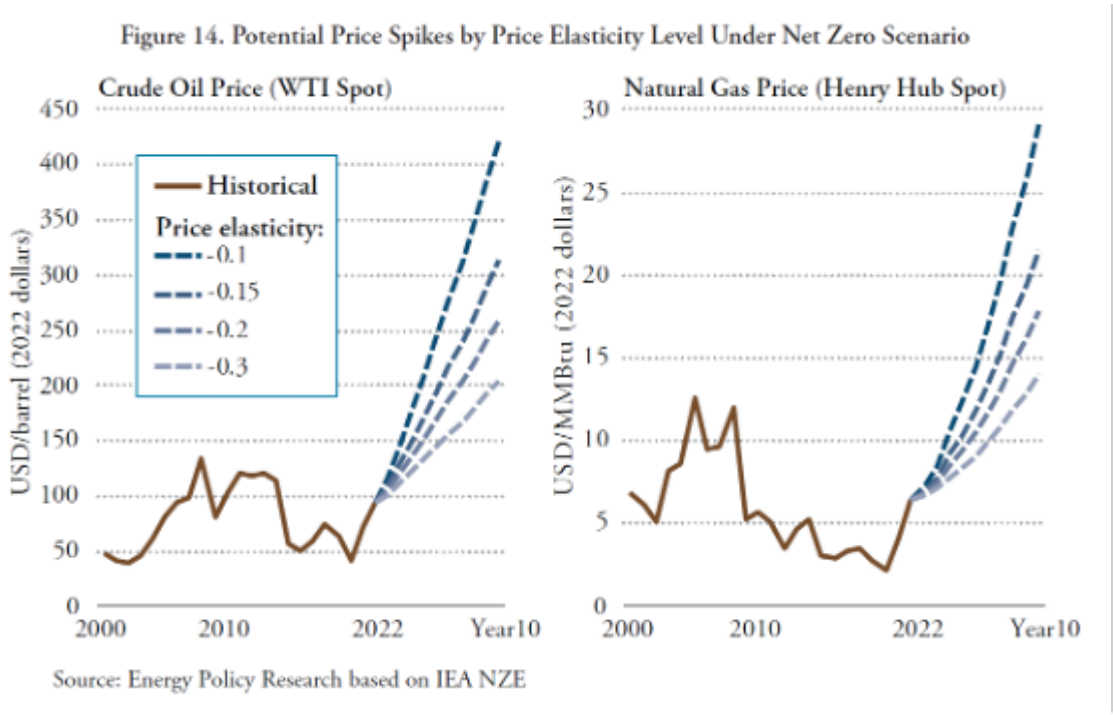

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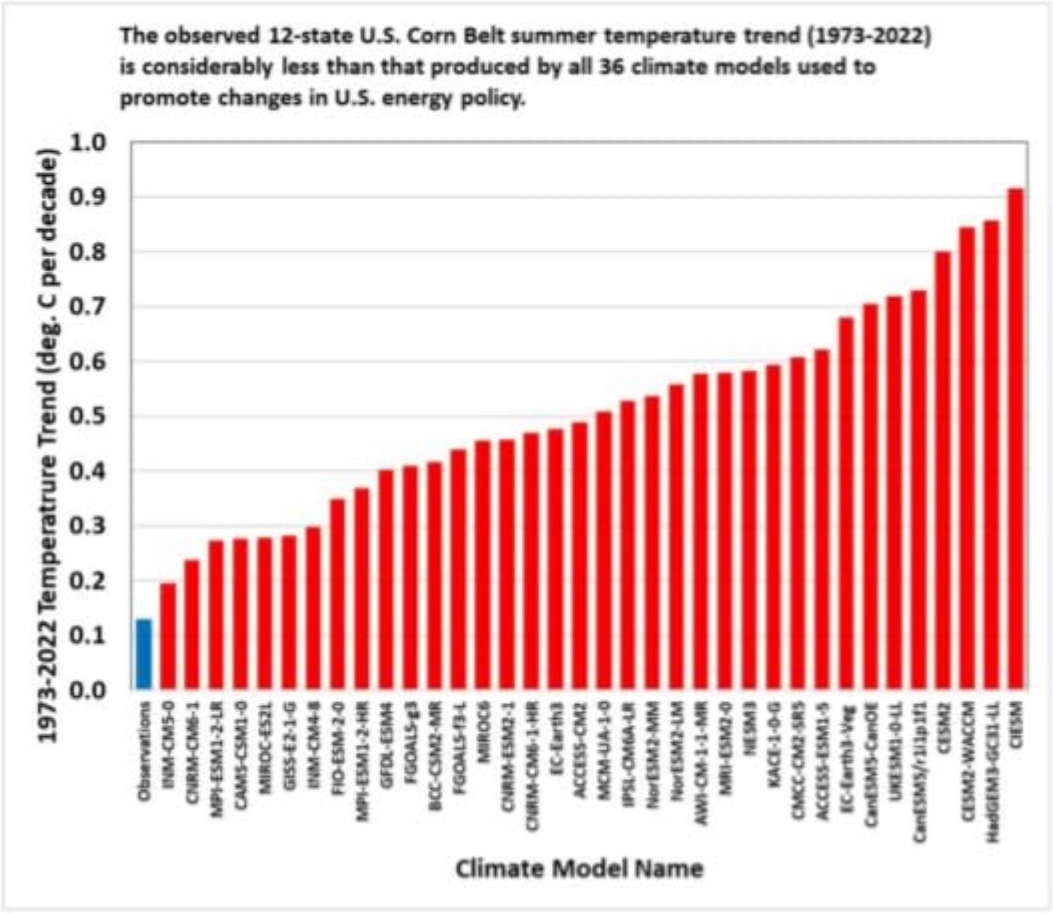

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> — BBC News Japan (@bbcnewsjapan) February 18, 2021

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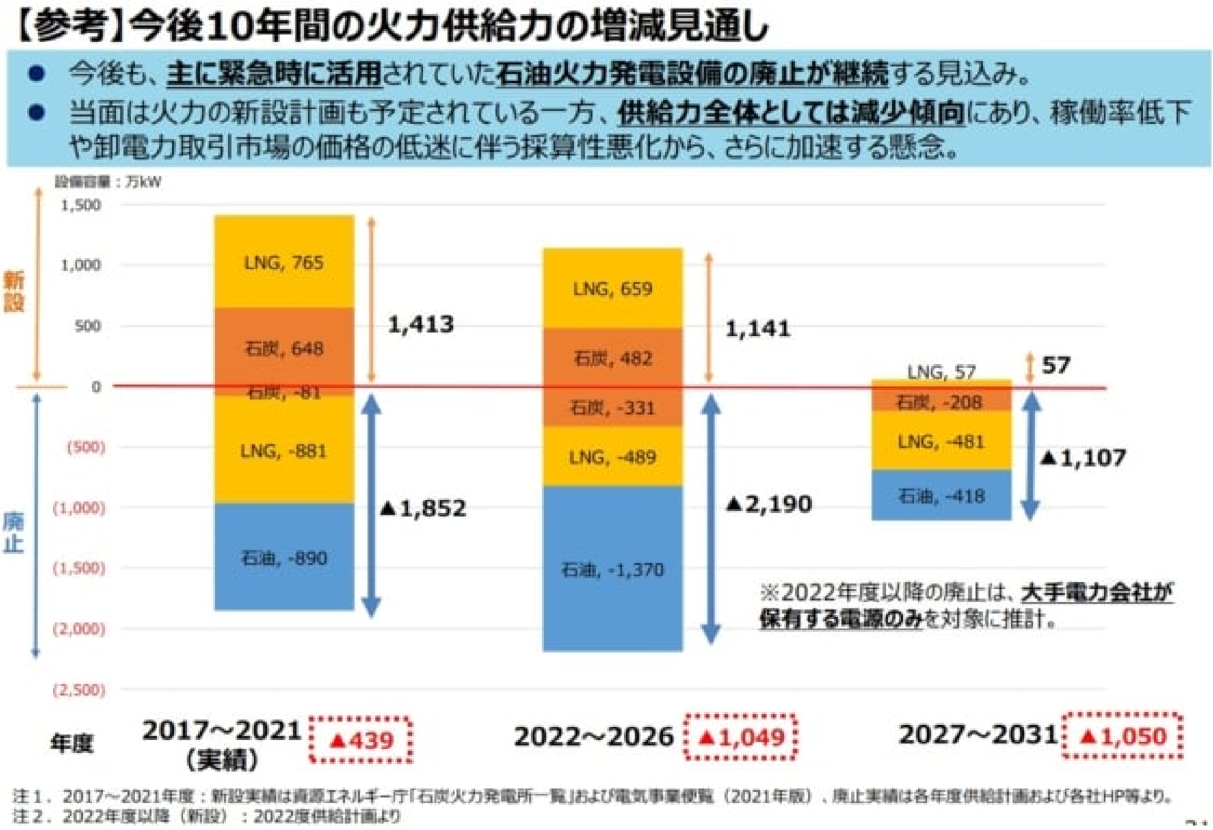

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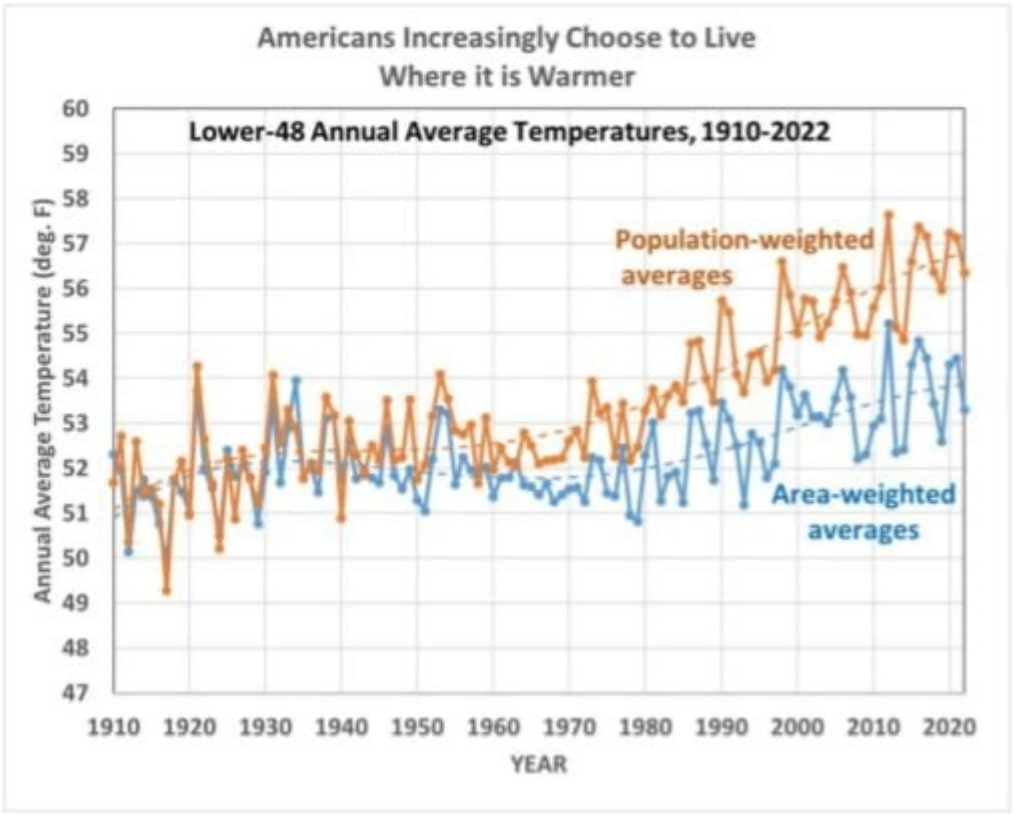

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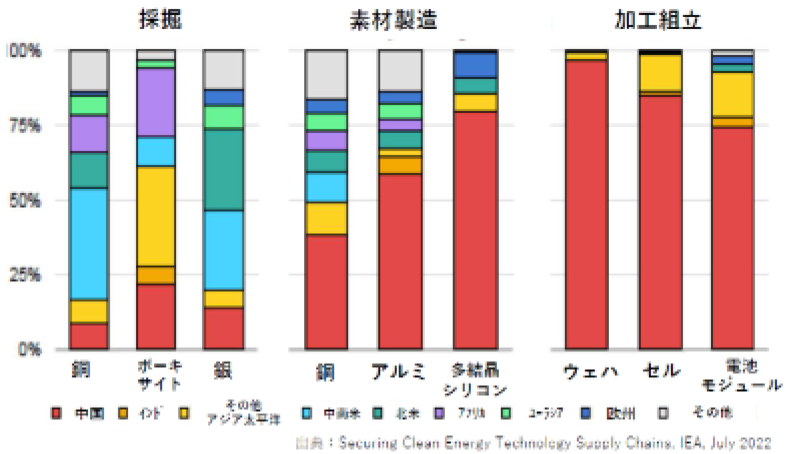

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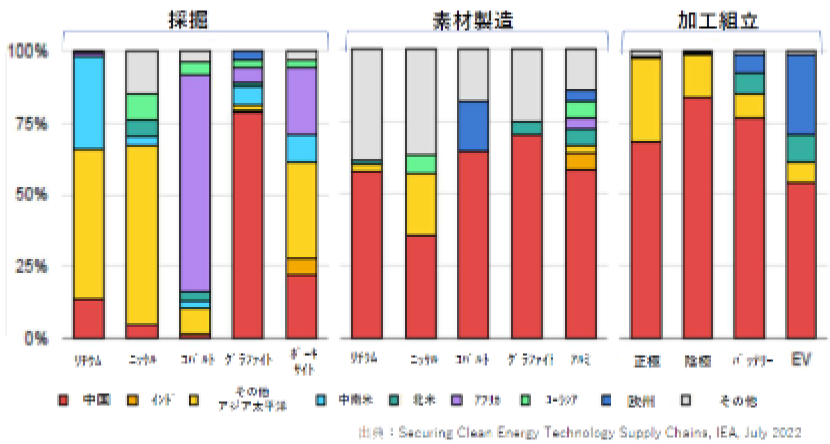

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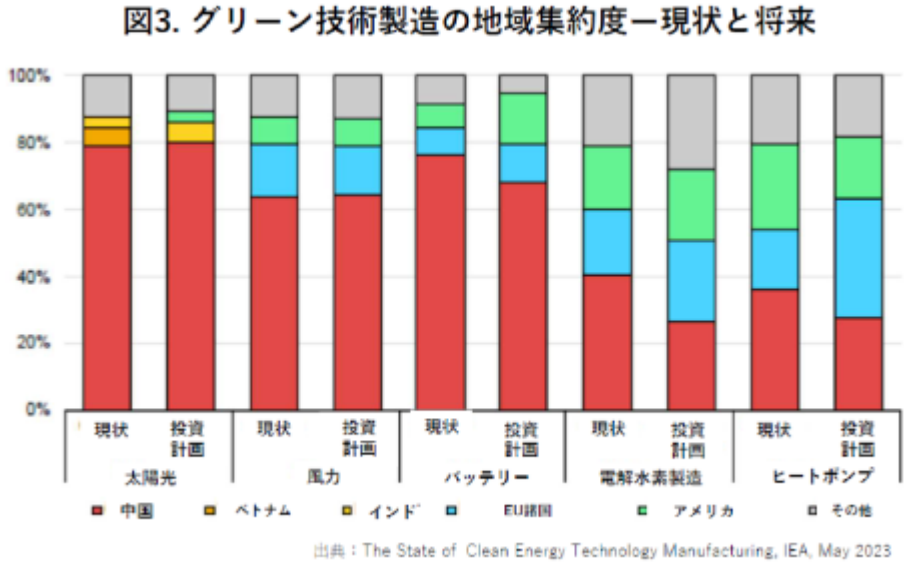

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?3?"Securing Clean Energy Technology Supply Chains", IEA, July 2022 / "The State of Clean Technology Manufacturing", IEA, May 2023

?4?Reuters, 2011?1?17?

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?? ?? · Wednesday, May 24th, 2023

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???Twitter by True Science PEng, DFP, ADFS, MA, MBA

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?? ?? · Saturday, May 20th, 2023

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FACT SHEET: Biden-Harris Administration Proposes New Standards to Protect Public Health that Will Save Consumers Money, and Increase Energy Security

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Most Americans Are Not Completely Sold on Electric Vehicles

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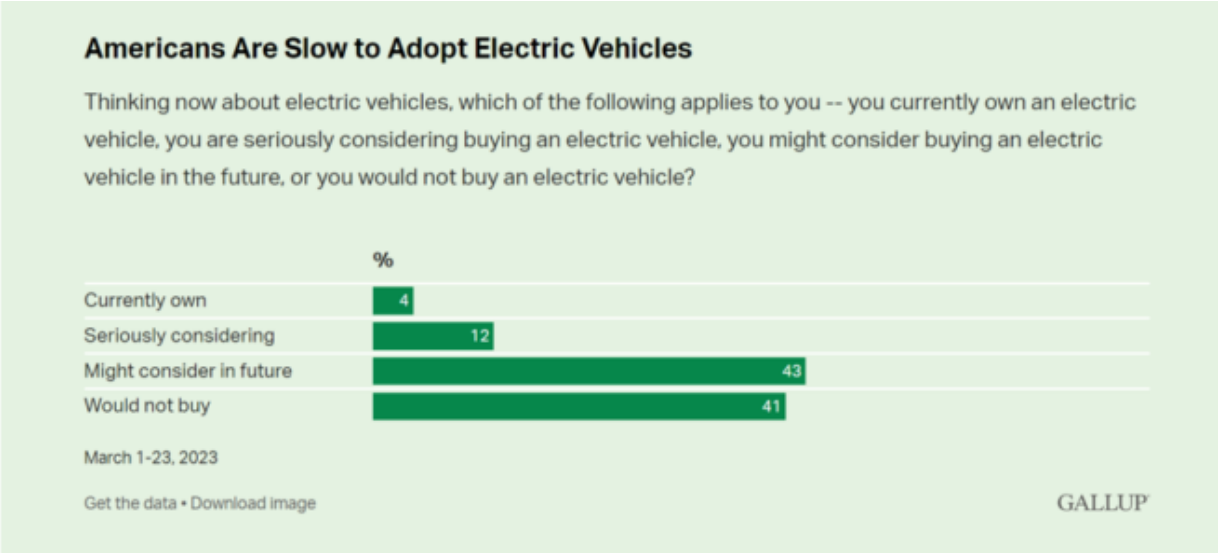

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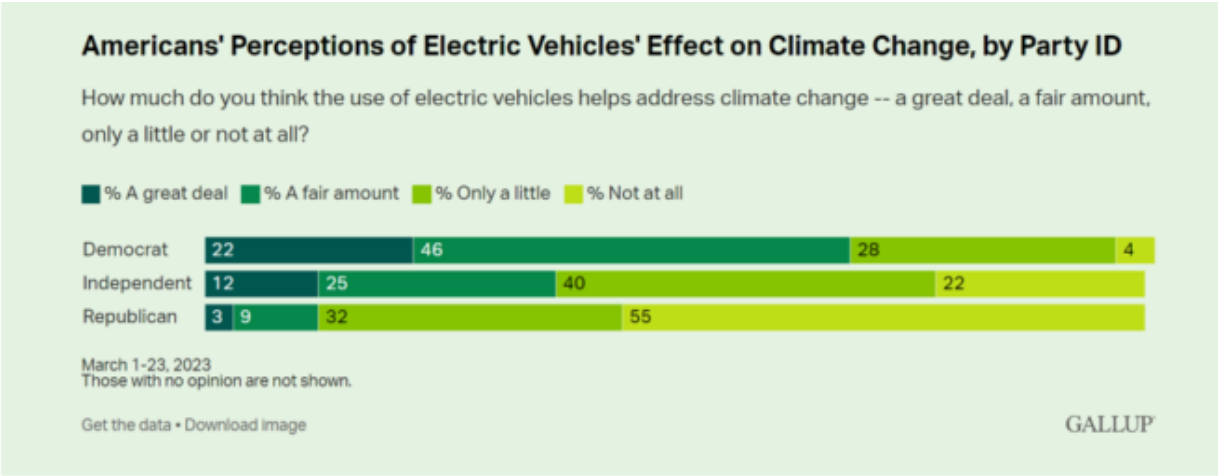

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?? ?? · Tuesday, May 16th, 2023

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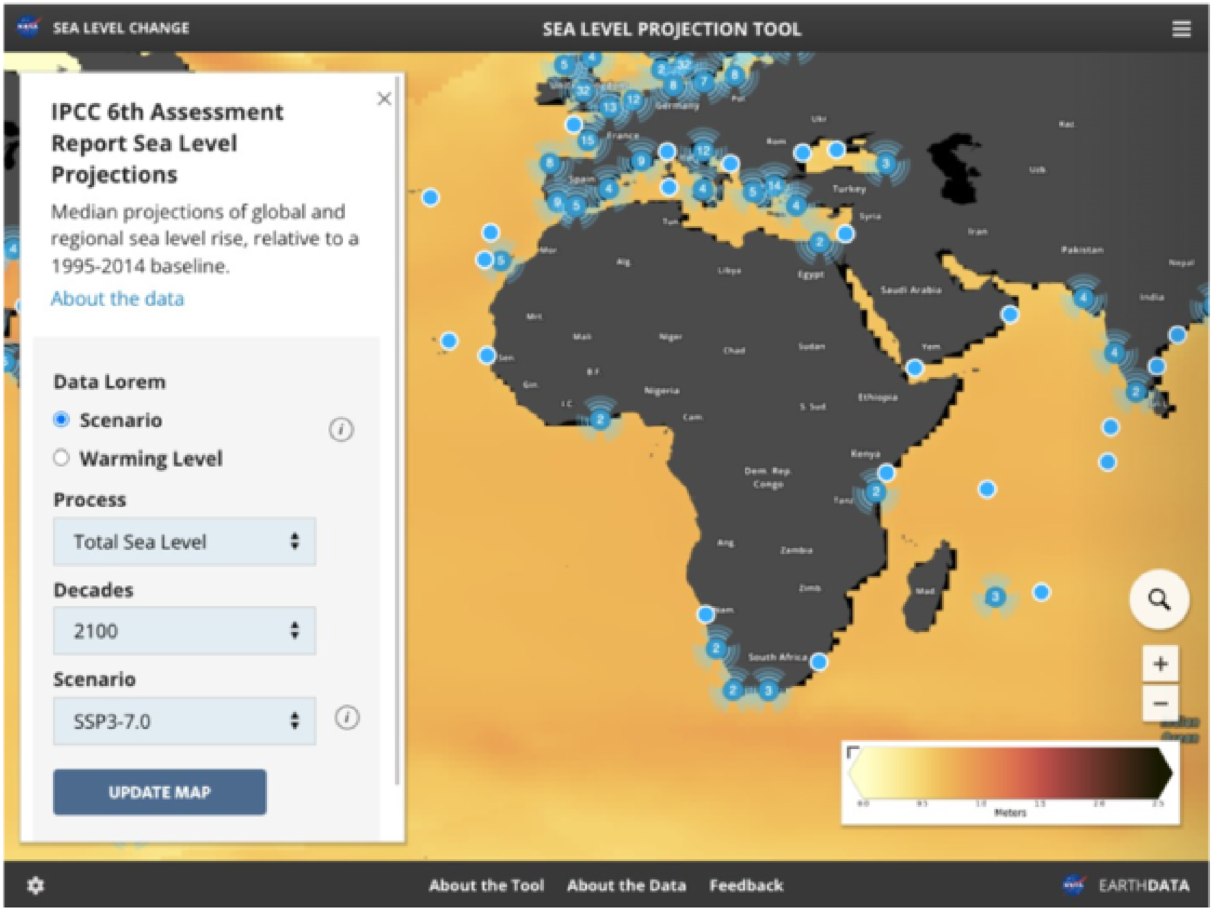
IPCC AR6 Sea Level Projection Tool



IPCC AR6 Sea Level Projection Tool

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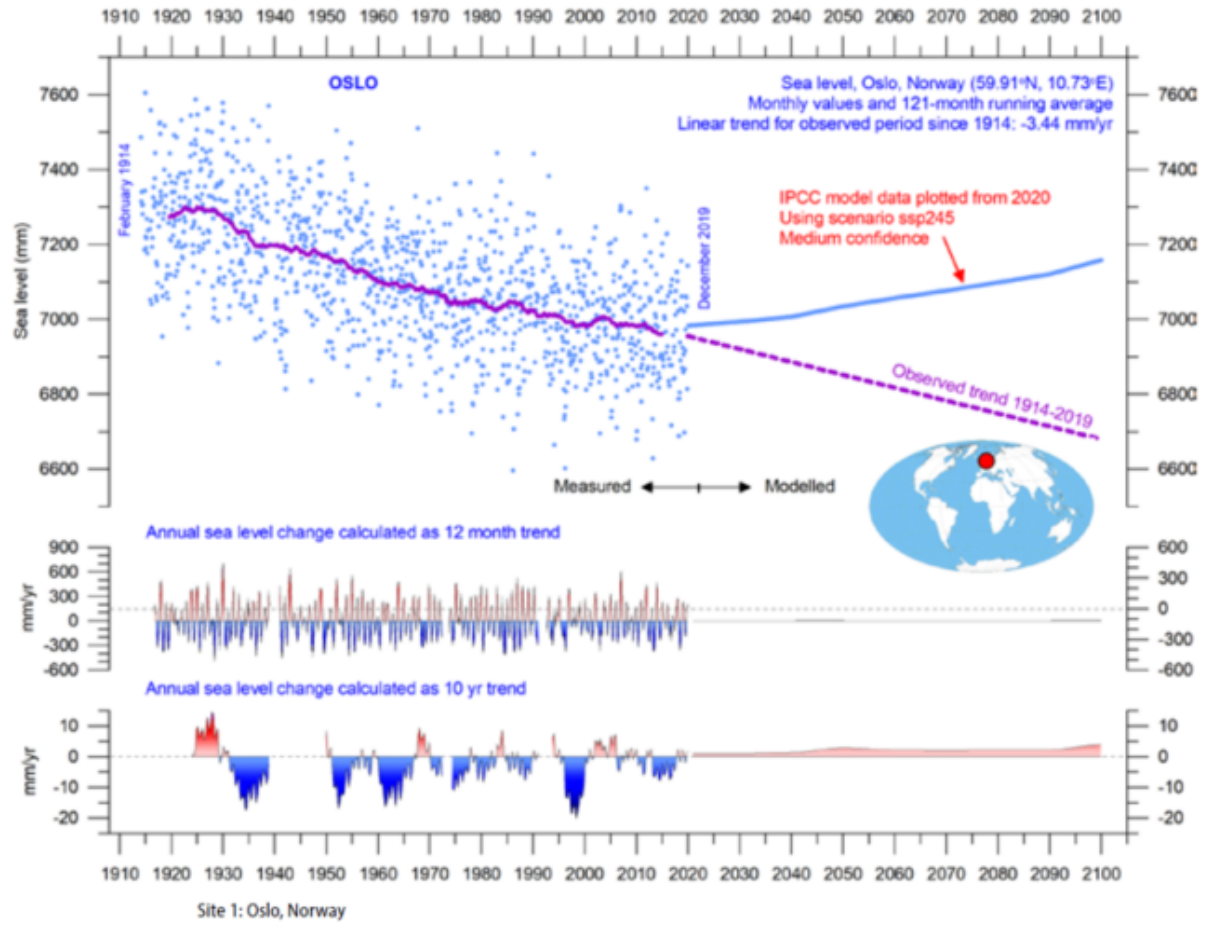
OSLO
Sea level, Oslo, Norway (59.91°N, 10.73°E)
Monthly values and 121-month running average
Linear trend for observed period since 1914: -3.44 mm/yr
February 1914
December 2019
IPCC model data plotted from 2020
Using scenario ssp245
Medium confidence
Observed trend 1914-2019
Measured
Modelled
Sea level (mm)
Annual sea level change calculated as 12 month trend
Annual sea level change calculated as 10 yr trend
mm/yr
Site 1: Oslo, Norway

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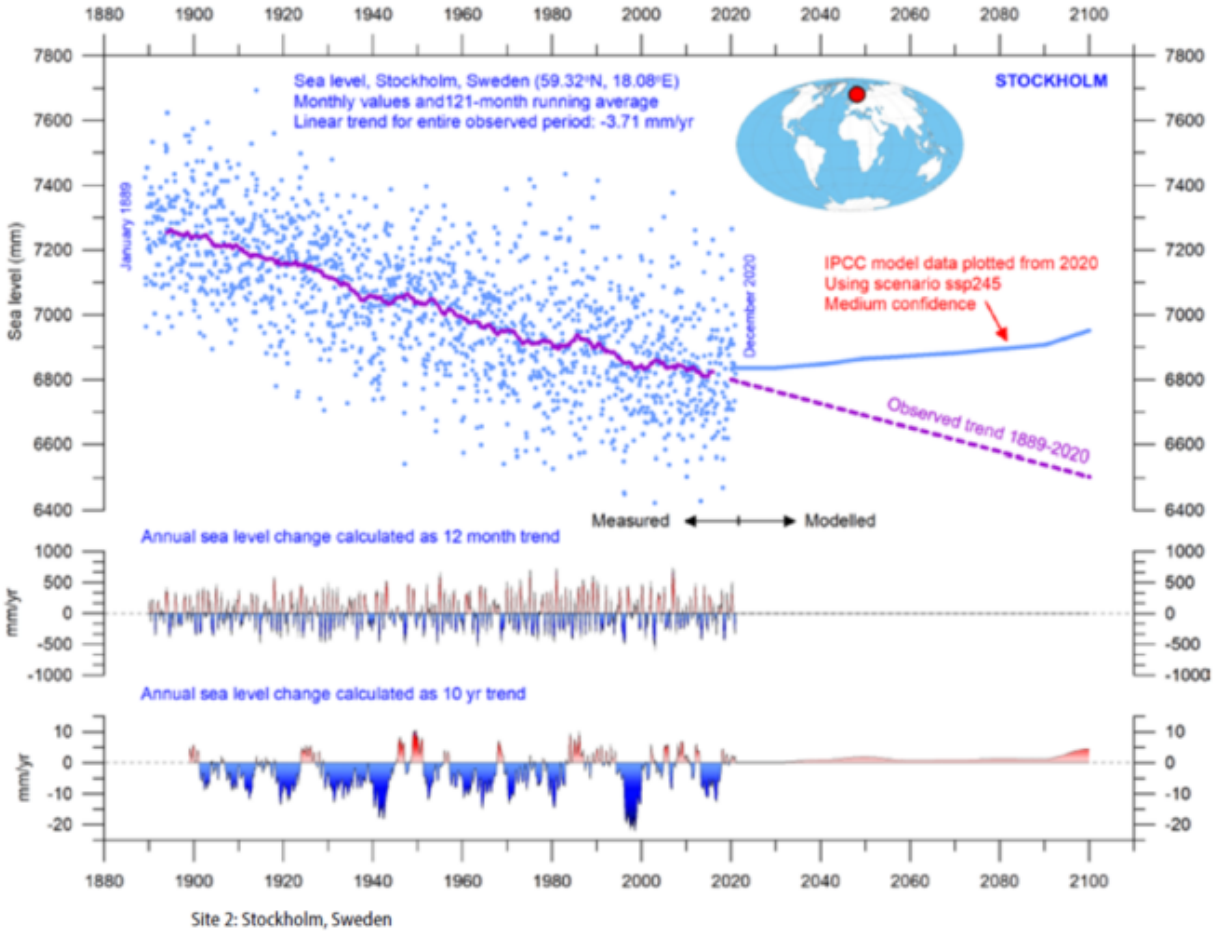
STOCKHOLM
Sea level, Stockholm, Sweden (59.32°N, 18.08°E)
Monthly values and121-month running average
Linear trend for entire observed period: -3.71 mm/yr
January 1889
December 2020
IPCC model data plotted from 2020
Using scenario ssp245
Medium confidence
Observed trend 1889-2020
Measured
Modelled
Sea level (mm)
Annual sea level change calculated as 12 month trend
Annual sea level change calculated as 10 yr trend
mm/yr
Site 2: Stockholm, Sweden

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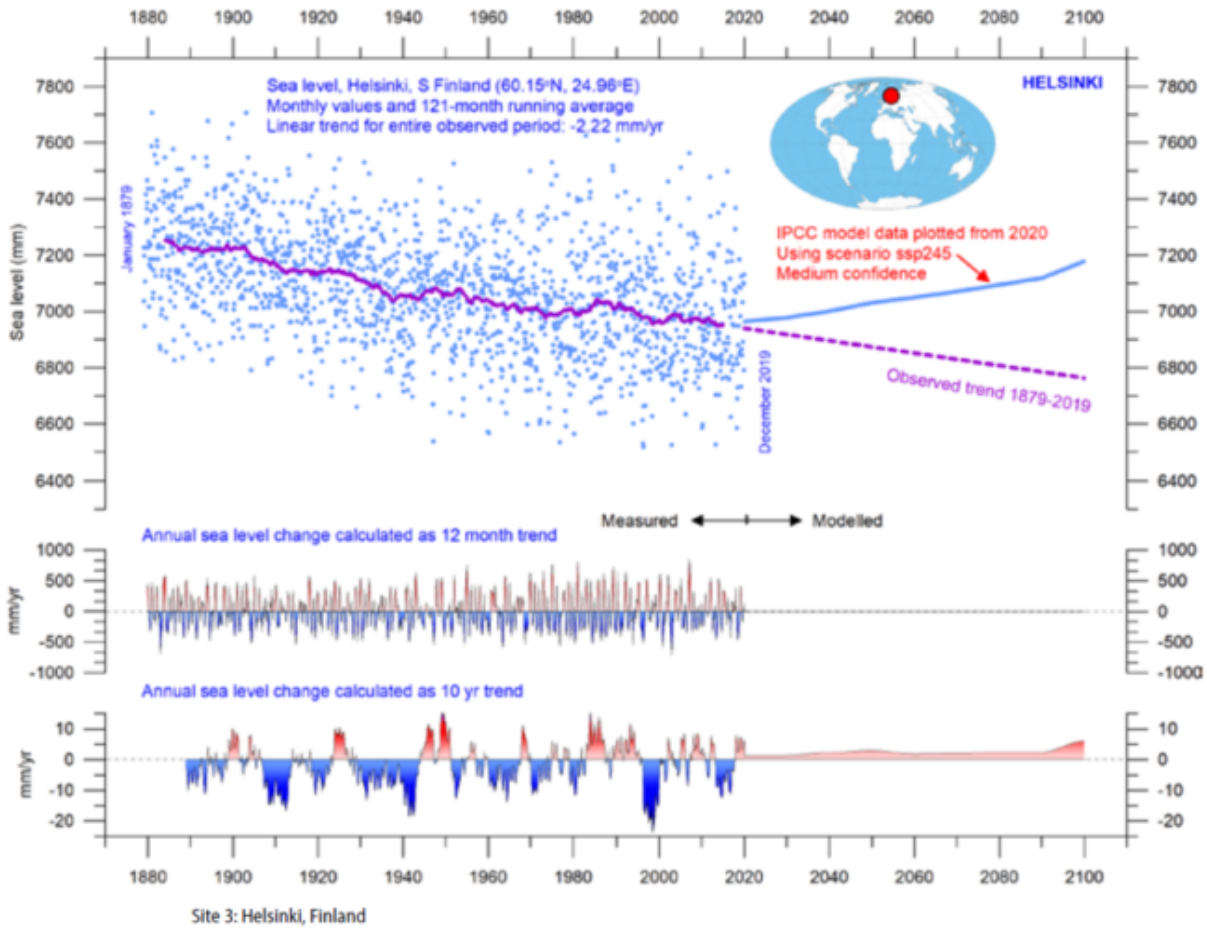
Sea level, Helsinki, S Finland (60.15°N, 24.96°E)
Monthly values and 121-month running average
Linear trend for entire observed period: -2,22 mm/yr
HELSINKI
IPCC model data plotted from 2020
Using scenario ssp245
Medium confidence
Observed trend 1879-2019
January 1879
December 2019
Sea level (mm)
Measured
Modelled
Annual sea level change calculated as 12 month trend
mm/yr
Annual sea level change calculated as 10 yr trend
mm/yr
Site 3: Helsinki, Finland

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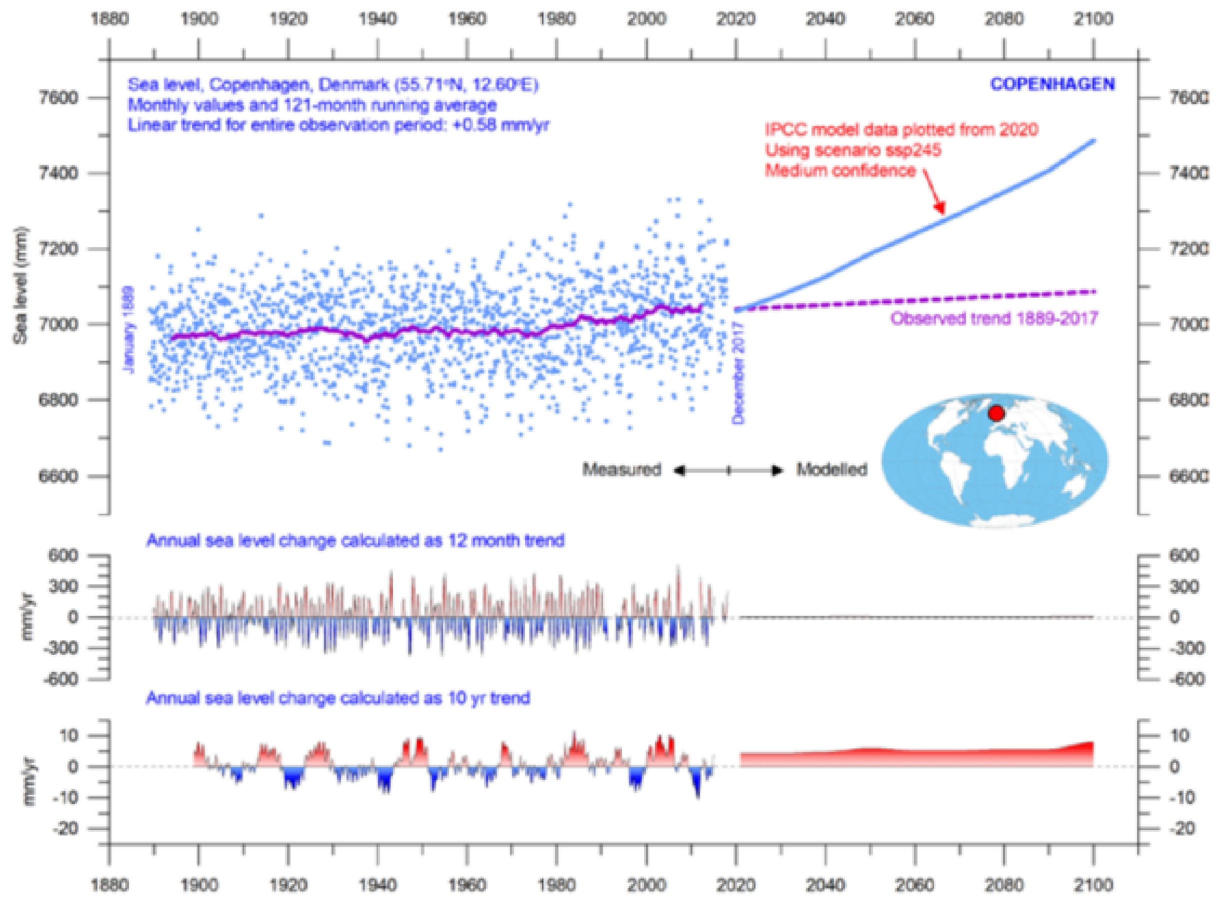

Site 4: Copenhagen, Denmark

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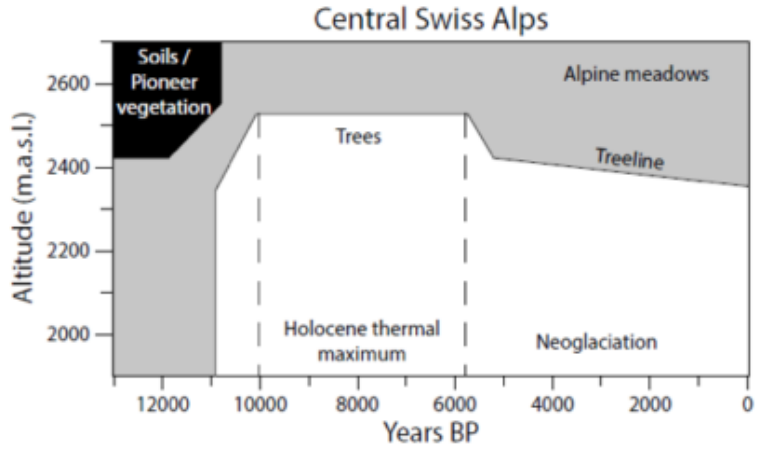

Figure 4: Fluctuations of the treeline in the Swiss Central Alps during the Holocene. The limits of the vegetational zones are placed between the sites according to the presence of the respective vegetation type as inferred by macrofossil analysis. Altitude in meters above sea-level. After Tinner & Theurillat 2003. Current treeline in the Swiss Central Alps is 150-200 m below Holocene Thermal Maximum treeline limit.

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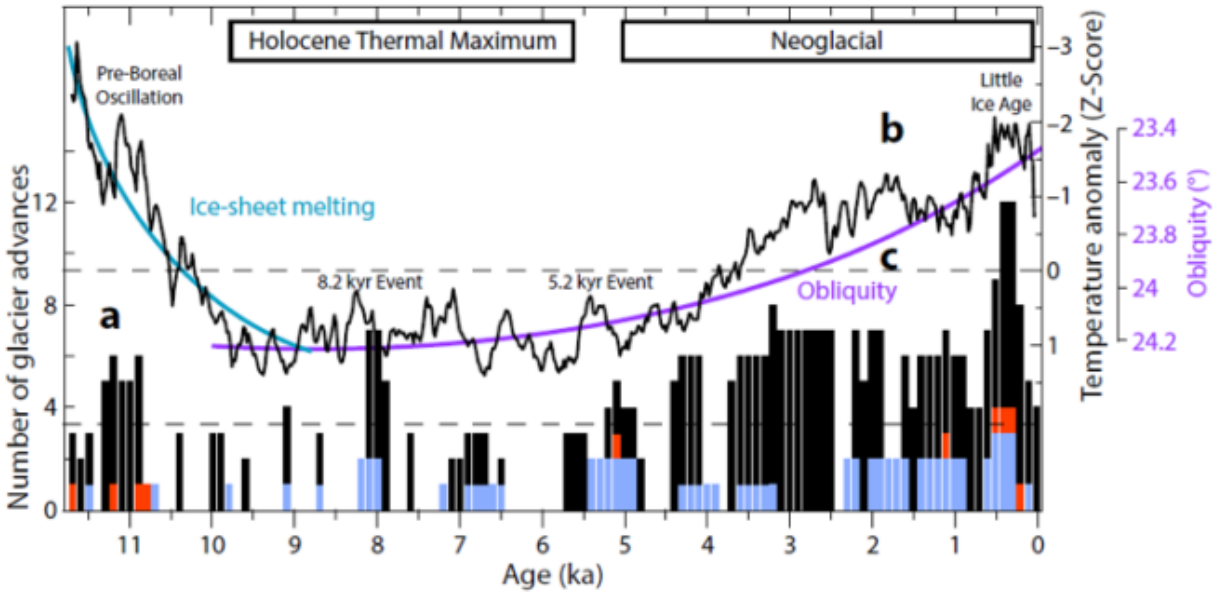

Figure 3: Glacial advances versus temperature (inverted) during the Holocene. a) Number of regions displaying glacier advances at each Holocene century. Black, NH 17 regions; orange, low latitudes single region; ice blue, SH 4 regions. Bottom dashed line, Holocene glacial position average. b) Inverted temperature reconstruction from the same 73 proxies used by Marcott et al. 2013. The reconstruction ends in 1910 and does not include modern warming. Temperature anomaly changes are expressed as Z-score (distance to the mean). Some well-known cooling periods or events are indicated by their accepted names. The period affected by the melting of the extra-Arctic ice sheets is indicated in aquamarine. c) Inverted changes in obliquity. Vinós, 2022, page 55.[13]

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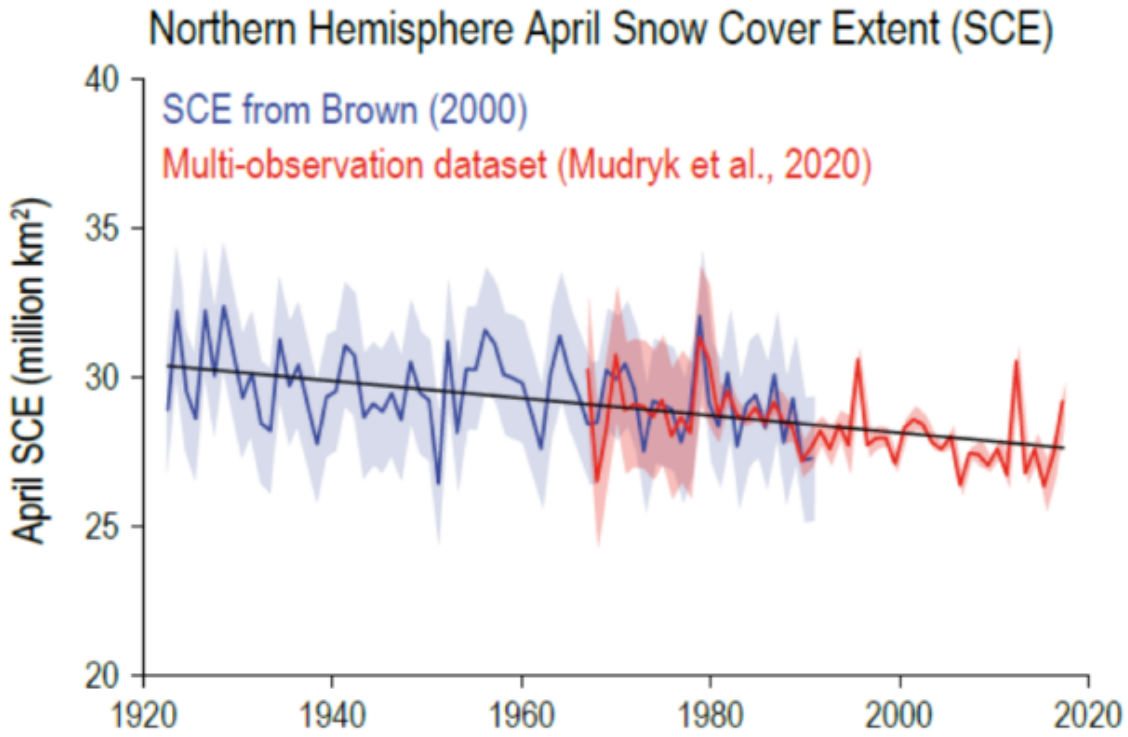

Figure 2: April snow cover extent (SCE) for the Northern Hemisphere. From: AR6, chapter 2.

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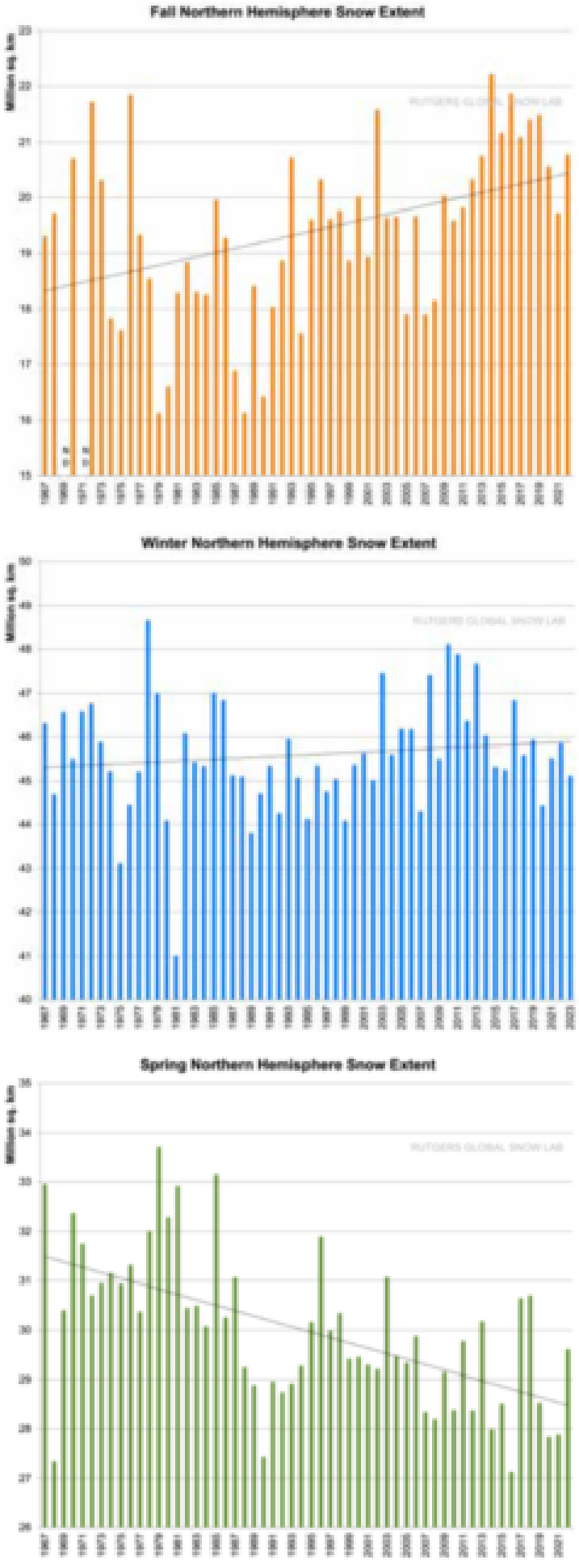

Figure 4: Snow cover extent (SCE) for the Northern Hemisphere for autumn, winter and spring. From: Rutgers Global Snow Lab (2023)

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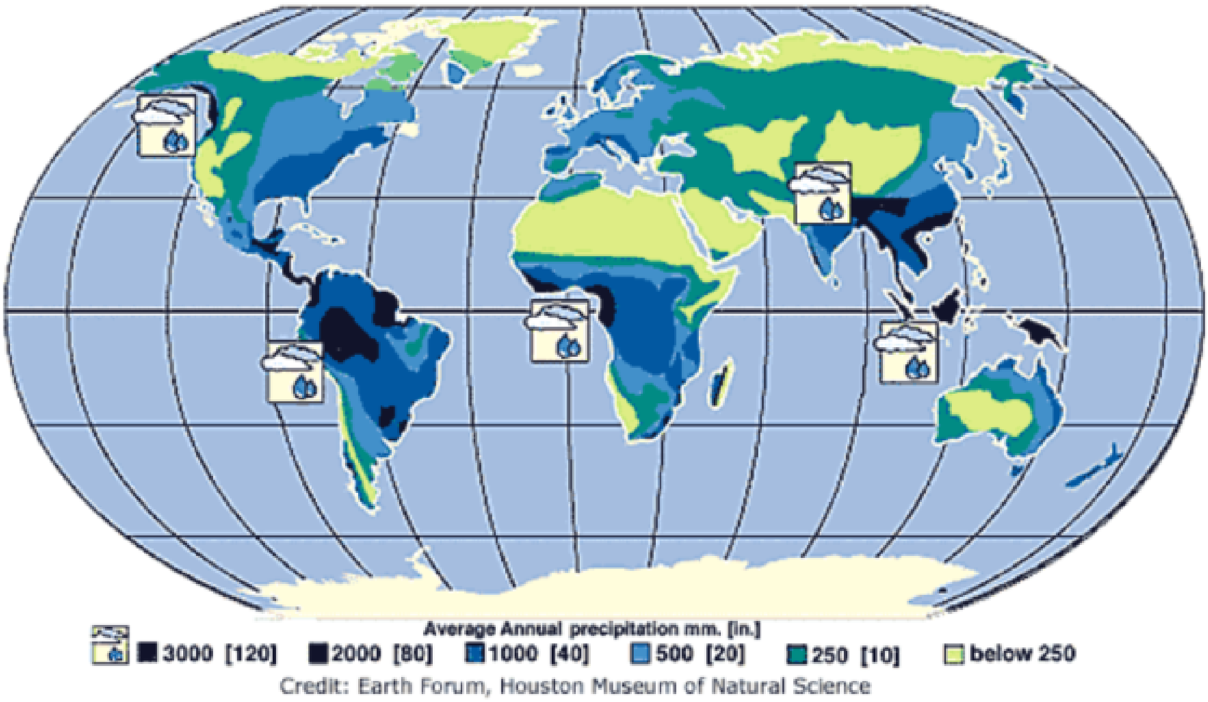

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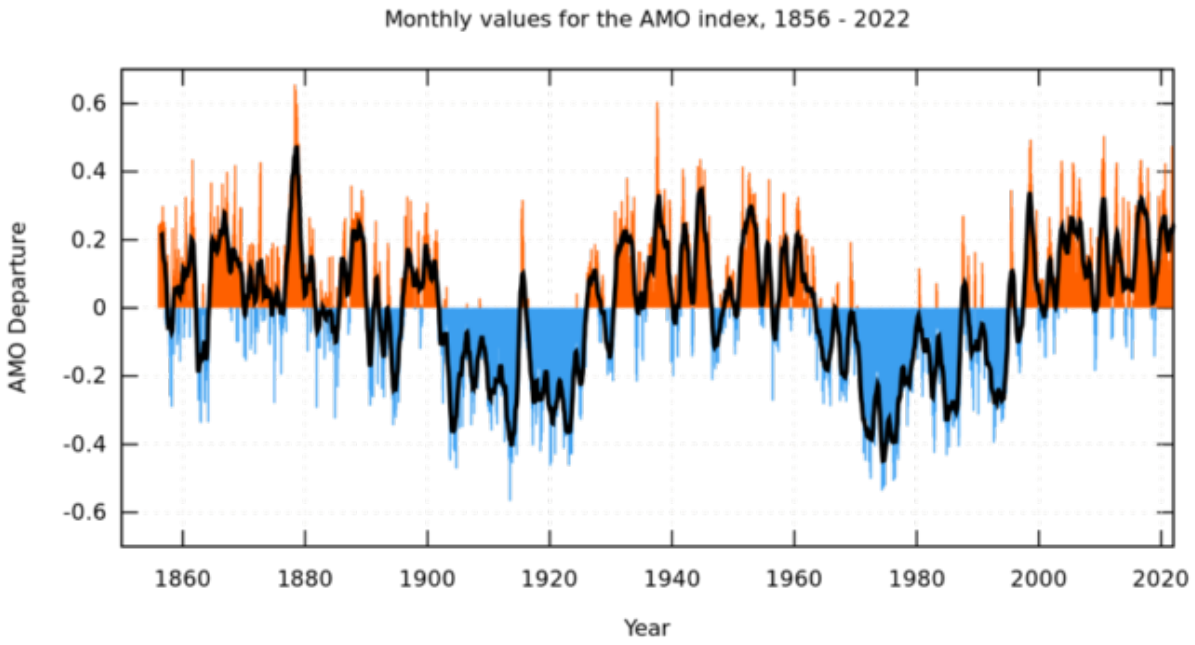

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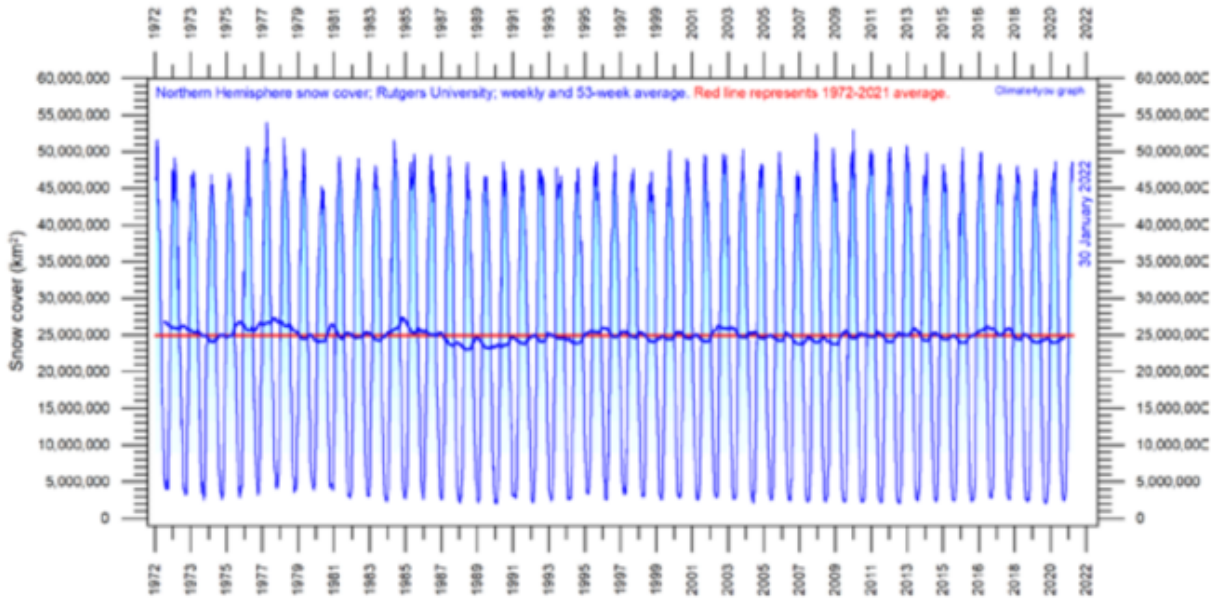

Figure 7: Northern hemisphere weekly snow cover since January 1972 according to the Rutgers University Global Snow Lab (http://climate.rutgers.edu/snowcover), the thin blue line is the weekly data, and the thick blue line is the running 53 week average (approximately 1 year). The horizontal red line is the 1972-2021 average. Last week shown: week 1 in 2022. Last figure update: 11 January 2022. Source: Ole Humlum, climate4you.com

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