

**COMMUNICATING  
ON CLEAN ENERGY:**

**FIGHTING MIS- AND  
DISINFORMATION**

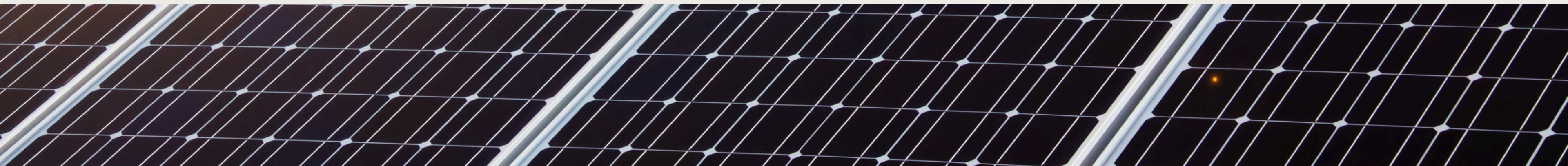
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# AGENDA + OVERVIEW

- 01** What is Misinformation?
- 02** When to Engage... or When to Walk Away
- 03** General Clean Energy Myths
- 04** Solar
- 05** Wind
- 06** Pipelines / Infrastructure
- 07** Batteries and Energy Storage
- 08** Electric Vehicles and Public Transit
- 09** Environmental Justice
- 10** Strategies and Next Steps





# SESSION NOTES AND NORMS

- I am a clean energy professional, but I'm still learning too!
- If you have lived experience that has been effective, sharing that here will help others.
- Questions throughout are welcome and encouraged.
- Stories shared in this space are confidential unless otherwise noted.
- It can be scary to engage with someone on these issues, so we recommend having a strong, positive support system to fall back on.

# WHAT IS MISINFORMATION?

Climate disinformation and misinformation refers to deceptive or misleading content that:

- **Undermines** the existence or impacts of climate change, the unequivocal human influence on climate change, and the need for corresponding urgent action
- **Misrepresents** scientific data, including by omission or cherry-picking, in order to erode trust in climate science
- **Falsely publicizes** efforts as supportive of climate goals that in fact contribute to climate warming or contravene the scientific consensus on mitigation or adaptation.

Source: <https://caad.info/what-is-misinformation-disinformation/>



# MIS- VERSUS DIS-INFORMATION

Misinformation is false information that is spread, regardless of intent to mislead.

Disinformation is misinformation that is knowingly (intentionally) spread.

Regardless of the intention, the impact is the same and can be difficult to correct!

Messaging recommendation: “inaccurate” instead of either term.

# TYPES OF CLIMATE MISINFORMATION

- **Greenwashing**

- Example: Fast fashion using renewable fibers and natural packaging
- Example: the term “carbon footprint”

- **Oversimplification**

- Example: Electric vehicles don't stop climate change because they are powered by coal

- **Weather vs. Climate**

- Example: It has been over 100 degrees in Arizona every summer since the 1930s, so climate change isn't real

- **Natural Cycles of the Earth**

- Example: The Earth has undergone ice ages and warming cycles for thousands of years, so humans can't be causing the current warming cycle

# TACTICS USED TO MISINFORM

- **False expertise:**
  - Presenting an unqualified person or institution as a source of credible information.
- **Logical fallacies:**
  - Arguments where the conclusions don't logically follow from the premises.
- **Impossible expectations:**
  - Demanding unrealistic standards of proof before acting on the science.
- **Conspiracy theories:**
  - Proposing that a secret plan exists to implement a nefarious scheme, such as hiding a truth.
- **Cherry-picking data:**
  - Carefully selecting data that appear to confirm one position while ignoring other data that contradicts that position.



# SOURCES OF CLIMATE MISINFO

- **Koch Brothers:** 145 million to climate change denying think tanks between 1997 and 2018
- **Exxon:** \$37 million to spread climate misinformation
- **American Petroleum Institute:** An industry lobby whose opposition to climate change initiatives goes back decades
- **State Policy Network:** connects conservative and libertarian think tanks focusing on state-level policy
- **Caesar Rodney Institute:** think tank that receives funding from fossil fuels and astroturfing groups

Source: <https://www.npr.org/2021/10/27/1047583610/once-again-the-u-s-has-failed-to-take-sweeping-climate-action-heres-why>

# POLICY CONSEQUENCES

- Failure of the Clinton Administration to ratify the Kyoto Protocol
- Tying a deep recession to the failure of cap and trade
- Unification of conservative lobbying groups (agriculture)
- Allowance of countries profiting off oil and gas to host international climate conferences (COP 28)
- **Messaging:**
  - “uncertain science”, “cap and tax”, “meeting energy supply and demand”, “energy independence”, “all of the above approach”, “emerging technologies”

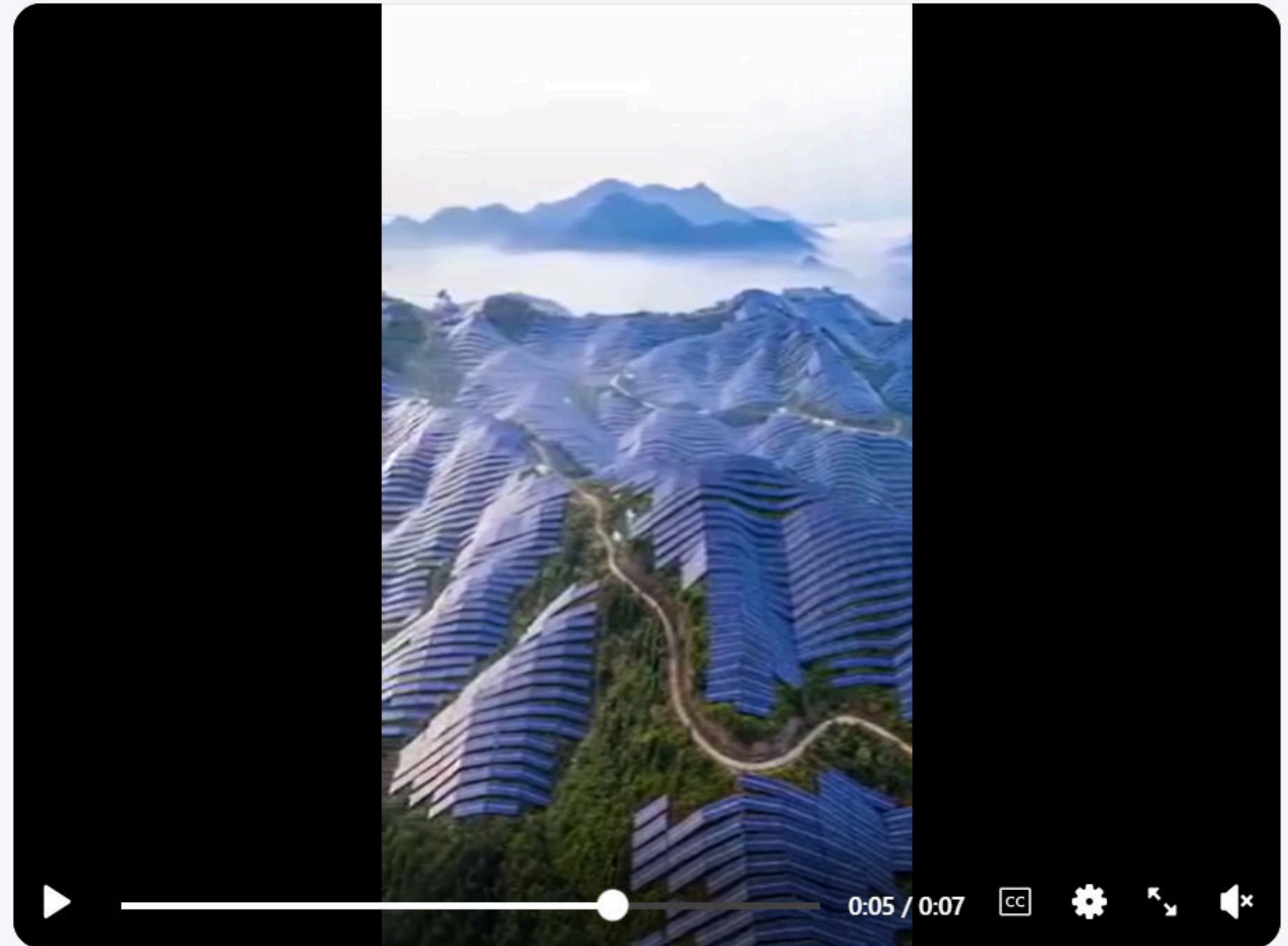
# CASE STUDY

Is this...

- misinformation?
- disinformation?
- or missing context?

How can we as advocates provide perspective here?

Taihang Mountain, China: Countless animal and plant habitats are irreversibly destroyed to make way for almost 3000 acres worth of "green" and "environmentally-friendly" solar panels.





# MISSING PERSPECTIVES

- Who is involved in this situation? What do they need?
- Could this situation involve an identity that I do not share or relate to?
  - Rural, disabled, ESL, differing cultures, etc.
- Who is economically dependent in this situation? Could financial needs be influencing how this story is portrayed?
- Who is funding the issues in this situation?
  - Oil and gas companies greenwashing ads, etc.
- Who gains power in this situation, and who loses power?

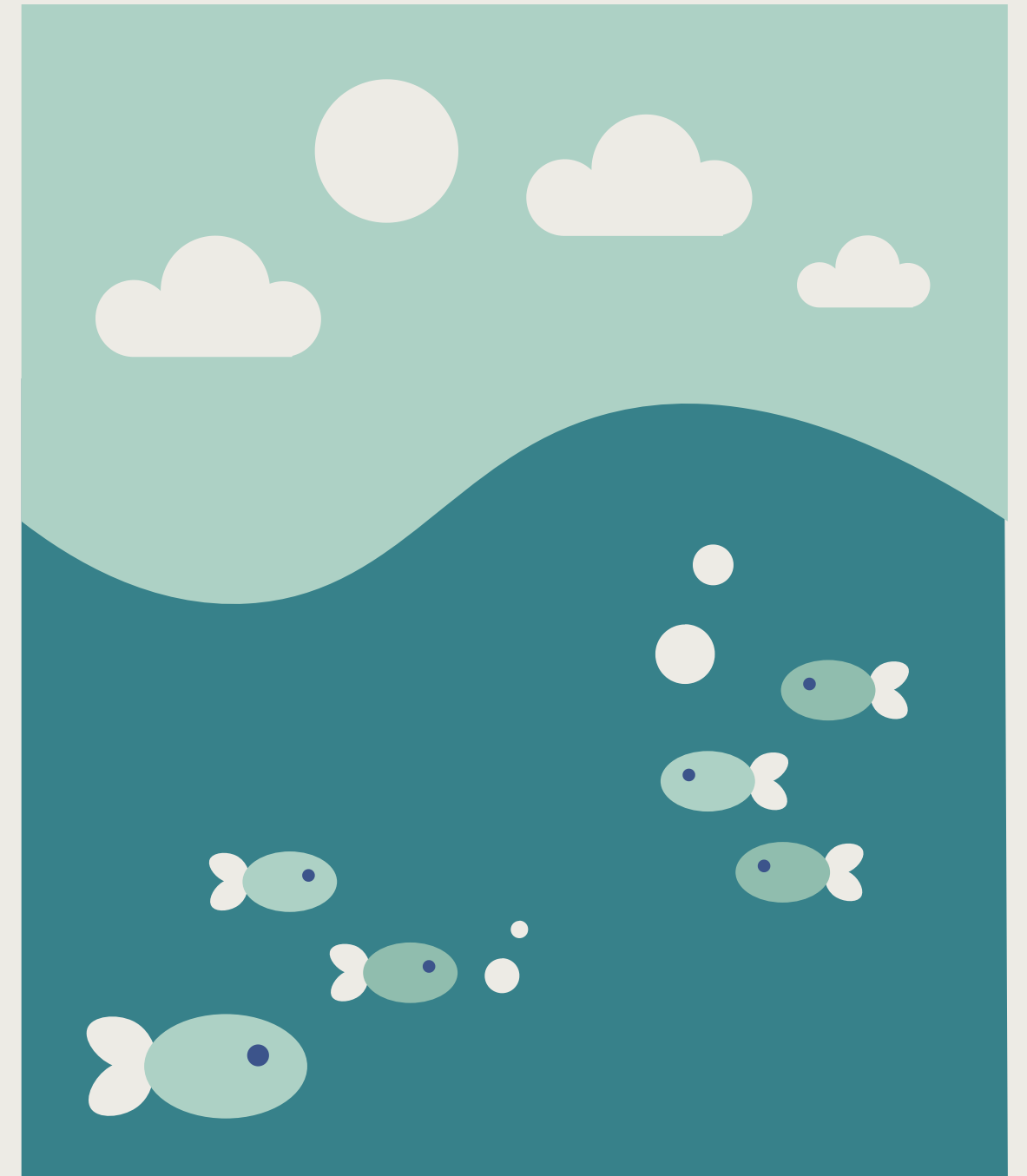
# WHEN TO ENGAGE...



- When you are not at risk (physically, emotionally) of harm
- When you are confident the author is a real person
- When you are confident on their point of view or need minimal clarification
- When you know of / find a credible, nonpartisan source that you can use to correct the information
- When you can avoid personal attacks to either make or respond to a point

# ...AND WHEN TO WALK AWAY

- You cannot correct the misinformation without repeating it
- There is no credible, nonpartisan source available to correct the information
- There is a lack of respect, personal attacks, or aggression
- You've provided clear evidence and the person continues to repeat the misinformation without acknowledging your points
- You have time constraints





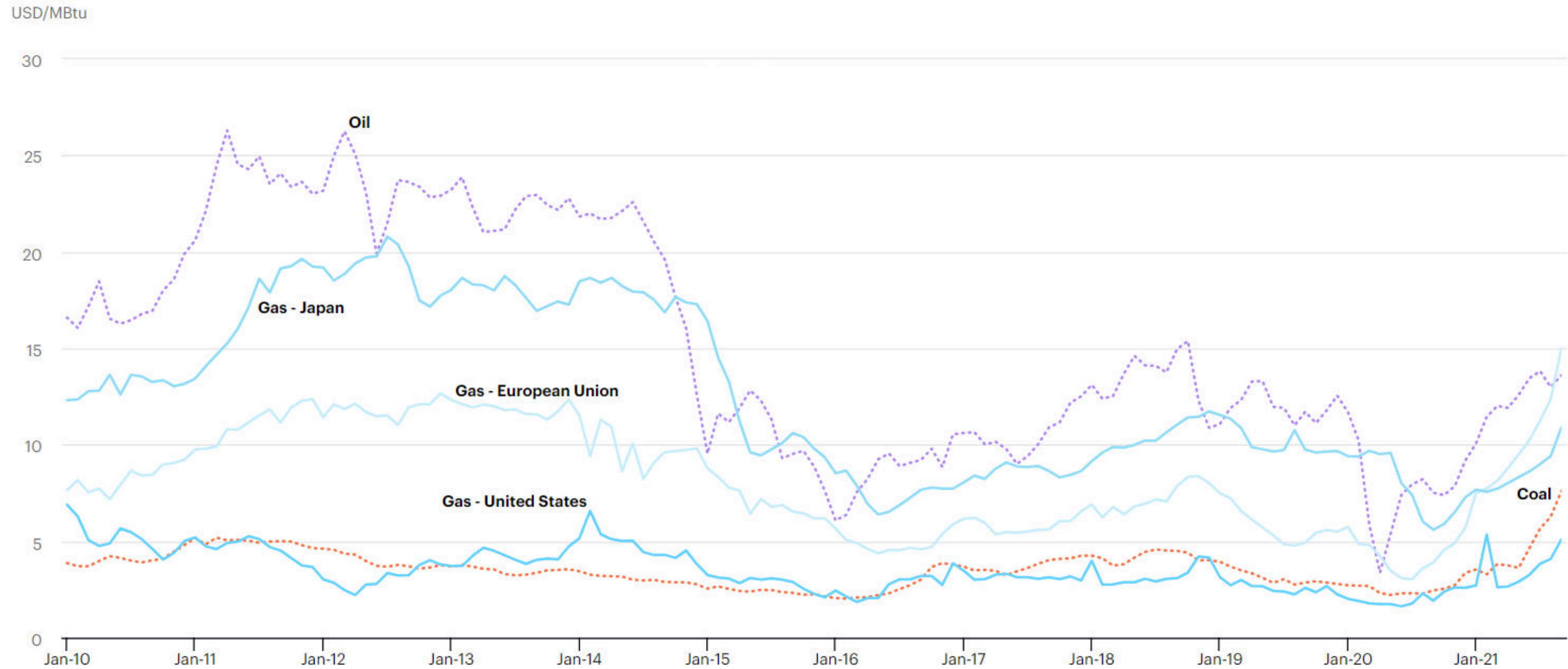
# CHECK IN - SMALL GROUPS

- How has this come up in your work?
- What types of inaccurate information are you most commonly dealing with?
- On a scale of 1 (super prepared) to 5 (not at all prepared), how do you feel about addressing misinformation in real time?
- What are the top three reasons your group feels unprepared to address inaccurate information?

# GENERAL CLEAN ENERGY MYTHS

- **The energy transition will be too expensive**
  - Battery prices have declined by almost 90% (before we combine them with federal incentives)
  - Renewable energy prices have dropped by 82%
  - Utility scale renewable projects are 1.5-3x cheaper than individual installations
- **When the sun doesn't shine and the wind doesn't blow, we'll have no power**
  - Higher volumes of renewables + longer storage windows + software to balance supply and demand == balanced grid
  - Fuel supply is just as volatile when energy is generated by fossil fuels

Source: <https://www.weforum.org/agenda/2021/03/renewable-energy-myths-debunked/>



IEA. Licence: CC BY 4.0

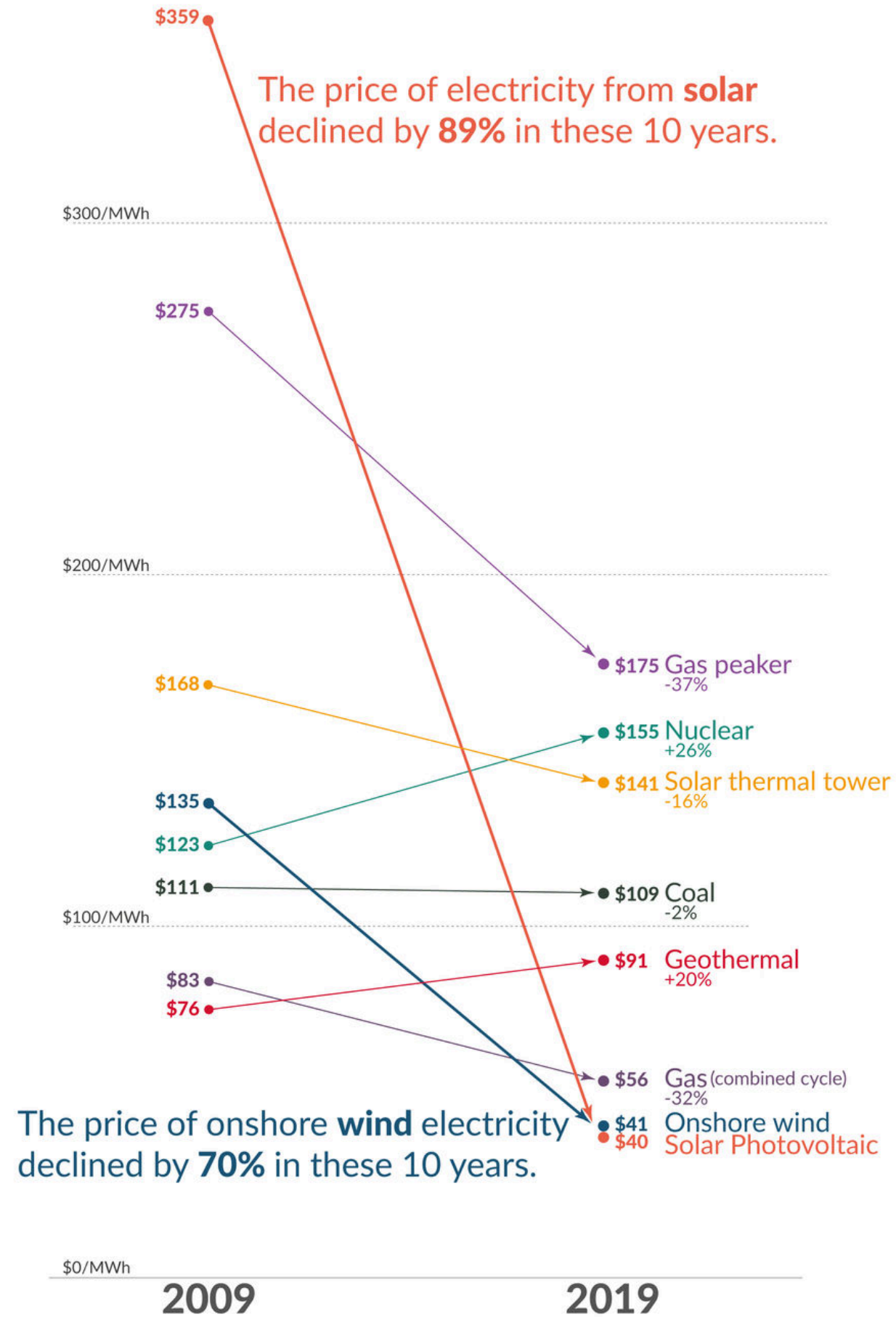
● Gas - United States ● Gas - Japan ● Gas - European Union ● Oil ● Coal

Source: <https://www.iea.org/reports/world-energy-outlook-2021/prices-and-affordability>



# The price of electricity from new power plants

Electricity prices are expressed in 'levelized costs of energy' (LCOE). LCOE captures the cost of building the power plant itself as well as the ongoing costs for fuel and operating the power plant over its lifetime.

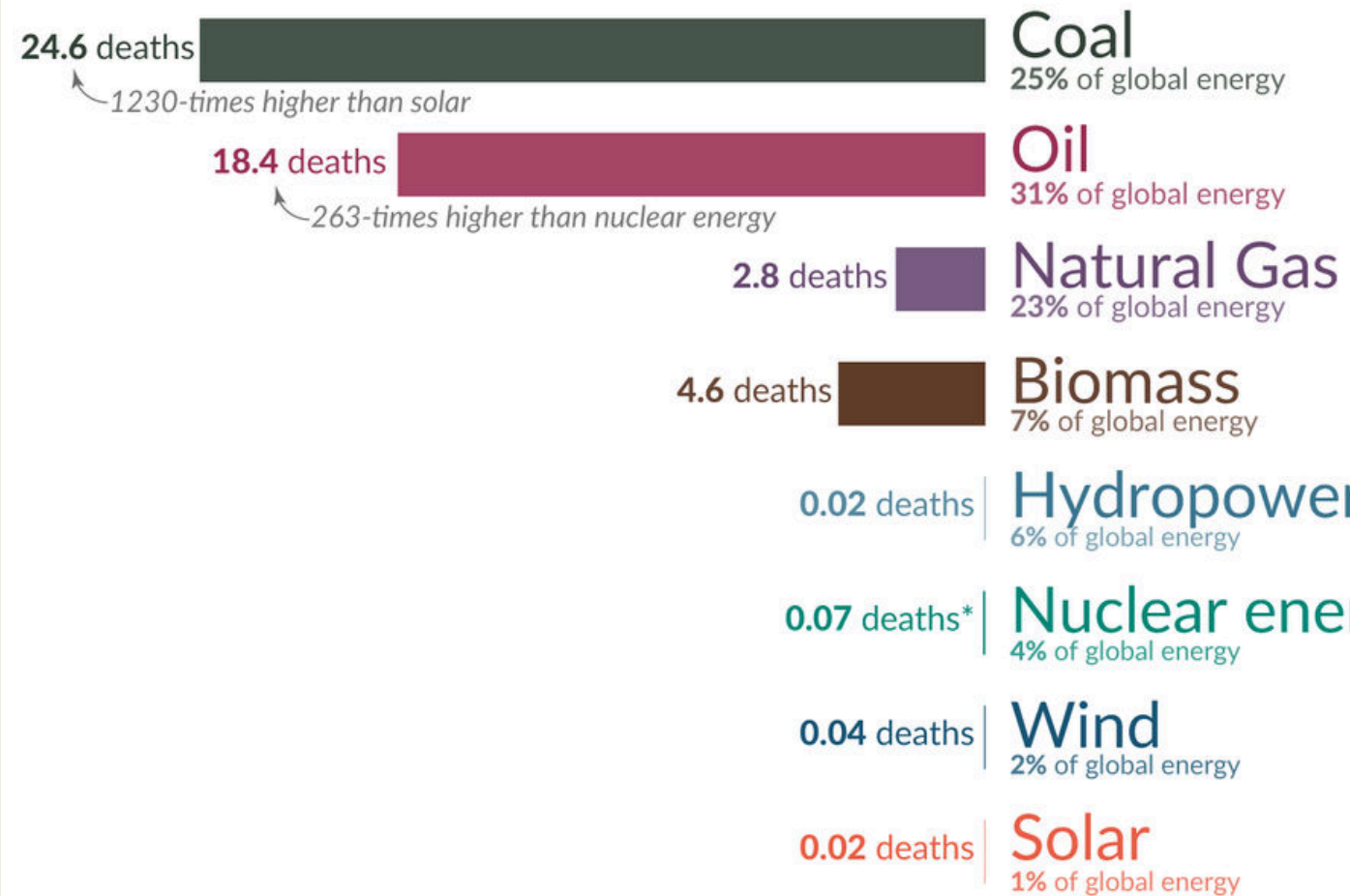


# What are the **safest** and **cleanest** sources of energy?



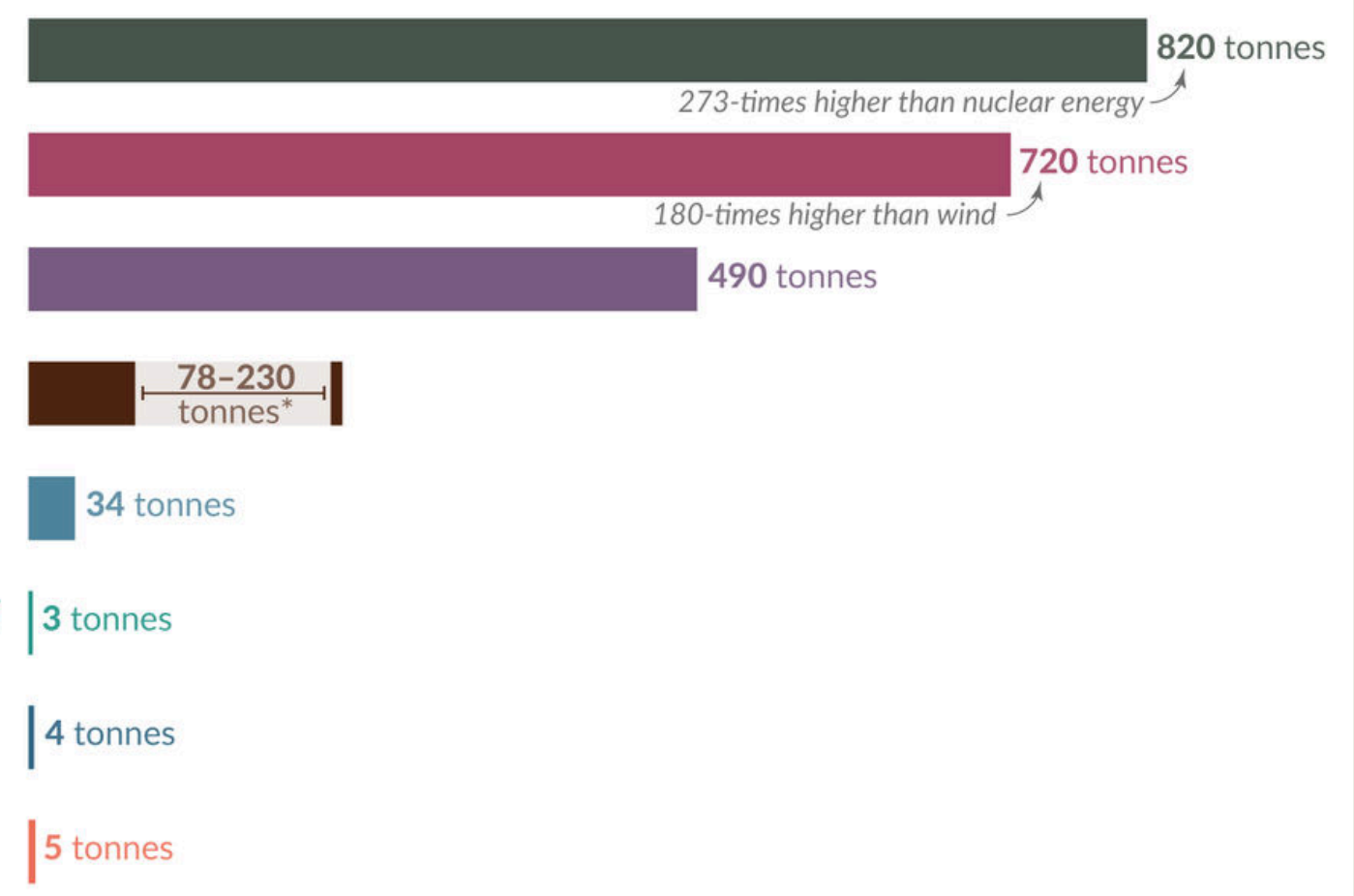
## Death rate from accidents and air pollution

Measured as deaths per terawatt-hour of energy production.  
1 terawatt-hour is the annual energy consumption of 27,000 people in the EU.



## Greenhouse gas emissions

Measured in emissions of CO<sub>2</sub>-equivalents per gigawatt-hour of electricity over the lifecycle of the power plant.  
1 gigawatt-hour is the annual electricity consumption of 160 people in the EU.



\*Life-cycle emissions from biomass vary significantly depending on fuel (e.g. crop residues vs. forestry) and the treatment of biogenic sources.

\*The death rate for nuclear energy includes deaths from the Fukushima and Chernobyl disasters as well as the deaths from occupational accidents (largely mining and milling).

Energy shares refer to 2019 and are shown in primary energy substitution equivalents to correct for inefficiencies of fossil fuel combustion. Traditional biomass is taken into account.

Data sources: Markandya & Wilkinson (2007); Sovacool et al. (2016); IPCC AR5 (2014); Pehl et al. (2017); BP (2019); Smil (2017).

OurWorldinData.org - Research and data to make progress against the world's largest problems.

Licensed under CC-BY by the authors Hannah Ritchie and Max Roser.

Source: <https://www.weforum.org/agenda/2020/12/renewables-energy-price-cost-cheap-climate-change-sustainability/>



# SOLAR



- **Panels can't be recycled**
- **Solar is expensive**
- **Solar is stealing farmland**
- **Solar drives down property values**
- **EMF from solar farms harms human health**
- **Solar panels degrade and contaminate groundwater**

Source: <https://center4ee.org/debunking-solar-myths/>

# SOLAR MYTHS: DEBUNKED

- **Panels can't be recycled**

- Addressing the claim: This used to be true, but our solar industry has vastly improved
- Solar capacity does not diminish during its lifetime
- Even at the end of its life cycle, 90-95% of a PV panel is recyclable
- <https://solarpanelrecycling.com/>

- **Solar is stealing farmland**

- Addressing the claim: Solar can provide benefits to farmers and does not need to be built on farmland.
- Life of a solar installation is 20-25 years - can easily be reverted back to agricultural uses
- Solar farms will only take up 3 million of the available 900 million acres of farmland in the US by 2030

Source: <https://center4ee.org/debunking-solar-myths/>



# SOLAR MYTHS: DEBUNKED

- **Solar is too expensive**

- Addressing the claim: Solar is beginning to outcompete fossil fuel prices, especially at the utility scale.
- The price of solar has dropped to an average of \$2.77 per watt for residential in the USA
- As more people adopt solar, prices are projected to decrease as the market expands

- **Solar drives down property values**

- Addressing the claim: Solar can raise home values in some areas...
- BUT there has been no impact on sale price for residential, agricultural, or vacant residential land that adjoins the existing solar farms included in the study
- Solar leasing can give farmers extra streams of income

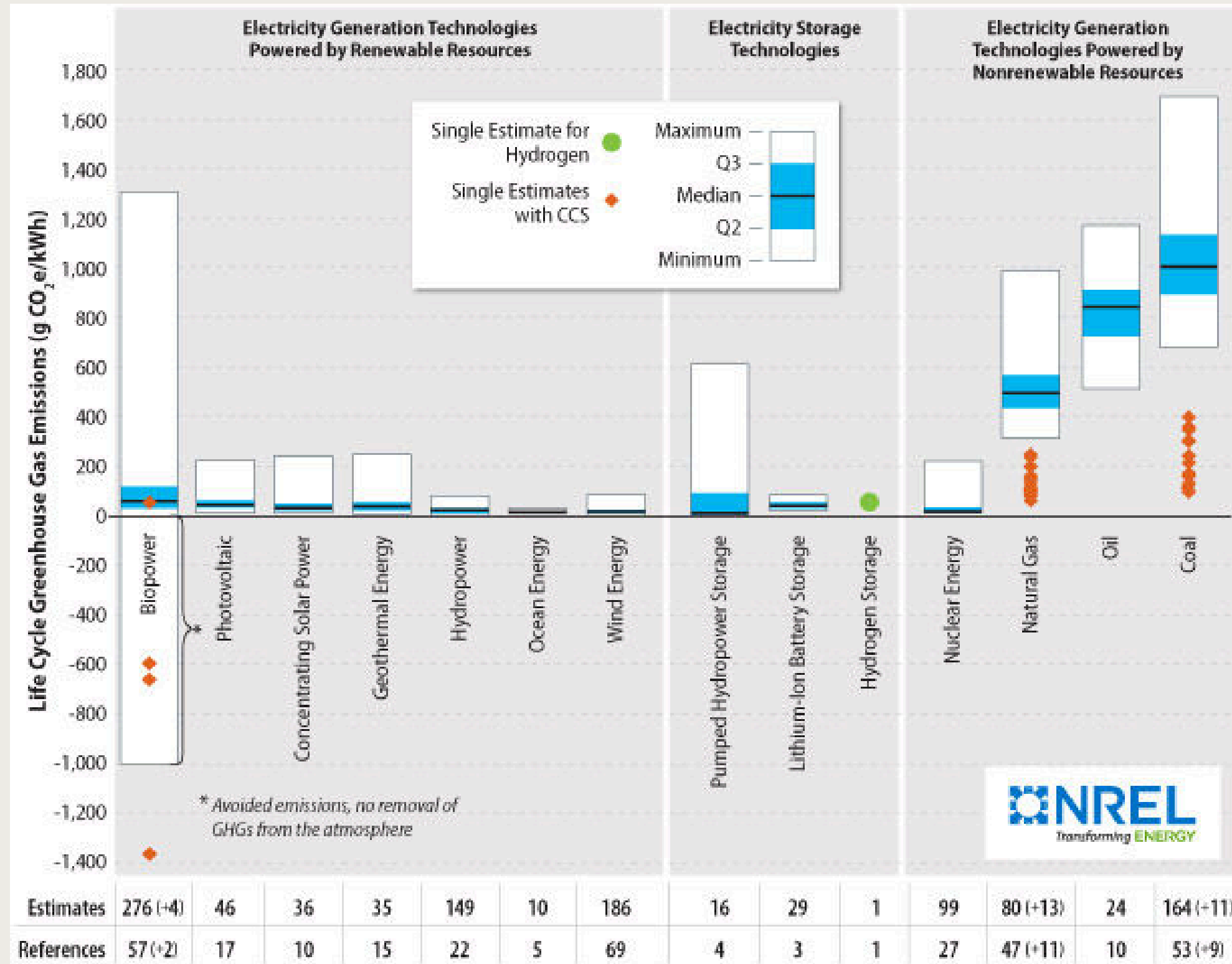
Sources: <https://center4ee.org/debunking-solar-myths/> and  
<https://www.energysage.com/local-data/solar-panel-cost/>

# SOLAR MYTHS: DEBUNKED

- **EMF from solar farms harms human health**
  - Addressing the claim: This is directly untrue and is perpetuated by conspiracy theorists.
  - Completed solar panels emit zero air emissions
  - Solar panels produce a lower electromagnetic field exposure than most household appliances, such as televisions and refrigerators
- **Solar panels degrade and contaminate groundwater**
  - Addressing the claim: Solar panels do not degrade, even when significantly damaged.
  - Most solar panels are made with silicon, a non-toxic and naturally occurring element
  - Solar panel materials are also enclosed under multiple layers and don't mix with water or vaporize in the air

Source: <https://center4ee.org/debunking-solar-myths/>

# EMISSIONS OF SOLAR PANELS



Source: <https://www.nrel.gov/analysis/life-cycle-assessment.html>



# WIND



- **Wind turbines kill birds**
- **Offshore wind kills whales**
- **The transmission lines from offshore wind will damage beaches**
- **Wind turbines are ugly and will lower property values**
- **Wind turbines will cause health problems**



# WIND

- **Wind turbines kill birds**

- Addressing the claim: This is true, BUT other sources cause more bird deaths
- Wind projects kill 0.269 birds per gigawatt-hour of electricity produced, compared to 5.18 birds killed per gigawatt-hour of electricity from fossil fuel projects
- Direct collisions are only a small factor in deaths -- habitat loss is a STRONG contributor

- **Offshore wind kills whales**

- Addressing the claim: NO links whatsoever between the offshore wind development activity and especially humpback whale mortalities
- Ships hitting whales at high speeds and entanglement of whales in fishing line are both stronger causes of whale death

Sources: <https://climate.mit.edu/ask-mit/do-wind-turbines-kill-birds> and <https://www.scientificamerican.com/article/whales-are-dying-but-not-from-offshore-wind/>

# WIND

- **The transmission lines from offshore wind will damage beaches**
  - Addressing the claim: Untrue.
  - Transmission lines are traditionally placed deep underground, similar to the placement of power lines to protect from fires on the West Coast.
- **Wind turbines are ugly and will lower property values**
  - Addressing the claim: This is untrue.
  - While surveys have shown that visitors dislike the presence of offshore wind farms close to shore, most wind farms are built anywhere from 8-30 miles off the coast
- **Wind turbines will cause health problems**
  - Addressing the claim: Scientific consensus this is untrue.
  - People have reported feelings of sickness after wind turbines have been placed near their homes, but over 25 scientific studies have debunked turbines' alleged health impacts.

Sources: <https://www.iea.org/data-and-statistics/data-tools/offshore-wind-geospatial-analysis>

<https://windeurope.org/policy/topics/offshore-wind-ports/> <https://www.pbs.org/wgbh/nova/article/can-wind-turbines-make-you-sick/>

# PIPELINES AND INFRASTRUCTURE



- All pipelines are the same and are equally as safe
- Transitioning to renewables and green infrastructure will harm our economy
- We cannot reduce our dependence on fossil fuels
- Natural gas is a clean alternative
- When one pipeline is defeated, another one will rise up to take its place

# PIPELINES AND INFRASTRUCTURE

- **All pipelines are the same and equally safe**
  - Addressing the claim: This is not true in both regards.
  - Each pipeline is constructed to different specifications: route, diameter, length, etc.
  - Pipelines are regulated but regulation does not ensure safety.
  - Pipelines have leaked, exploded, or been significantly damaged due to weather events.
- **Transitioning to renewables and green infrastructure will harm our economy**
  - Addressing the claim: This is not true and is actively perpetrated by fossil fuel companies.
  - The renewable energy sector is rapidly growing and can create jobs in manufacturing, installation, and maintenance
  - Training programs targeted at fossil fuels workers can provide a stable transition

Sources: <https://pstrust.org/briefing-papers/> and <https://www.business.com/articles/the-impact-of-green-energy-on-the-economy/>



# PIPELINES AND INFRASTRUCTURE

- **We cannot reduce our dependence on fossil fuels**
  - Addressing the claim: Untrue and proven by other countries, local areas.
  - Counter example: Winter Storm Elliott, which caused rolling blackouts across NC
  - Solar and wind performed better than fossil fuel plants, which froze
- **When one pipeline is defeated, another one will rise up to take its place**
  - Addressing the claim: Untrue. Sometimes perpetrated by a feeling of helplessness around systemic change.
  - The Atlantic Coast Pipeline (ACP) was canceled in 2020 and has not re-emerged
- **Natural gas is a clean alternative**
  - Addressing the claim: Some perspectives consider methane gas to be cleaner than coal.
  - “Clean” used as a blanket statement and often twisted to fit the needs of the person using it

Sources: [https://www.huffpost.com/entry/atlantic-coast-pipeline-canceled\\_n\\_5f02295ec5b6ca9709201a86](https://www.huffpost.com/entry/atlantic-coast-pipeline-canceled_n_5f02295ec5b6ca9709201a86) and <https://www.ferc.gov/news-events/news/ferc-nerc-release-final-report-lessons-winter-storm-elliott>

# BATTERIES AND ENERGY STORAGE

- Batteries catch fire and are unsafe for communities
- Batteries don't stabilize the grid
- Because batteries catch on fire, we should not install solar with storage
- Mining for battery materials is just as harmful as fossil fuel extraction





# BATTERIES AND STORAGE

- **Batteries catch fire and are unsafe for communities**
  - Addressing the claim: This is partially true and is a valid concern. Batteries can catch fire and many fire departments are unprepared to manage lithium-caused fires.
  - In cases where fires occur spontaneously while charging, it is likely due to manufacturing defects
- **Batteries don't stabilize the grid**
  - Addressing the claim: This is completely untrue.
  - Batteries can provide local power when traditional grid sources fail (due to storms, etc.)
  - They can also store power from renewable energy systems during high production times
- **Batteries catching on fire means that solar plus battery storage is dangerous**
  - Addressing the claim: This is untrue, and solar farm fires are incredibly rare.
  - Battery fires are also unlikely to spread to solar panels themselves. Electrical equipment is much more likely to spread fires.

# BATTERIES AND STORAGE

- **Mining for battery materials is just as harmful as fossil fuel extraction**
  - Addressing the claim: Not true... however, mines DO have serious environmental impacts.
  - An EV requires six times more minerals than a conventional car (not counting steel and aluminum), while building a wind plant uses nine times more minerals than a gas plant
  - Methods for extracting oil and coal are different than those for metal mining
  - Percentage of materials successfully extracted can make a major difference in environmental impacts of a mine
  - However, a 2020 report from the IEA found that for every gigawatt of a clean energy technology that's installed, millions of tons of CO2 emissions can be avoided

Sources: <https://climate.mit.edu/ask-mit/how-does-environmental-impact-mining-clean-energy-metals-compare-mining-coal-oil-and-gas>



# ELECTRIC VEHICLES (EVs)



- **Electric vehicles will crash the grid**
- **There are not enough chargers to reliably travel with an EV**
- **They don't work when it's cold or flooded**
- **EVs are the solution to transportation-fueled emissions**

# ELECTRIC VEHICLES (EVs)

- **Electric vehicles will crash the grid**

- Addressing the claim: This is not true, especially considering the rate of uptake for EVs.
- Poor planning and a failure to effectively manage electric loads by utilities is a much larger issue than individual adoption of EVs
- FERC Order 1920 dictates utilities to begin long-term, scenario-based transmission planning

- **There are not enough chargers to reliably travel with an EV**

- Addressing the claim: This was once true but the network is rapidly expanding.
- According to the Joint Office of Energy and Transportation, there are 73,389 station locations and 201,063 chargers nationwide

Sources: <https://www.scientificamerican.com/article/why-electric-vehicles-wont-break-the-grid/>  
<https://driveelectric.gov/stations>  
[https://rmi.org/wp-content/uploads/dlm\\_uploads/2024/06/ferc\\_order\\_1920\\_factsheet\\_updated.pdf](https://rmi.org/wp-content/uploads/dlm_uploads/2024/06/ferc_order_1920_factsheet_updated.pdf)



# ELECTRIC VEHICLES (EVs)

- **They don't work when it's cold or flooded**
  - Addressing the claim: Missing context. Perpetrated by fossil fuel and car companies.
  - Electric vehicles do work in the extreme cold, but their capacity and charging times lower
  - Cold weather also means humans turn up the heat in their cars, which reduces EV capacity
- **EVs are the solution to transportation-fueled emissions**
  - Addressing the claim: Untrue but EVs can be a step towards decarbonization.
  - Accessible, reliable public transit can drastically drop emissions nationwide and internationally
  - Ridership problem: Chicken and the Egg

Sources: <https://www.cnn.com/2024/01/16/business/why-evs-dont-go-as-far-in-the-freezing-cold/index.html> and <https://www.weforum.org/agenda/2023/03/5-ways-the-world-can-reduce-emissions-from-global-transport-systems/>



# ENVIRONMENTAL JUSTICE

- Environmental justice is just about race and pollution
- If there's a problem where you live, you should just move!
- Population control will solve climate change
- Climate change affects everyone equally



# ENVIRONMENTAL JUSTICE

- **Environmental justice is only about race and pollution**
  - Addressing the claim: This is untrue and often used by opponents to simplify issues.
  - Race, class, gender, and geography -- environmental justice is intended to address intersectional factors
  - Also includes access to green spaces, clean water, healthy food, equitable transportation, infrastructure overlap, etc.
- **If there's a problem where you live, just move!**
  - Addressing the claim: This is a logical fallacy and ignores practical limitations.
  - Some folks, especially in low income areas, don't have the financial freedom to move
  - People often have close cultural, personal, or familial ties to physical locations and don't want to uproot



# ENVIRONMENTAL JUSTICE

- **Population control will fix climate change**

- Consumption, especially in wealthier nations, has a more significant impact on carbon emissions
- Population control measures are inherently racist
- Education and access to reproductive health services can empower communities rather than control them

- **Climate change affects everyone equally**

- Addressing the claim: An abundance of economic and scientific data debunks this.
- Neither the consumption of our resources nor the impact of this consumption is evenly distributed
- The disasters that your area is expecting could be drastically different than what actually happens

Source: <https://www.un.org/en/desa/population-growth-environmental-degradation-and-climate-change>



**WHAT ELSE IS OUT THERE?**

# STRATEGIES TO ENGAGE AGAINST MISINFORMATION

- Engage Constructively
- Provide Reliable Sources
- Clarify Misunderstandings
- Focus on Common Values
- Promote Scientific Literacy



# THE LARA METHOD

- **Listen**

- What someone means is often different than what they say

- **Affirm**

- Many fears that perpetuate misinformation are often valid (safety, access to resources, security, cost)
- Examples of shared values affirmations include: “I sense we share the desire to do what is right”

- **Respond**

- “I’ve read many scientific studies suggesting that race is a social construction, not a biological fact” vs. “Science shows that race is a myth, and anyone who doesn’t believe this is simply ignorant.”



# THE LARA METHOD

- **Ask or Add**

- “How did that make you feel?”
- “Why do you think you reacted that way?”
- “How did you reach that conclusion?”

- **Power of adding in personal or professional stories**

- “Would it be OK if I shared my perspective?”

- **What happens if you don't make it to Asking or Adding**

- Gathering information on current perspectives can be helpful to partners
- Evangelizing on climate: sometimes your purpose is to plant the seed, not grow the tree!

# ANALYZING A CONVERSATION

- **Body language differences**

- Tensing up, crossing arms, or avoiding eye contact can indicate discomfort or defensiveness
- Posture can also be a big indicator of impending aggression

- **How questions are phrased**

- Increased emotionality or shifting from calm discussion to raised voices, sarcasm, or aggressive language.
- Phrases that indicate blame or accusation, like “You always...” or “I can’t believe you...”

- **Thought patterns**

- Bringing up past grievances or issues that seem unrelated to the current situation
- Advocates can provide reassurance of solving the problem and being part of the solution

# QUESTIONS:

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