ENOUGH

EUROPEAN FOOD CHAIN SUPPLY TO REDUCE GHG EMISSIONS BY 2050

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Strategies to decarbonise the European food chain – what is needed and how can we reach net zero by 2050?

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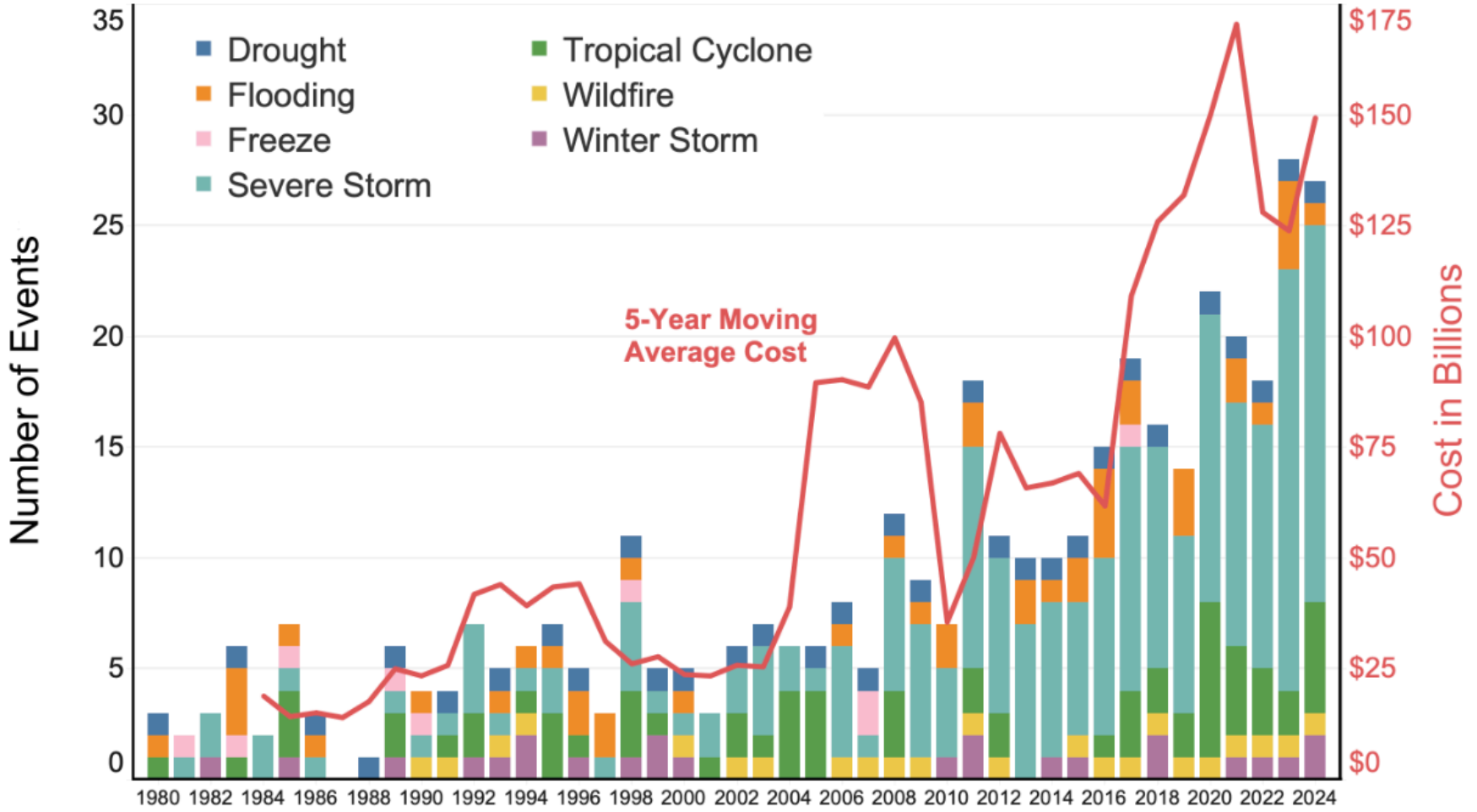
Global warming
Ice sheets melting
Sea-level rising
More extreme weather events

CLIMATE AND WEATHER EVENTS WITH AT LEAST $1 BILLION IN DAMAGES

INFLATION-ADJUSTED COSTS, 1990-2024.

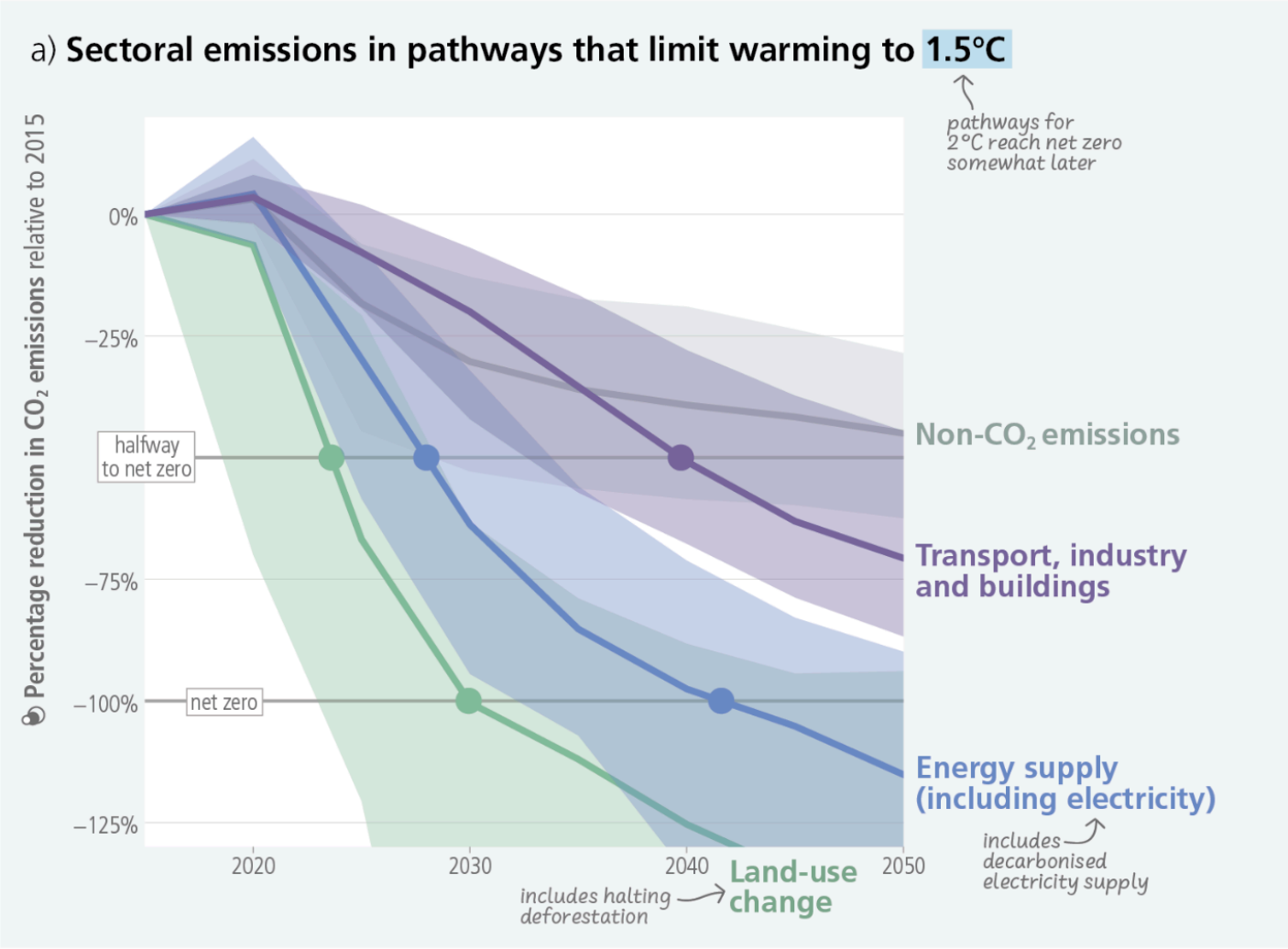


Source: National Centers for Environmental Information (NCEI), Billion-Dollar Weather and Climate Disasters.
Costs in Billions of 2024 Dollars

EconoFact: econofact.org

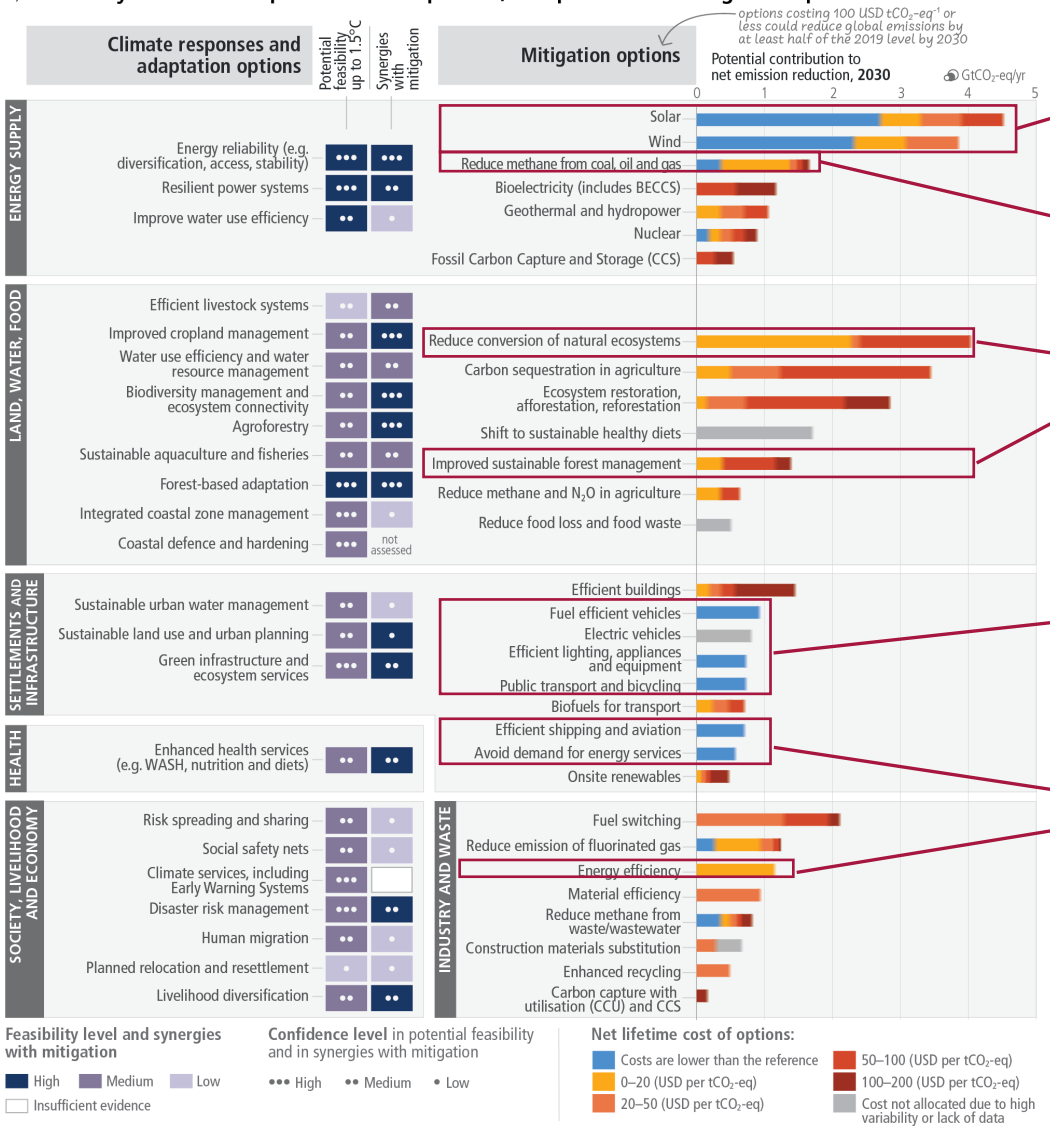
The transition towards net zero CO_2 will have different pace across different sectors

CO_2 emissions from the electricity/fossil fuel industries sector and land-use change generally reach net zero earlier than other sectors

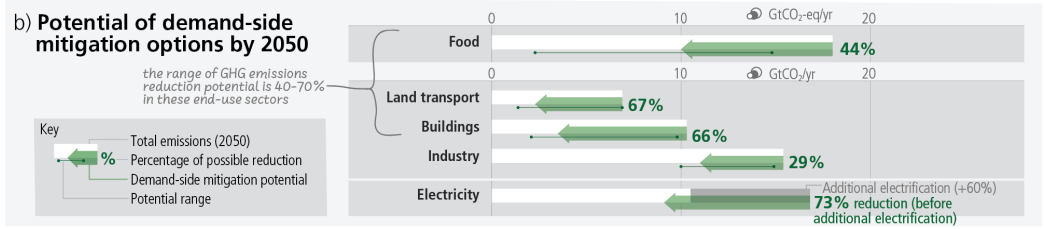


There are multiple opportunities for scaling up climate action

a) **Feasibility of climate responses and adaptation, and potential of mitigation options in the near term**



b) **Potential of demand-side mitigation options by 2050**



Solar and wind power are by far the best mitigation actions

Would be great when this actually happens

High impact, but no easy wins

Potential to have high impact

Not too costly

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EIT Food: A Net Zero Food System - Insight Report

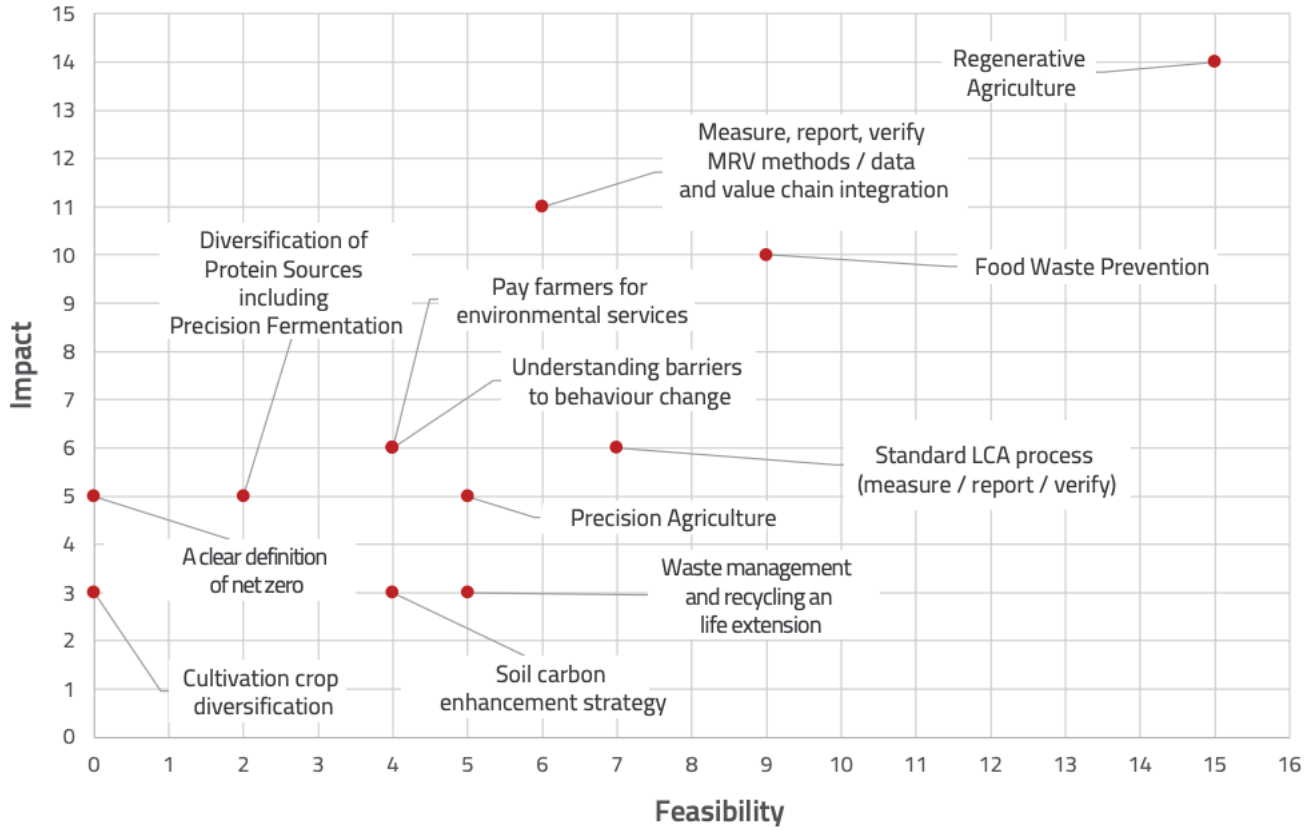


Figure 13 : Representation of Impact x Feasibility voting for priority opportunities

- Understanding
- Measuring and reporting
- Better use of resources
- More sustainable food production
- Healthier and more sustainable diet
- Policy measures
- Behavourial change

What can the food sector do to become net zero (in 2050)

Carbon storage:

protect current tree stands (stop deforestation),

leave more land for nature

store carbon in the soil (regenerative farming),

Stop using fossil fuels,

reduce use of artifical fertilizer,

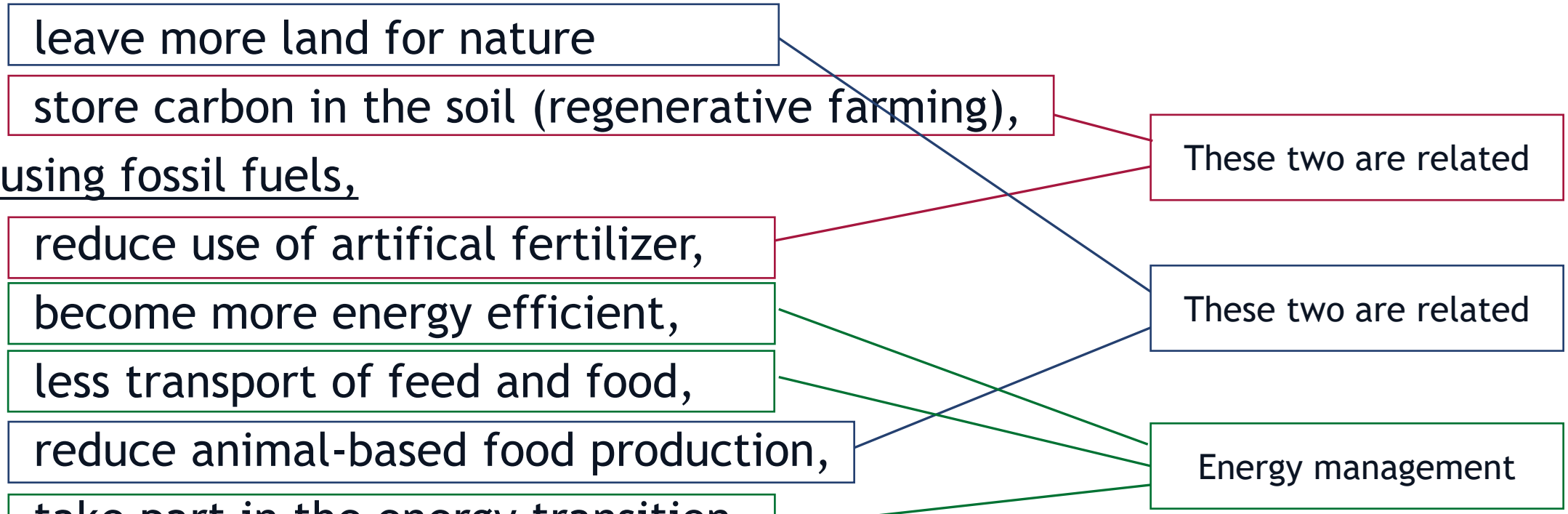
become more energy efficient,

less transport of feed and food,

reduce animal-based food production,

take part in the energy transition,

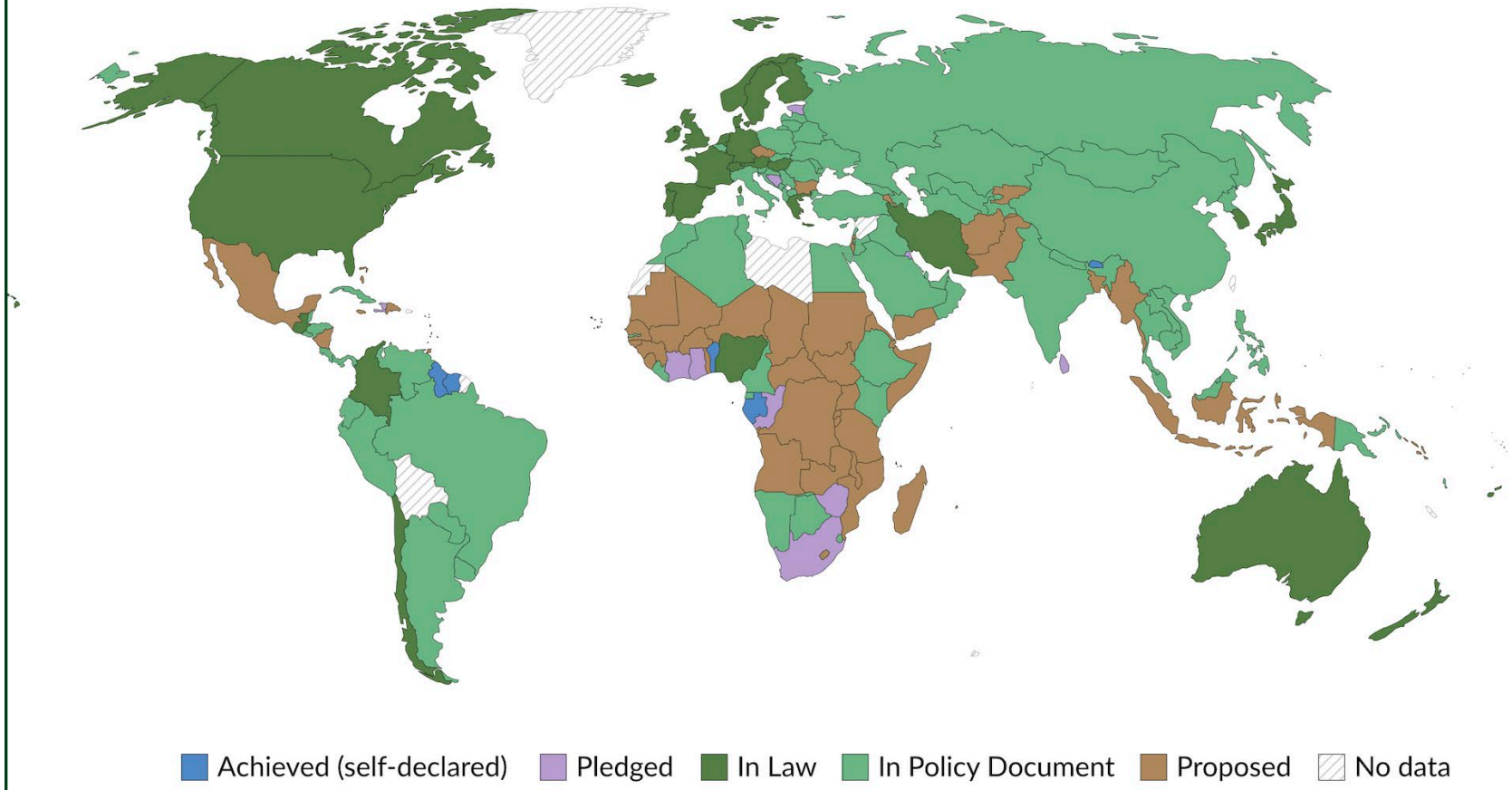
reduce use of plastic packaging.



Status of net-zero carbon emissions targets

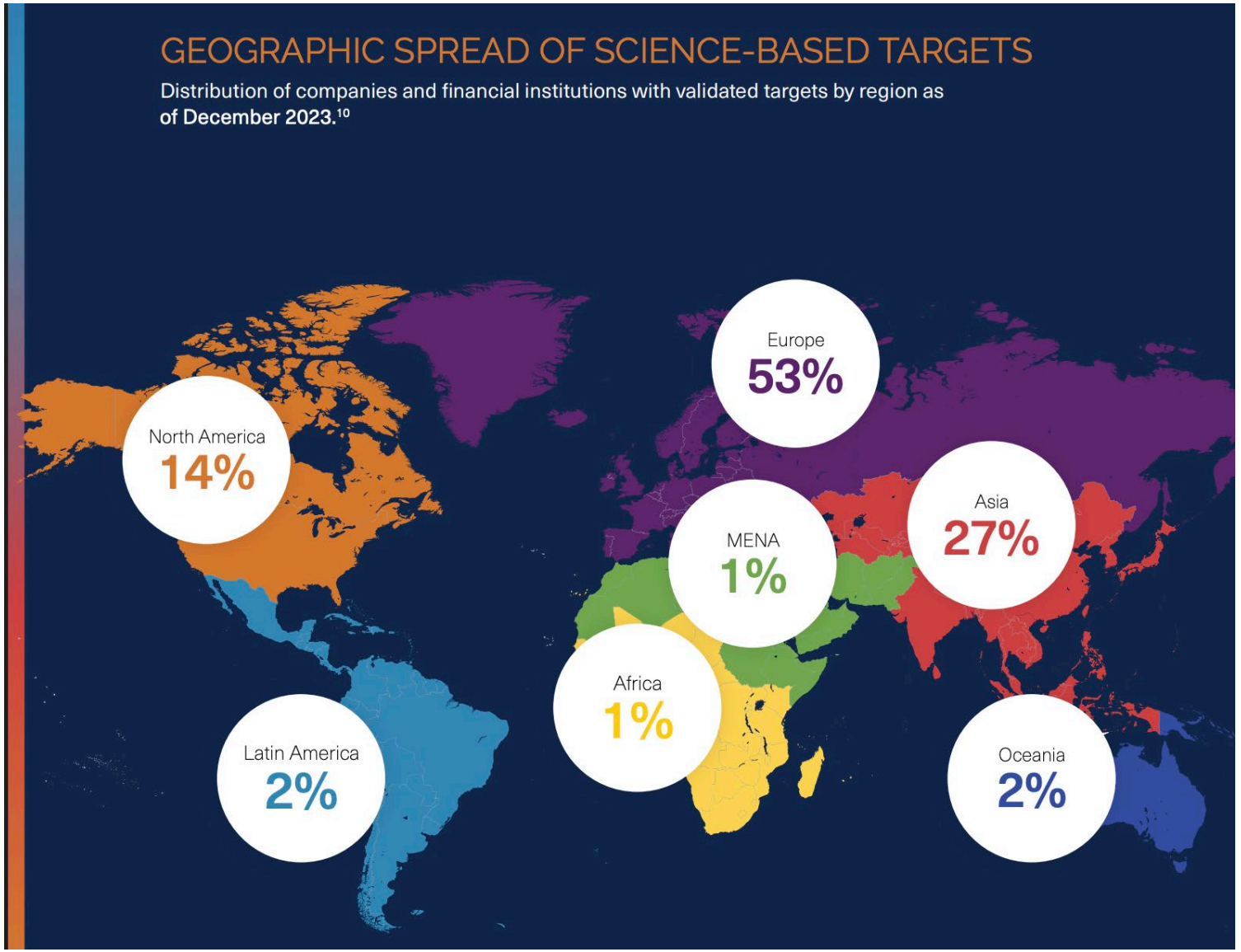
Our World in Data

The inclusion criteria for net-zero commitments may vary from country to country. For example, the inclusion of international aviation emissions; or the acceptance of carbon offsets. To see the year for which countries have pledged to achieve net-zero, hover over the country in the interactive version of this chart.



Data source: Energy and Climate Intelligence Unit, Data-Driven EnviroLab, NewClimate Institute, Oxford Net Zero - Net Zero Tracker (2023)
OurWorldinData.org/co2-and-greenhouse-gas-emissions | CC BY

Companies with Science-based targets to become net zero (= Greenhouse Gas Emission-free in 2050)



SBTI:
Science-based targets show businesses how much and how quickly they need to reduce their greenhouse gas (GHG) emissions to prevent the worst effects of climate change.

Land use

protect natural systems so they can (keep) storing carbon

- stop deforestation
- sustainable forestry

be as efficient as possible with food production

- reduce food loss
- reduce animal-based food production
- use less land for feed production
- promote protein diversification
- promote indoor food production

optimise the carbon cycle of food production

- stop using fossil fuel-based fertiliser
- apply carbon storage via regenerative farming

Food processing and transport

Save energy

implement energy saving measures

- transport less
- use more energy efficient equipment & processes
- use more energy efficient food storage systems
- implement new energy saving technologies (e.g. LED lights)

Be part of the energy transition

move towards renewable energy (solar, wind, hydropower)

- (co-)invest in renewable energy (e.g. rooftop)
- more over to renewable energy

Facilitate electrification

solve the electricity network capacity issues

Food chain aspects

Fertilizer for food production

- develop local systems to produce fossil fuel-free fertilizer

Transport

- minimise transport
- select transport with renewable energy

Food processing

- build more sustainable buildings
- implement energy-saving measures
- apply innovative technologies

Food sales

- prioritize energy-efficient systems,
- leave behind plastic (packaging)

Plastic packaging

Big Oil's plan B: Plastic production

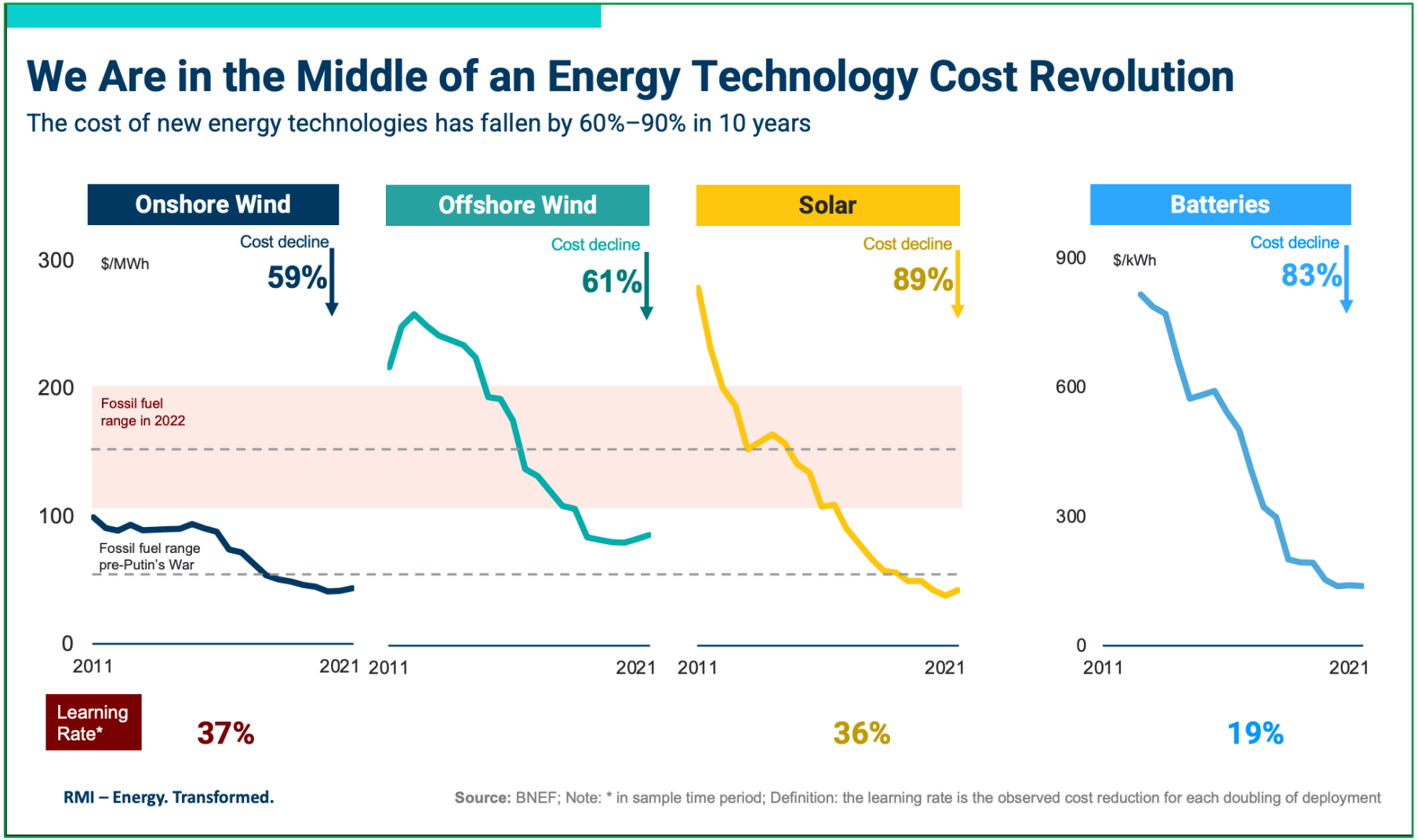
What is the problem with plastic and petrochemicals?
Petrochemicals, the category of oil refining that includes plastic, now account for 14% of oil use, and are expected to drive half of oil demand growth between now and 2050. The World Economic Forum predicts plastic production will double in the next 20 years.

Plastics and petrochemical production threaten our climate, oceans, wildlife and human health.

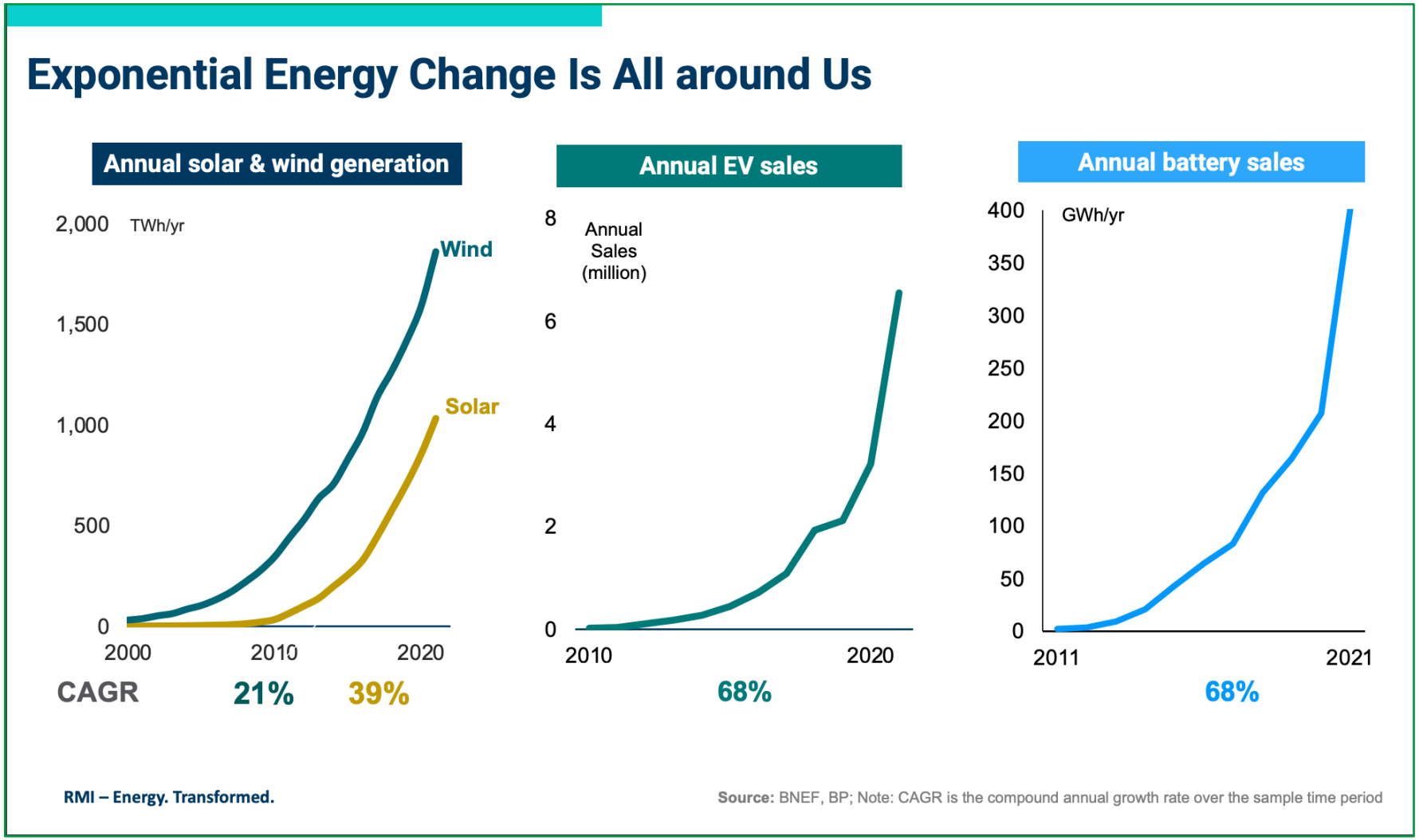
The process to make them releases toxins that cause cancer and a range of other severe illnesses. As with many social problems, the poorest and most vulnerable people are often worst affected by this environmental disaster.

Source: https://www.clientearth.org/latest/news/big-oils-plan-b-plastic/

Energy transition



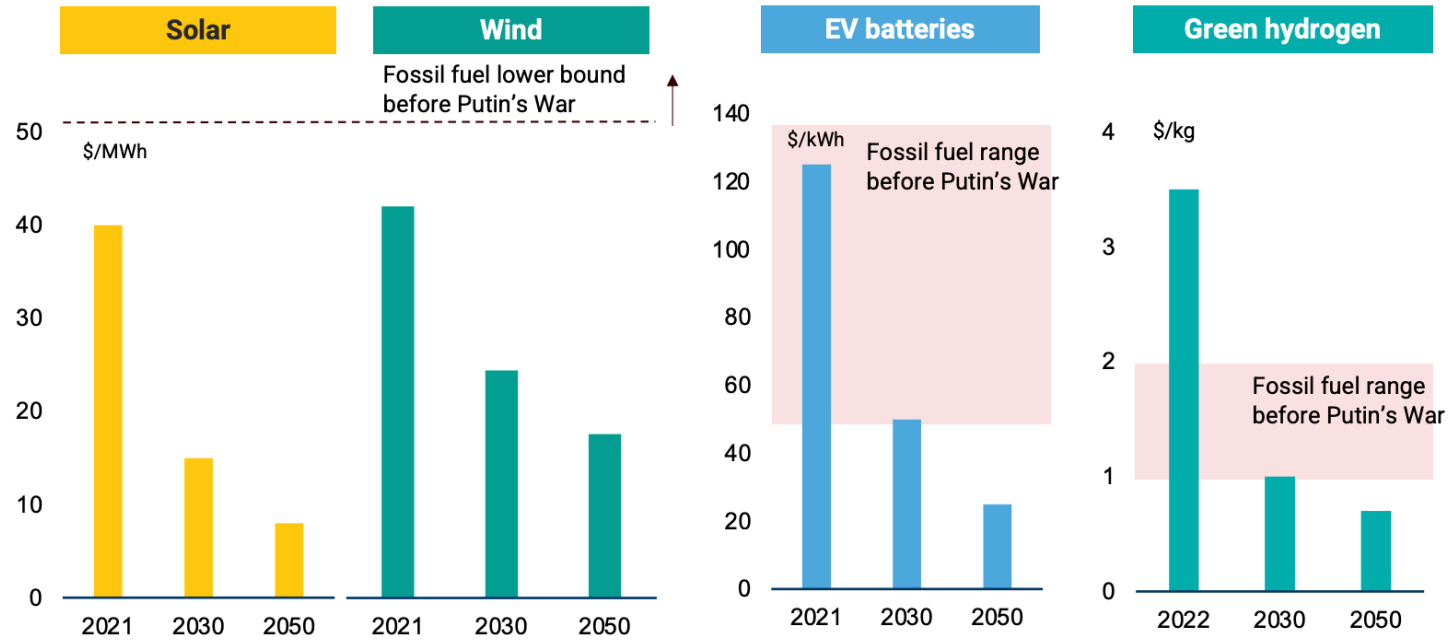
Energy transition



Energy transition

And Cheap Renewables Create an Entirely New Paradigm

The faster change happens, the cheaper renewables become



If we continue on existing learning and growth rates, then by 2030 the world will enjoy $15 per MWh solar, $25 per MWh wind, $50 per kWh Li-ion batteries, and $1/kg green hydrogen.

RMI – Energy. Transformed.

Source: RMI; cost forecasts use Rystad's growth rates and observed learning rates. Hydrogen is competitive locations

Energy transition

There Are No Insoluble Barriers to Change

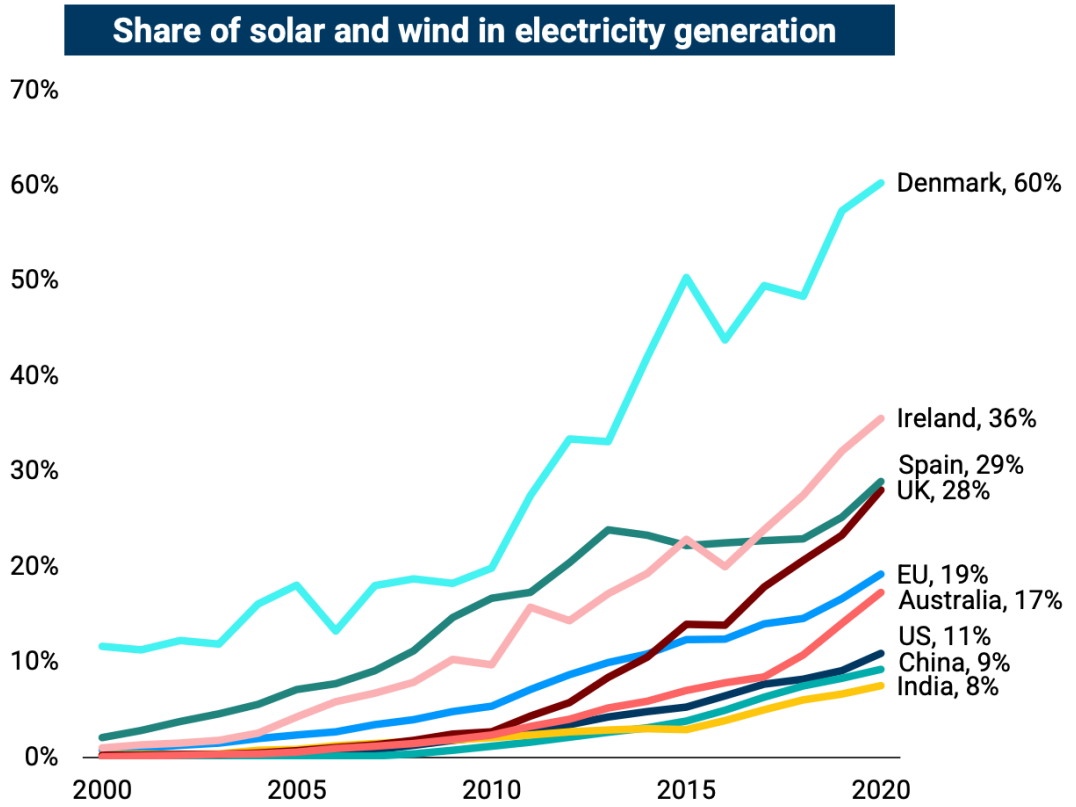
Skeptics have been hoping for years that something would stop the deployment of renewable electricity.

Grid codes, intermittency, lack of minerals, and so on were meant to act as a ceiling on growth.

But we have found solutions for all of these. This has required constant innovation and hard work.

The ceiling of the possible is therefore constantly rising.

Meanwhile, most countries are far below the ceiling of the possible.



RMI – Energy. Transformed.

Source: BP 14

Conclusions

- We as humanity need to act fast to prevent global warming to pass the 1.5C target as the costs of inaction increase dramatically,

- Low hanging fruit measures should be implemented asap,

- On top of the accelerating energy transition we need a carbon transition in the food sector,

- We have many of the technological solutions at hand already, they need to be implemented at scale,

- Large investments are needed in R&I to develop tomorrow's solutions

- With these innovations we can strengthen the EU economy

Recommendations

- We need to develop **science-based definitions**, calculation methods and targets for the energy transition

- Countries and companies are invited to commit to **become net zero** around 2050 as is agreed upon in the Paris Agreement

- To really reduce the use of fossil fuels, alternatives for **artifical fertilizer** and **plastics** need to be developed

- Jump on the train of the **energy transition** and **electrification**

- Implement new **energy saving technologies** in the food chain

- Each actor (policy, industry, academia, society) should play its part to make the above reality

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101036588

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THANK YOU!

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