Conference
Vilnius | June 11, 2026

Do geopolitical shocks accelerate or slow down green transitions?

Aleh Cherp, Central European University, Lund University
Anastasia Pavlenko, Central European University

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Introduction

Aleh Cherp

- Energy security
- Speed of technology change and low-carbon transitions
- Feasibility of climate action
- Lead author for IPCC AR7 (long-term scenarios)

Anastasia Pavlenko

- Effects of wars and crises on energy transitions
- Evolution of climate and energy policy in the EU and beyond

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Geopolitical crises interfere with green energy transitions …

The Hormuz Crisis Shows Us Why the Energy Transition Can't Wait

The disruption around the Strait of Hormuz — a corridor carrying roughly 20 million barrels of oil a day — has been called the greatest threat to global energy security in history. The crisis, according to global experts, is worse than the 1970s oil shocks and the 2022 Ukraine gas disruption combined and the response so far reflects the scale of the problem. Oil prices surged over 60% in March, prompting the IEA to authorize its largest-ever release of emergency reserves at 400 million barrels. But as Dr. Faith Birol himself acknowledged, reserves buy time. They are not a cure.

NewScientist

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Analysis and Environment

Will war in the Middle East accelerate the clean energy transition?

Disruption to shipping traffic through the Strait of Hormuz has led to a spike in oil and natural gas prices, which could spur countries to boost the roll-out of renewable energy and electric vehicles

By Alec Luhn

18 March 2026 Last updated 20 March 2026

ESG Investing / Viewpoint

'Hormuz shock' opportunity to accelerate energy transition

NEWSLETTERS | WSJ CLIMATE & ENERGY Follow

The Energy-Security Argument for Saving the World

Plus, big oil wants Trump to let up on wind, and the latest on the Strait of Hormuz

By Ed Ballard Follow

March 5, 2026 at 9:25 am ET

Energikrisens effekt på gröna omställningen

▶ 12 min

Publicerad 29 apr · kl 07:44 · 12 min

- Den globala oljekrisen väcker frågan om vilka effekter krisen har på klimatomställningen.
- Kan den oljebrist som många länder upplever just nu skynda på omställningen bort från fossila bränslen, eller är det tvärtom så att det som händer kan få negativa konsekvenser för klimatarbetet?
- Hör **Lars J Nilsson**, professor i miljö- och energisystem, och **Aleh Cherp**, professor i strategisk miljöbedömning, båda vid Lunds universitet.

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Geopolitical crises interfere with green energy transitions … but how?

On the one hand …

- National shift to the right (climate less of a priority)
- Collapse of global governance

… at the same time …

- Clean energy boom (solar, EVs, batteries, nuclear)
- Vows from policy makers to replace fossils

What are the effects of crises on energy transitions?

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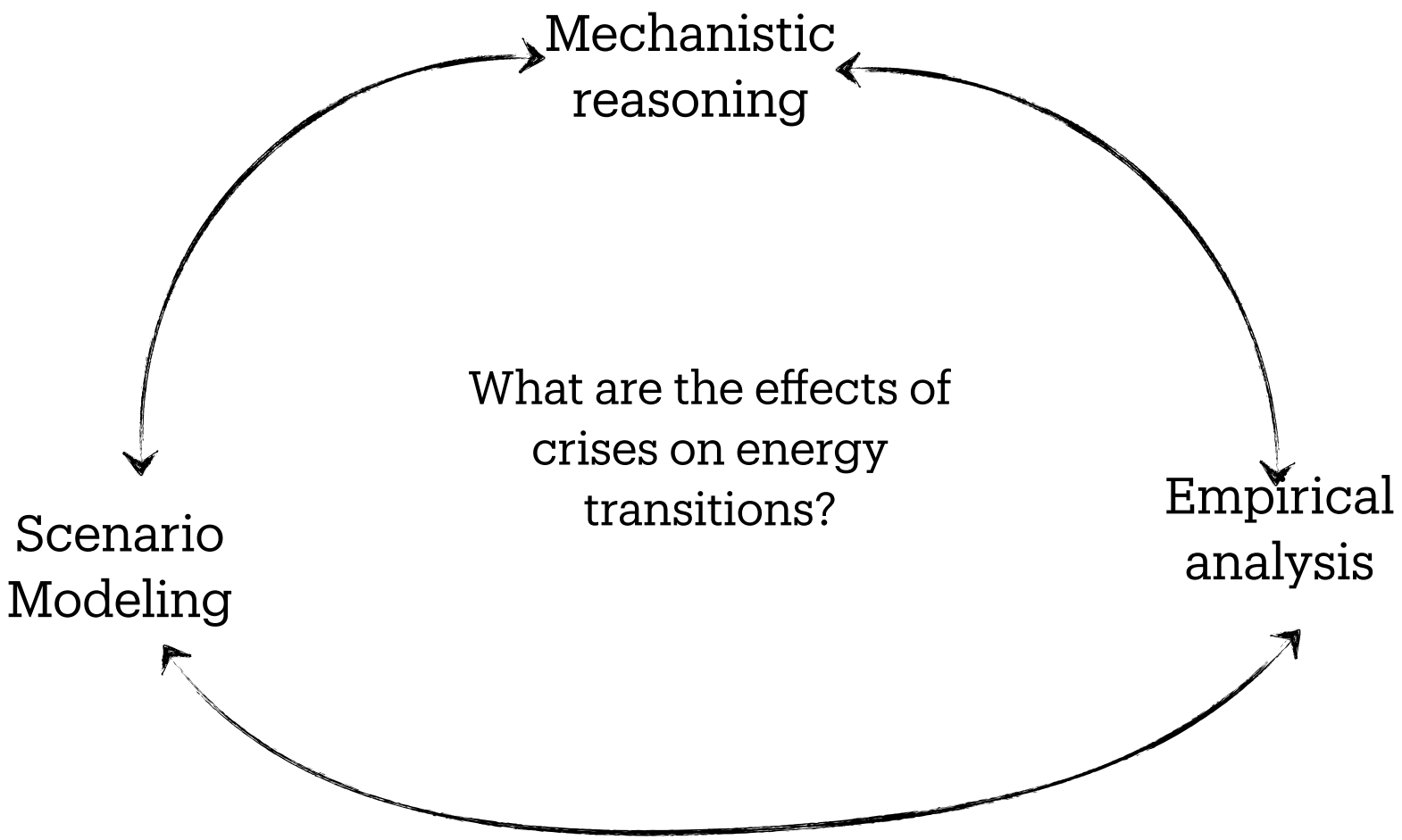

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Mechanistic reasoning

Energy crises in history

Empirical analysis

`vital energy systems`

`= energy systems which support critical social functions`

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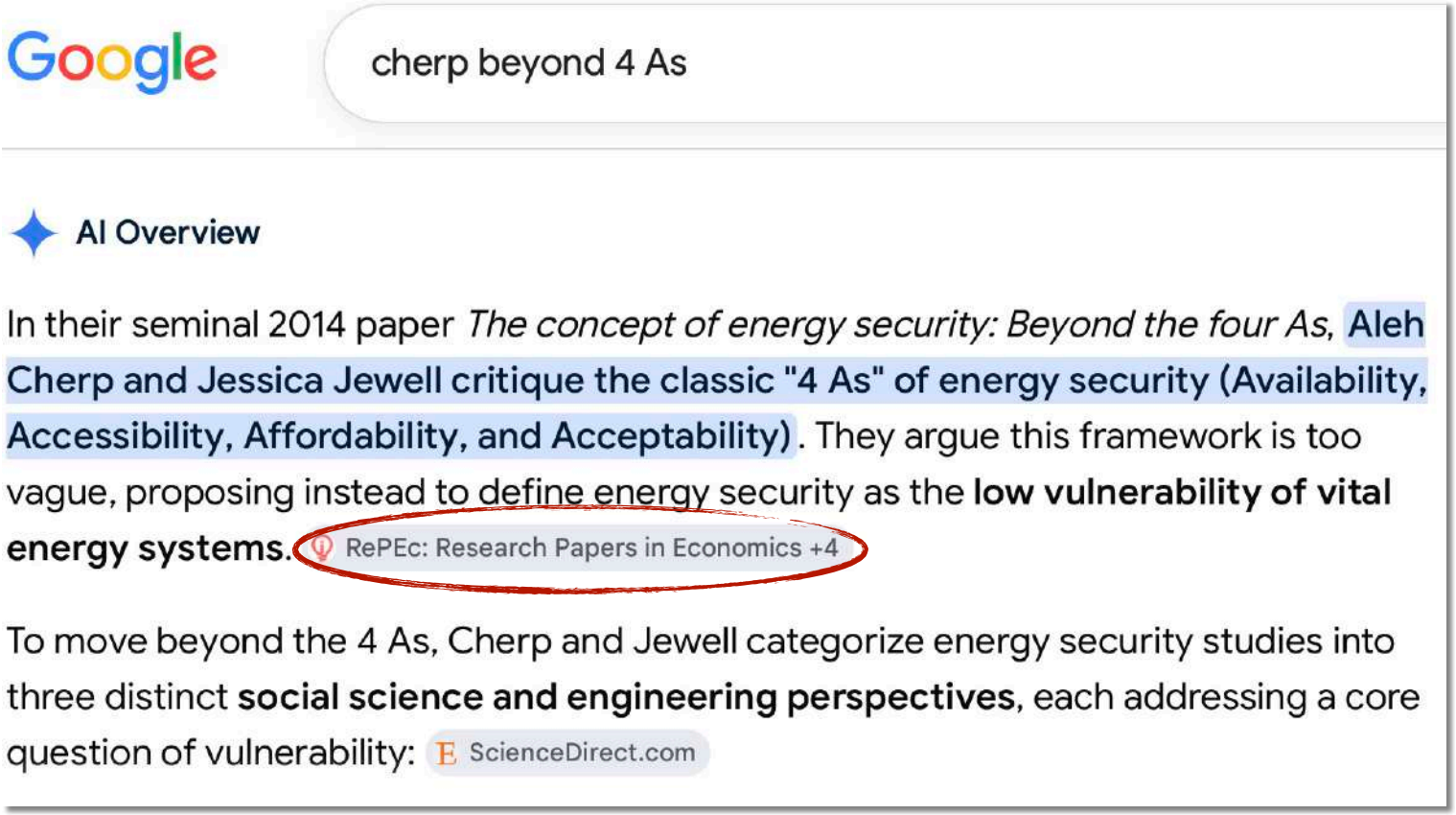
Energy crises in history and definition of energy security

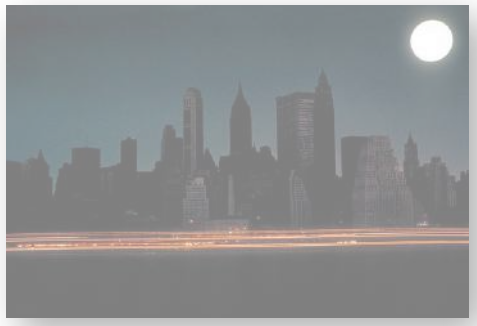


Cherp and Jewell, *2014*

Three perspectives of energy security

vulnerability

Agency



Sovereignty

Three perspectives of energy security

vulnerability

Agency

Mechanisms

Sovereignty

Robustness

Three perspectives of energy security

vulnerability

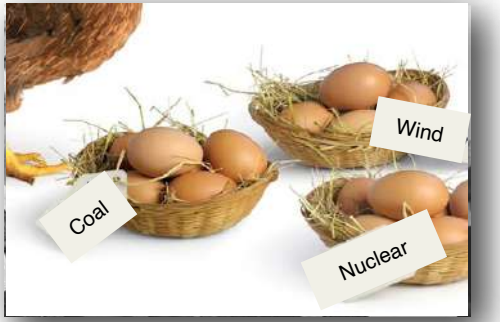
agency

Sovereignty

Mechanisms

Robustness

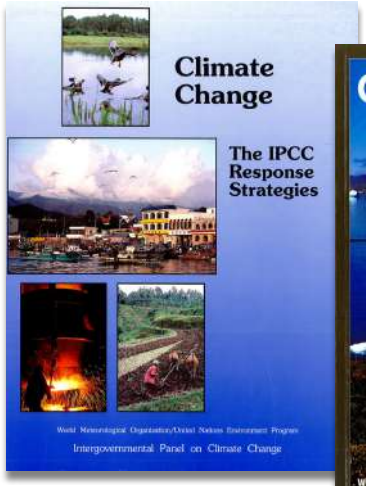
uncertainties



Resilience

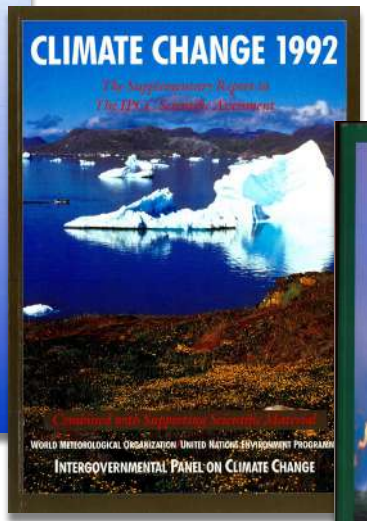
Energy security ← → climate: evidence from models

IPCC first AR 1990



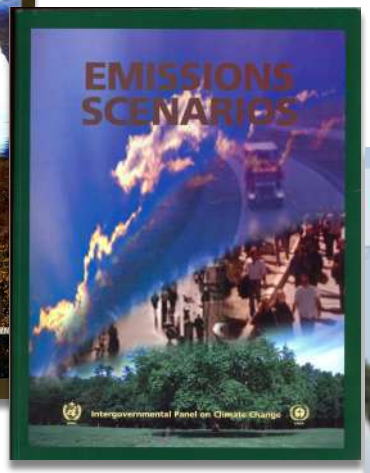
4 scenarios

IPCC supplementary report 1992



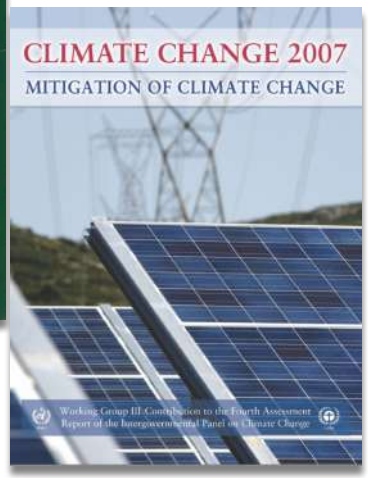
6 scenarios

SRES report 2000



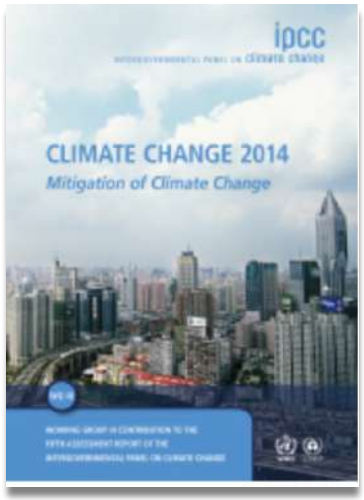
40 scenarios

IPCC AR4 2007



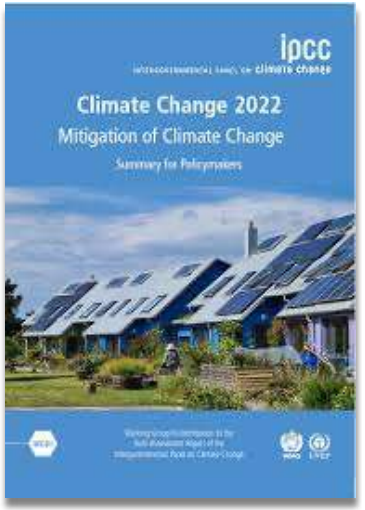
176 scenarios

IPCC AR5 2014



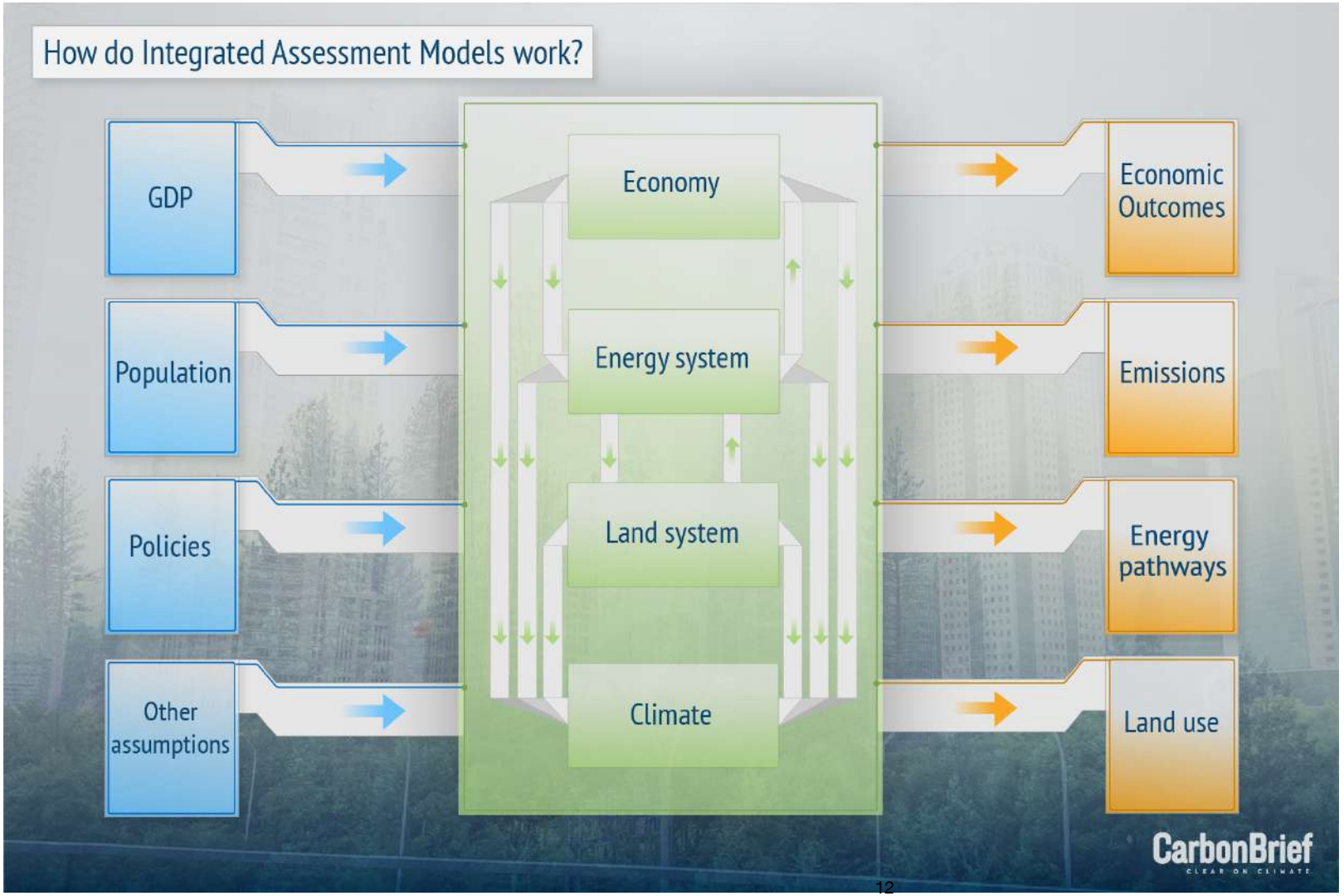
1184 scenarios

IPCC AR6 2023



>3000 scenarios

Most global scenarios are generated by IAMs



- Exogenous assumptions
- Solution mechanisms - [normally] least cost optimisation for social planner
- Multiple scenarios produced by varying exogenous assumptions and model parameters


Energy Policy 65 (2014) 743–760

Contents lists available at ScienceDirect

Energy Policy

journal homepage: www.elsevier.com/locate/enpol

Energy security under de-carbonization scenarios: An assessment framework and evaluation under different technology and policy choices

Jessica Jewell [a,b,*], Aleh Cherp [b,c], Keywan Riahi [a,d]

USA

	trade	resources	diversity
Business as Usual	↓↓ imports	-	↓ diversity
Climate mitigation	↓↓ exports	-	↑↑ diversity

China

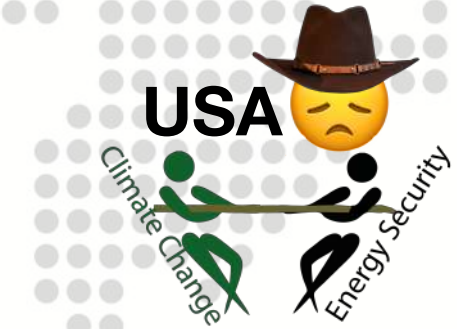
	trade	resources	diversity
Business as Usual	↑↑↑↑↑ imports	↑↑↑ depletion	↓ diversity
Climate mitigation	↑ imports	↑ depletion	↑↑ diversity

EU

	trade	resources	diversity
Business as Usual	↑↑ imports	↑↑ depletion	- diversity
Climate mitigation	↓ imports	↑ depletion	↑↑ diversity

India

	trade	resources	diversity
Business as Usual	↑↑↑↑↑ imports	↑↑↑↑↑ depletion	↓↓↓ diversity
Climate mitigation	↑↑ imports	↑ depletion	↑↑ diversity



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ENERGY POLICY

Energy security under de-carbonization scenarios: An assessment framework and evaluation under different technology and policy choices

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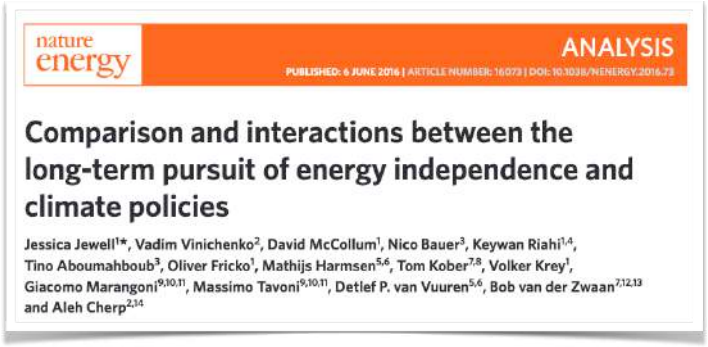
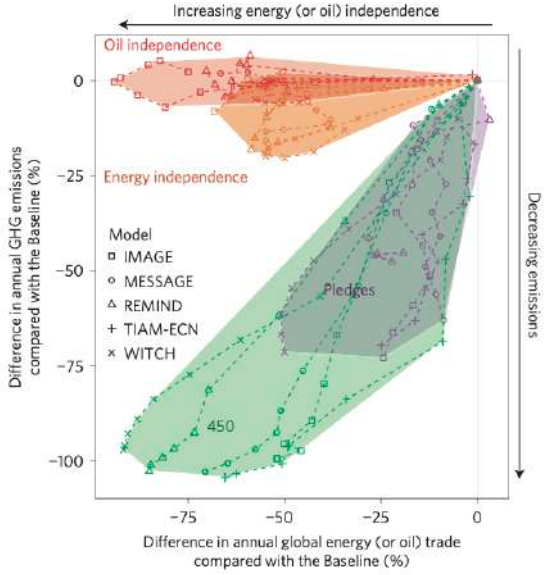
Pursuing energy independence does not reduce emissions

- If countries reduce emissions, energy trade declines
- If countries reduce energy trade, emissions do not decline
- NB: modelled on the early 2010s cost data


nature energy
ANALYSIS
PUBLISHED: 6 JUNE 2016 | ARTICLE NUMBER: 16073 | DOI: 10.1038/NENERGY.2016.73

Comparison and interactions between the long-term pursuit of energy independence and climate policies

Jessica Jewell[1]*, Vadim Vinichenko[2], David McCollum[1], Nico Bauer[3], Keywan Riahi[1,4], Tino Aboumahboub[3], Oliver Fricko[1], Mathijs Harmsen[5,6], Tom Kober[7,8], Volker Krey[1], Giacomo Marangoni[9,10,11], Massimo Tavoni[9,10,11], Detlef P. van Vuuren[5,6], Bob van der Zwaan[7,12,13] and Aleh Cherp[2,14]

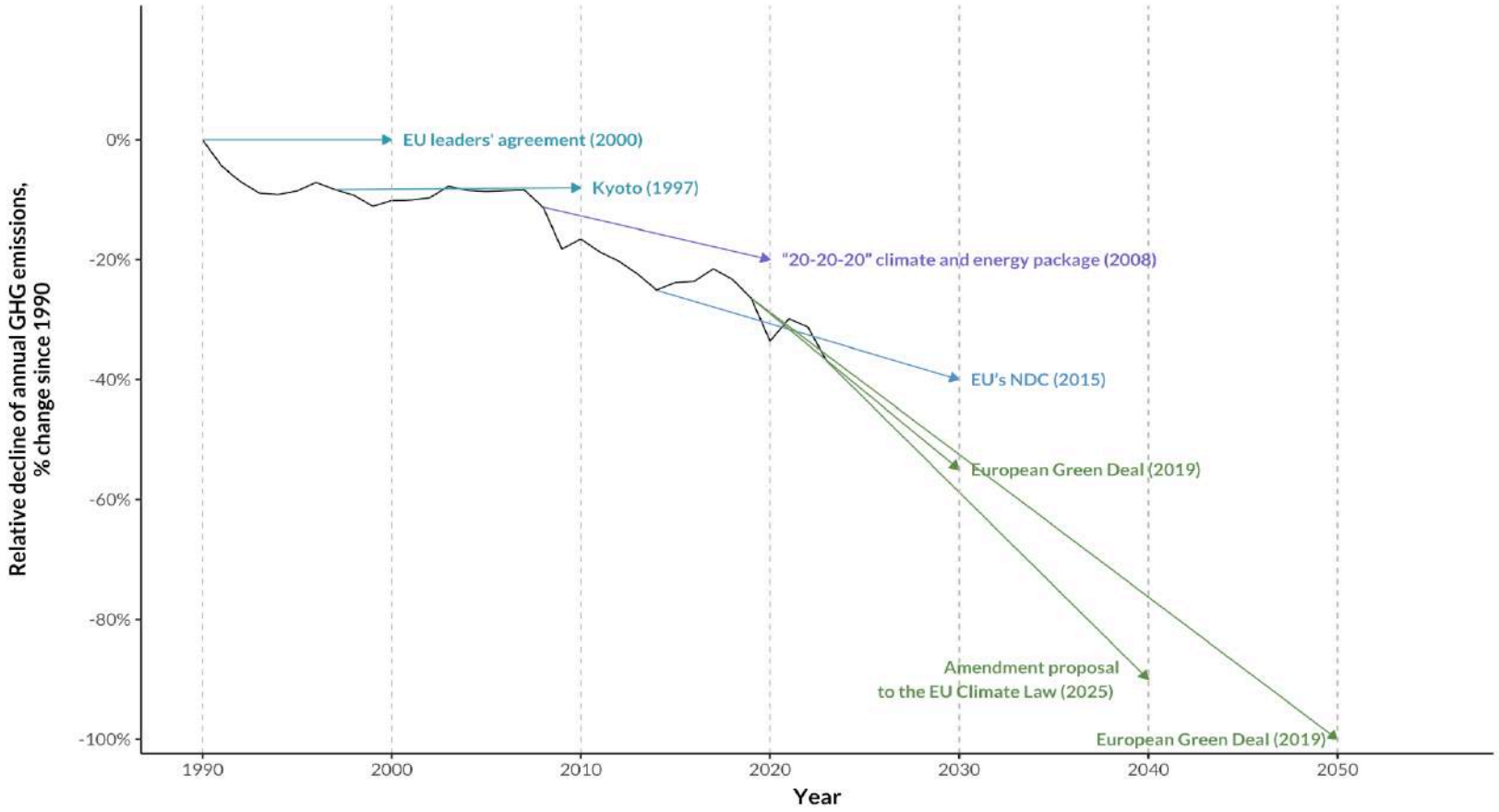


Evidence from the 2022 energy security crisis

Unprecedented impact on gas prices

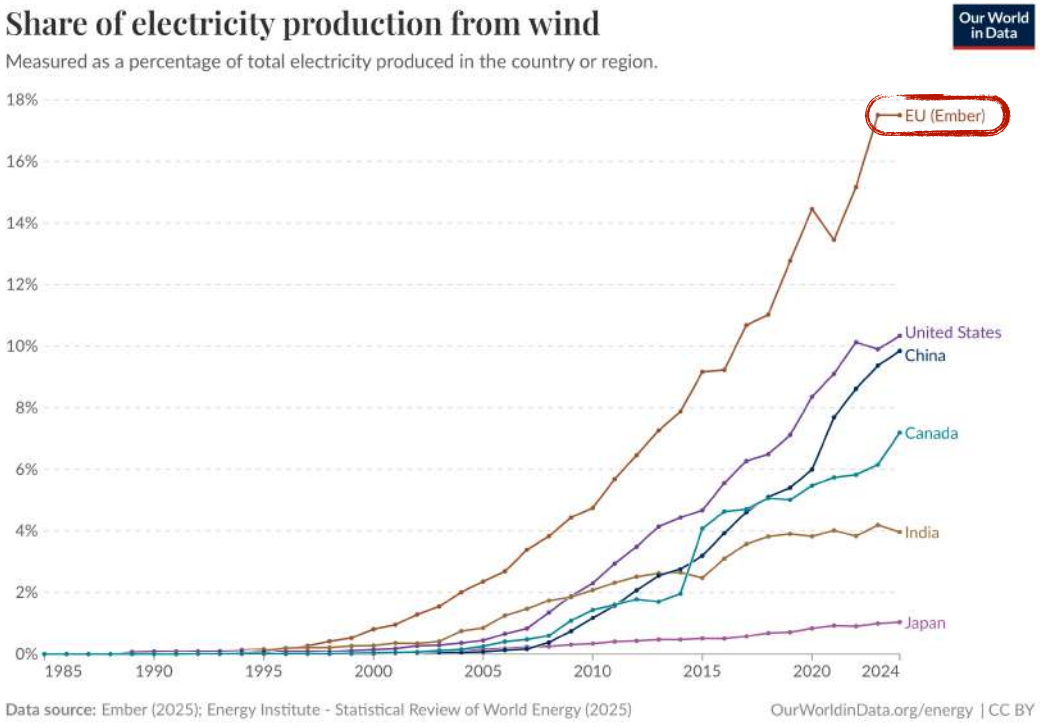
Evidence from the 2022 energy security crisis

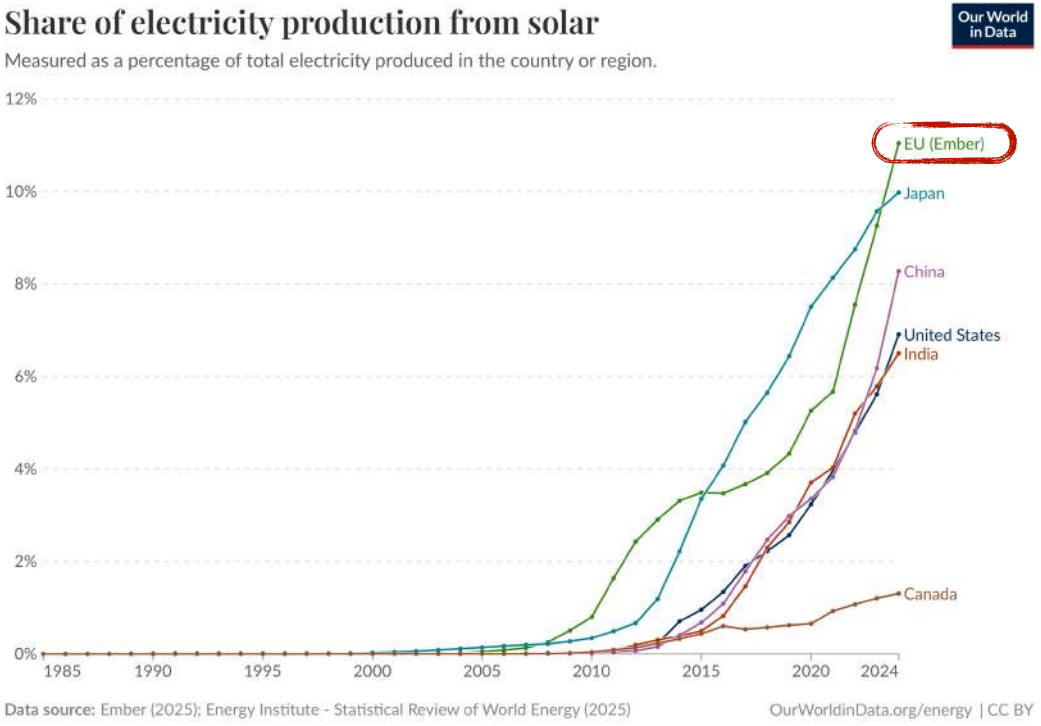
European Union is a global climate leader



Evidence from the 2022 energy security crisis

European Union is a global renewable energy leader





Geopolitical shock → Political rhetoric, securitization, ambitious plans

"We must become **independent** from Russian oil, coal and gas. … We need to act now to mitigate the impact of rising energy prices, diversify our gas supply for next winter and **accelerate the clean energy transition**. The quicker we switch to renewables and hydrogen, combined with more energy efficiency, the quicker we will be truly **independent and master our energy system.**

Ursula von der Leyen, 8 March 2022

Ursula von der Leyen | Photo credit: European Parliament Audiovisual

"REPowerEU is about rapidly reducing our **dependence on Russian fossil fuels** by fast forwarding the **clean transition.**"

European Commission 2022 COM(2022) 230 final

'Fit for 55' (pre-war) calls 'to fight against climate change'…
…but does not mention 'energy security'

REPowerEU (post-war) mentions 'energy security' 20 times but does not mention 'climate change'

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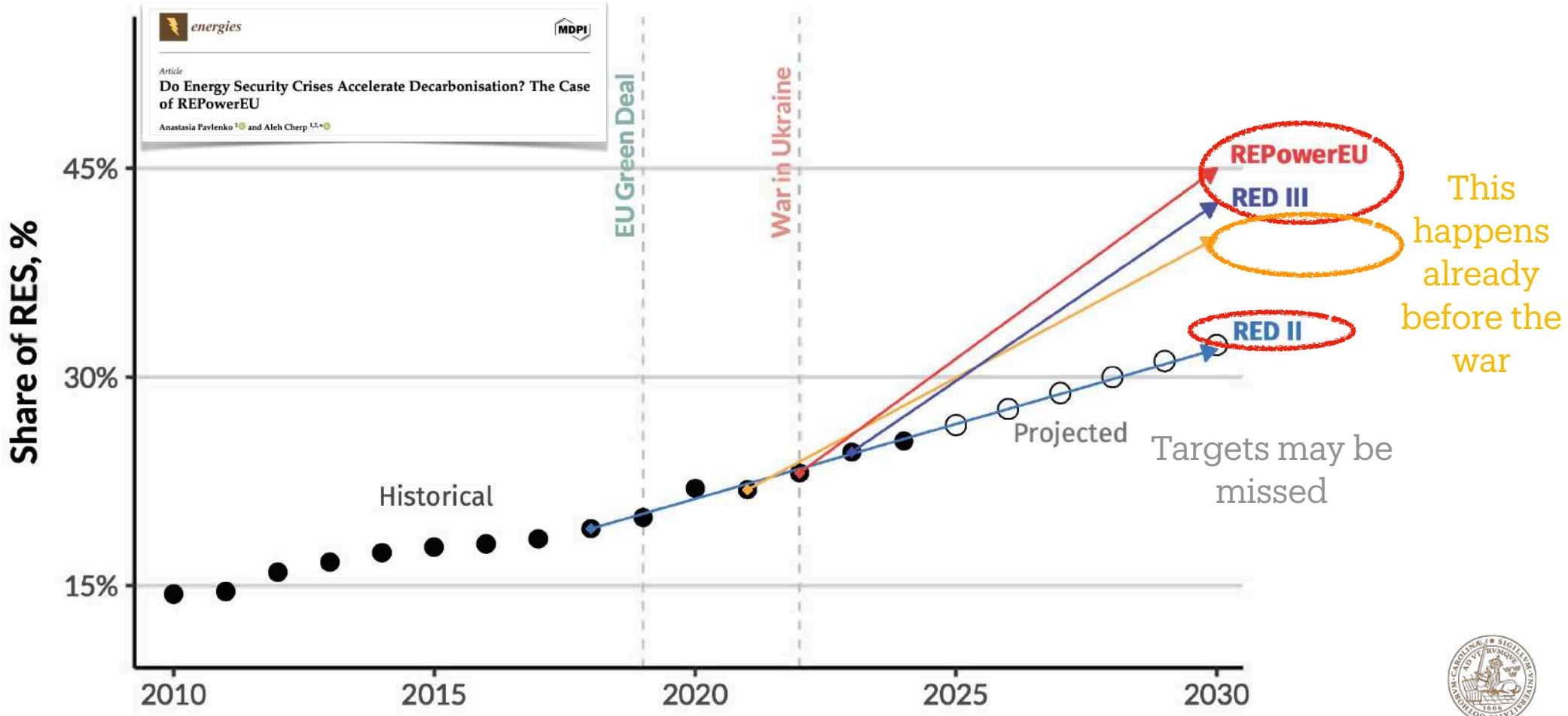
Renewable targets increased | not necessarily due to war | may be missed



Share of renewables in final energy consumption in 2010–2024, headline targets, and projection to 2030

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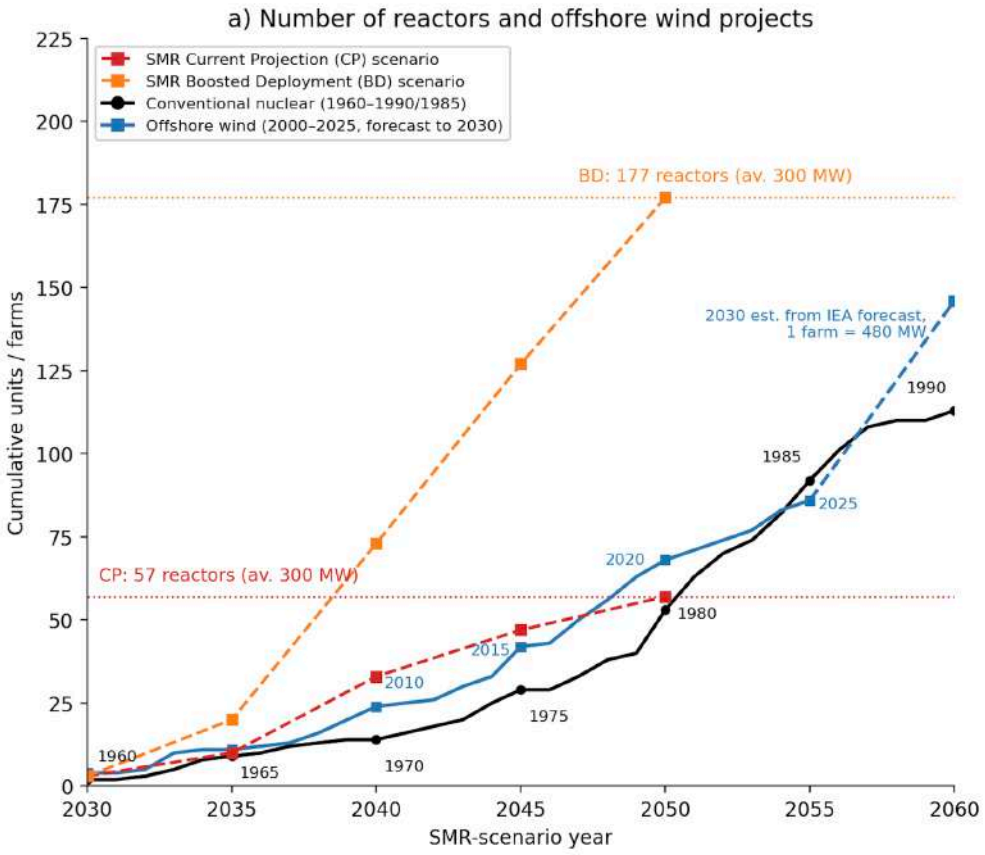
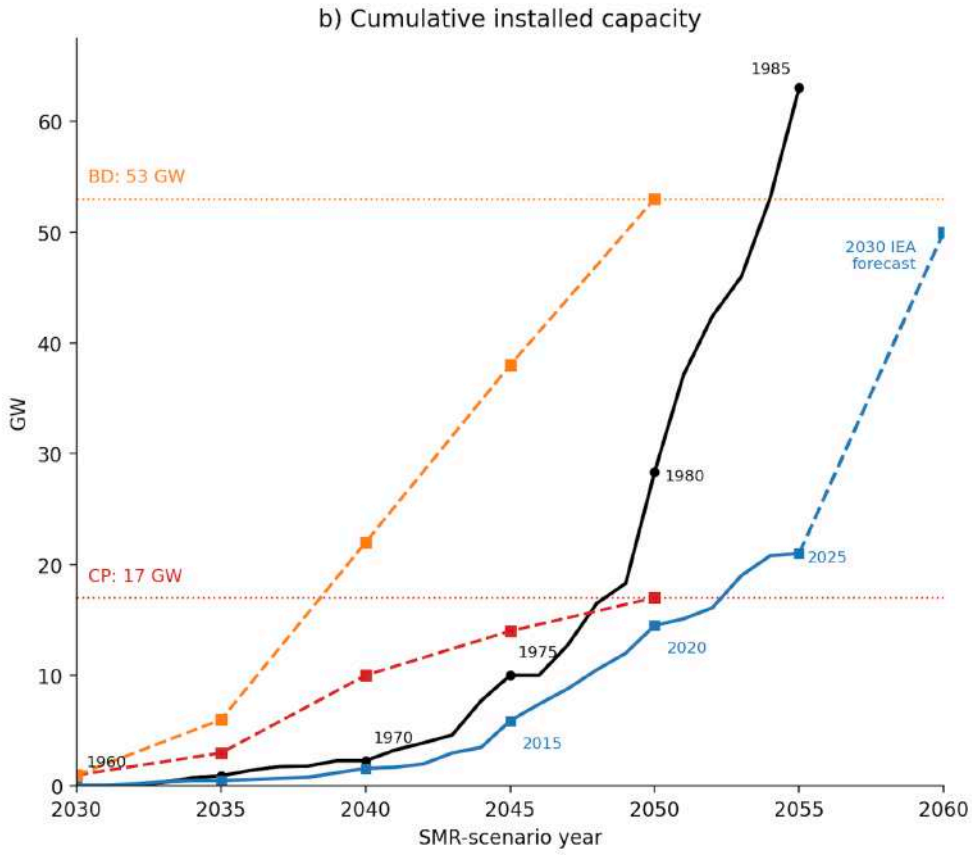
Nuclear power strategy defined for the first time but feasibility unclear





Pavlenko, A., Gordon, J.A., Cherp, A. (2026). Europe's SMR strategy needs a theory of time. Under review.

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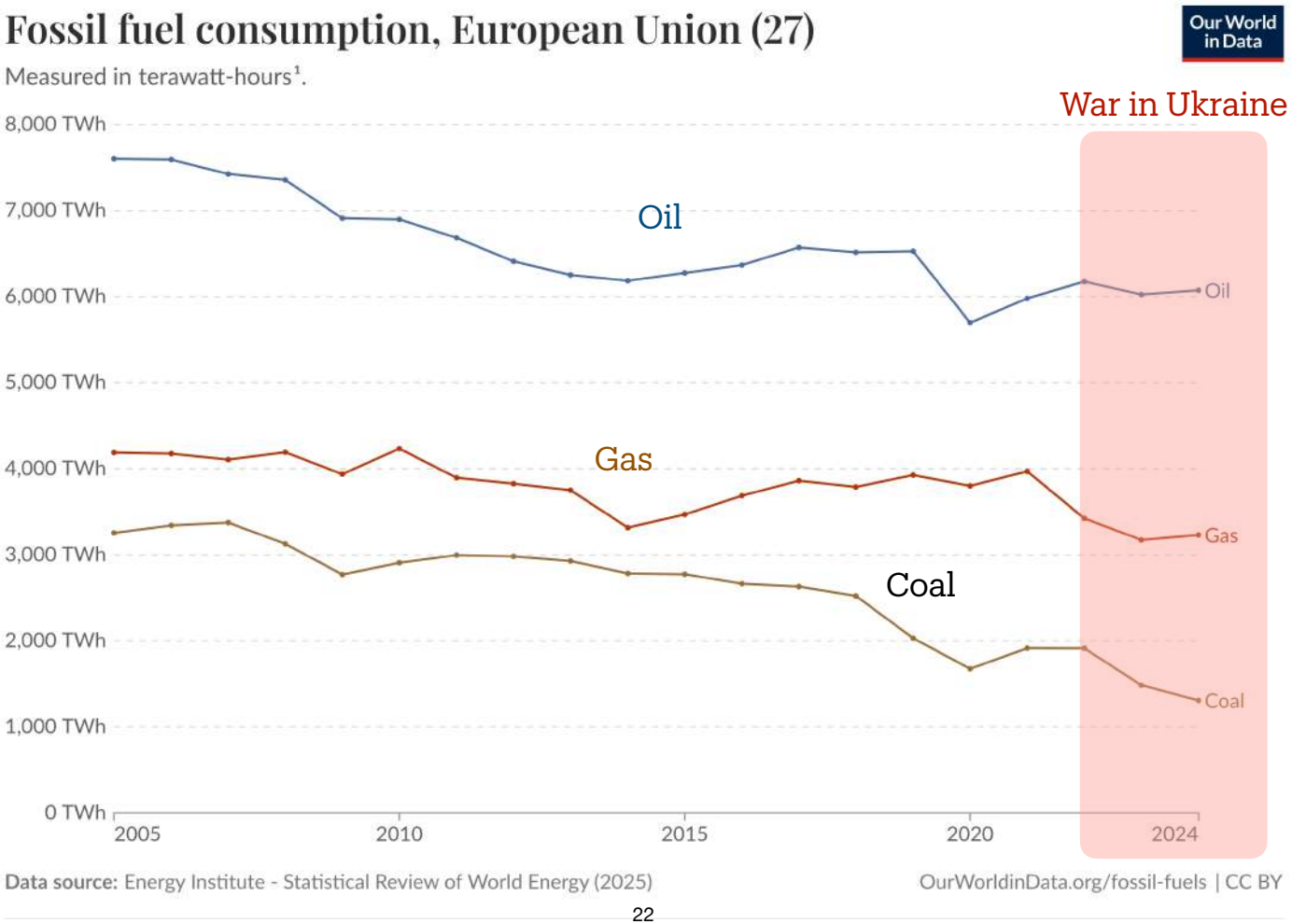
Oil and gas stay the same, coal decreases



Explaining effects of the 2022 crisis

Original research article

Integrating techno-economic, socio-technical and political perspectives on national energy transitions: A meta-theoretical framework

Aleh Cherp [a b], Vadim Vinichenko [a], Jessica Jewell [c f], Elina Brutschin [d], Benjamin Sovacool [e]

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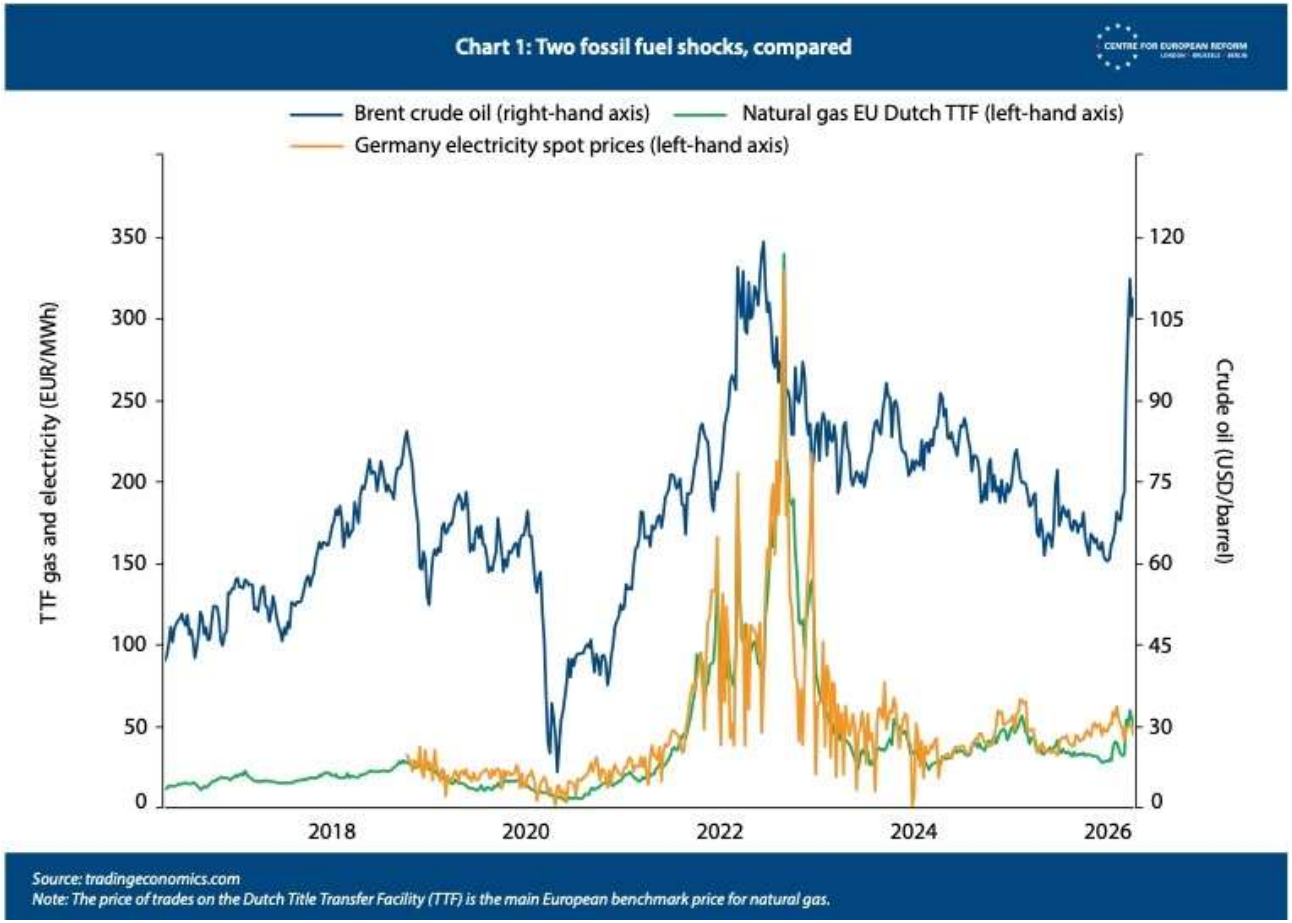
Crisis leads to high energy prices



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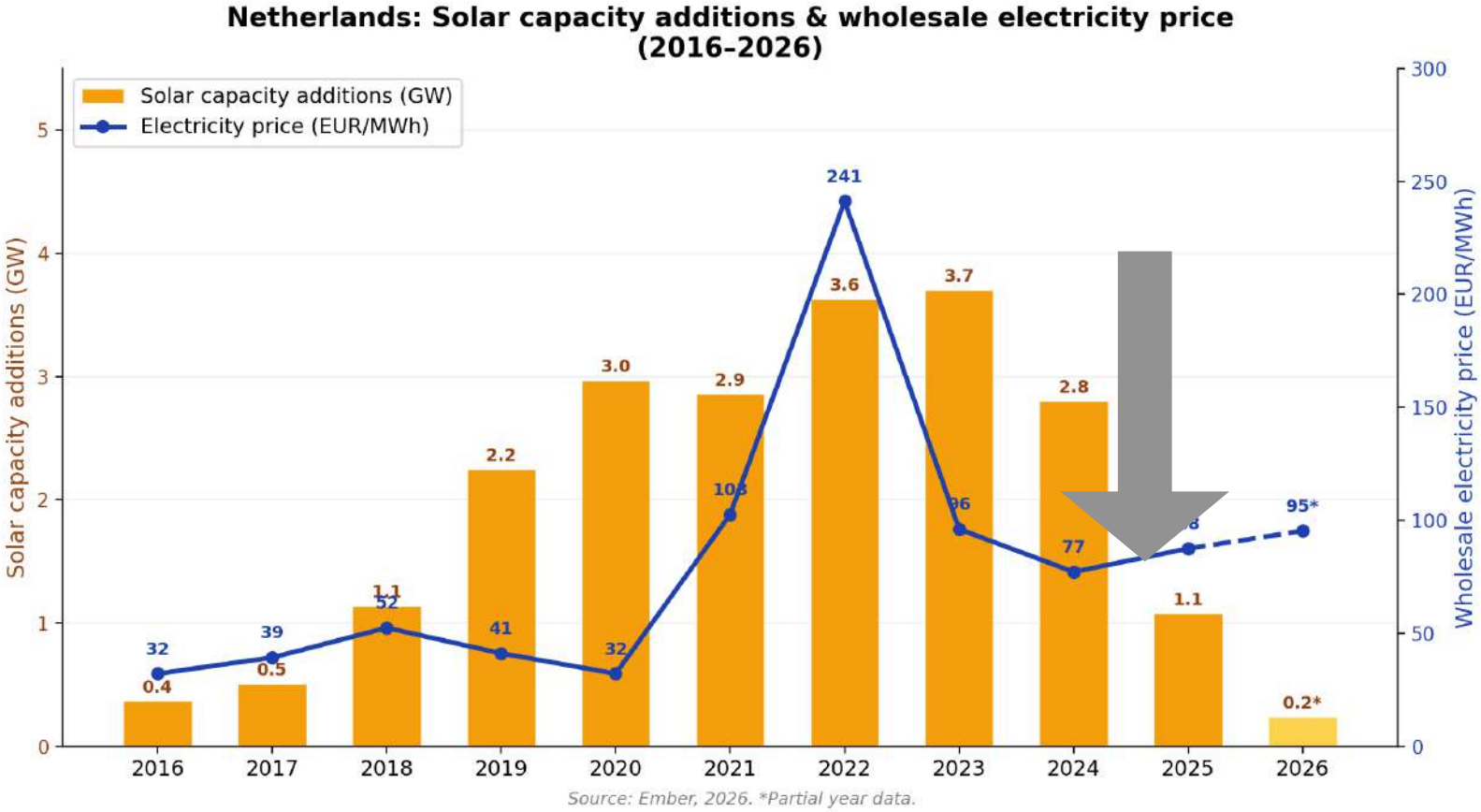
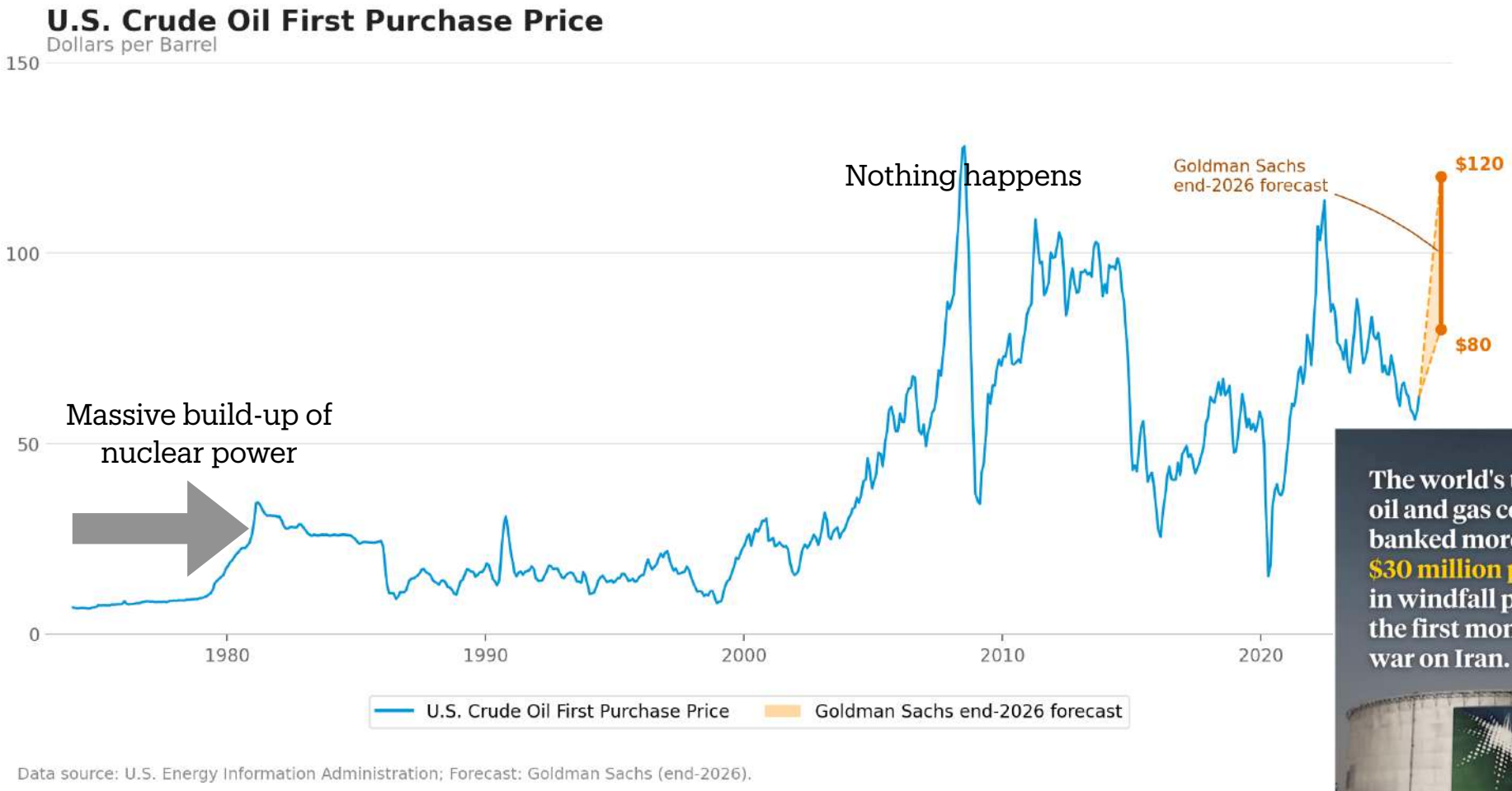
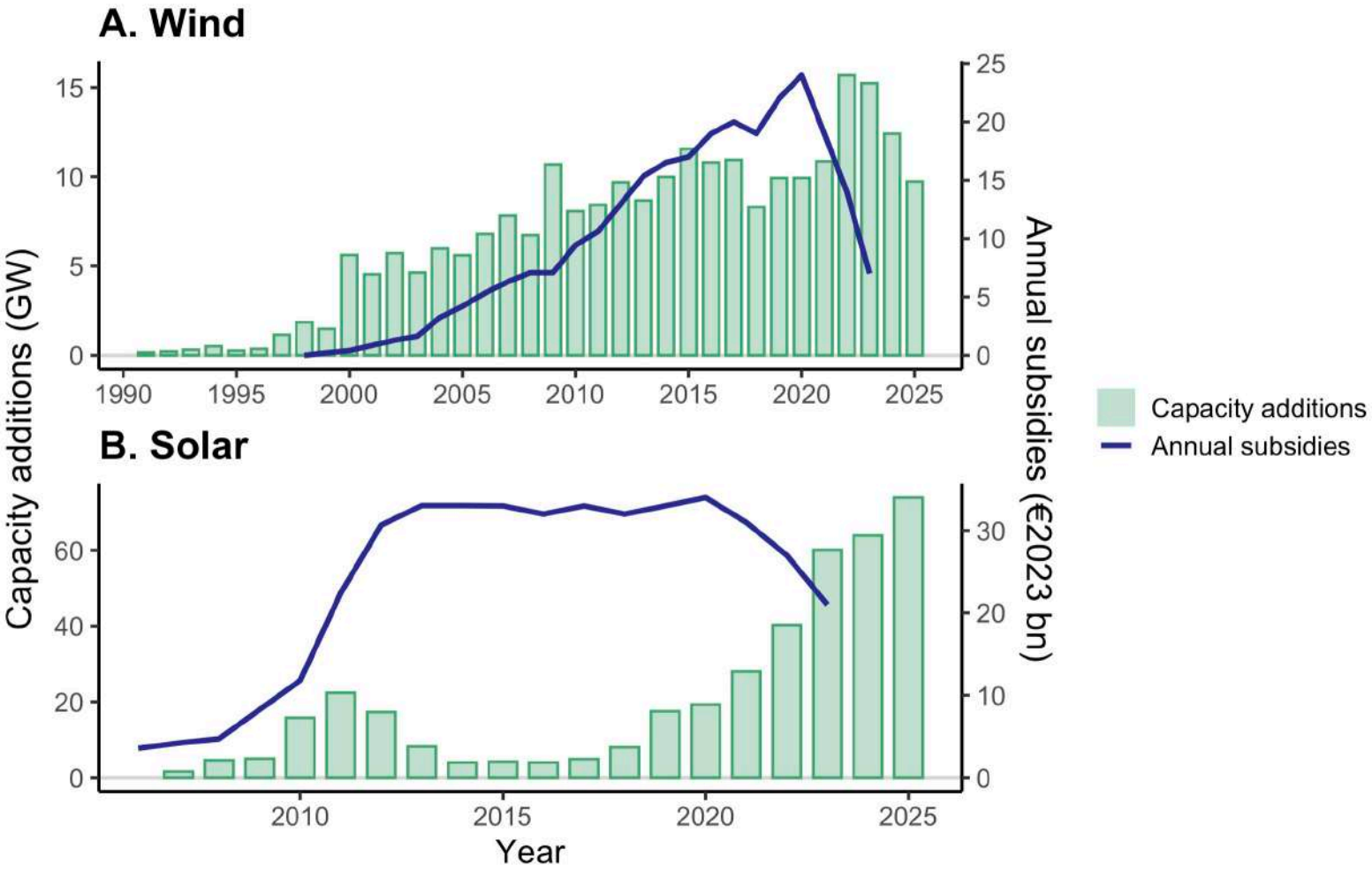
high energy prices may cause growth of renewables



high energy prices may cause transition, inflation or recession



Subsidies have been critical to green transitions

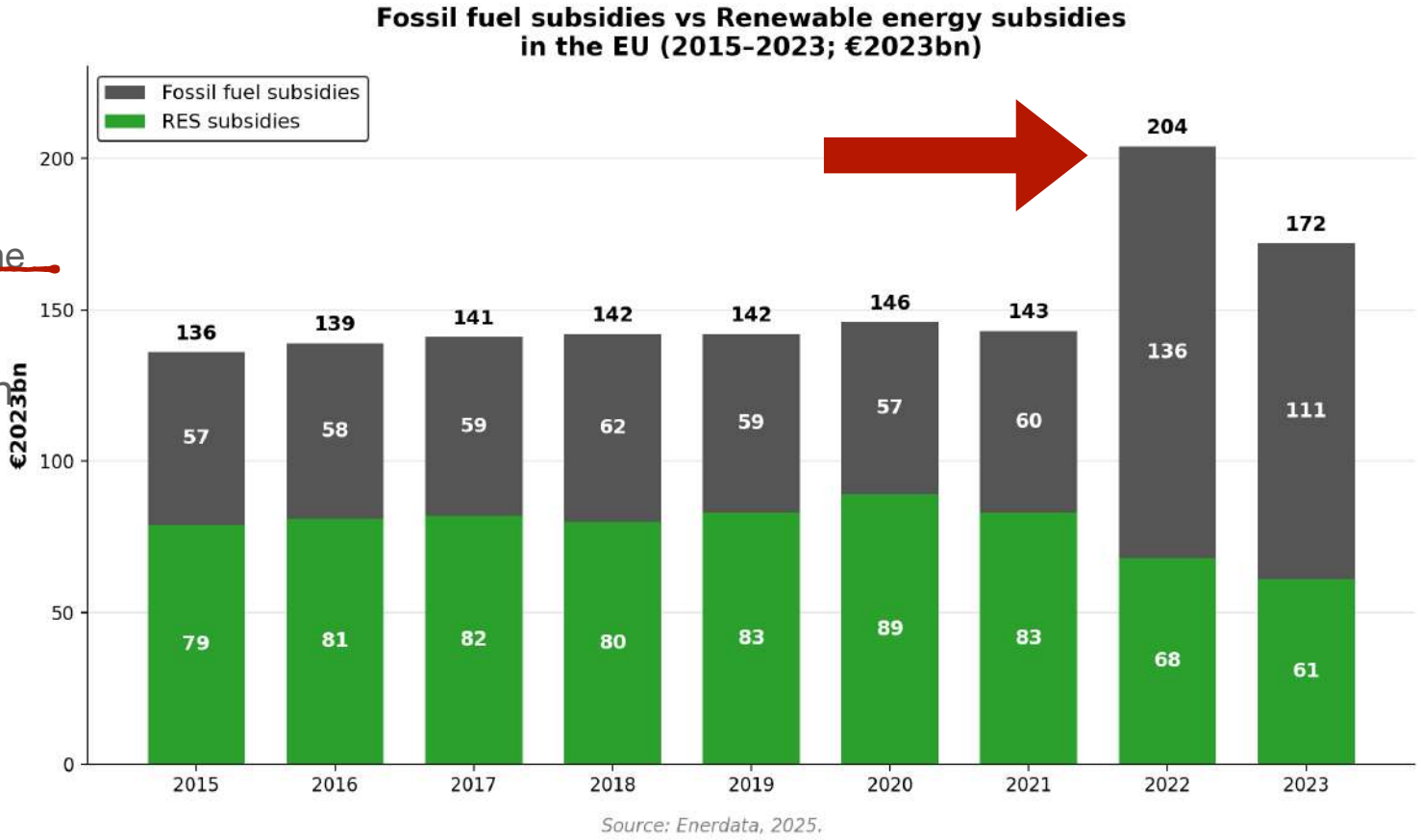


Pavlenko, A., & Cherp, A. (in preparation)

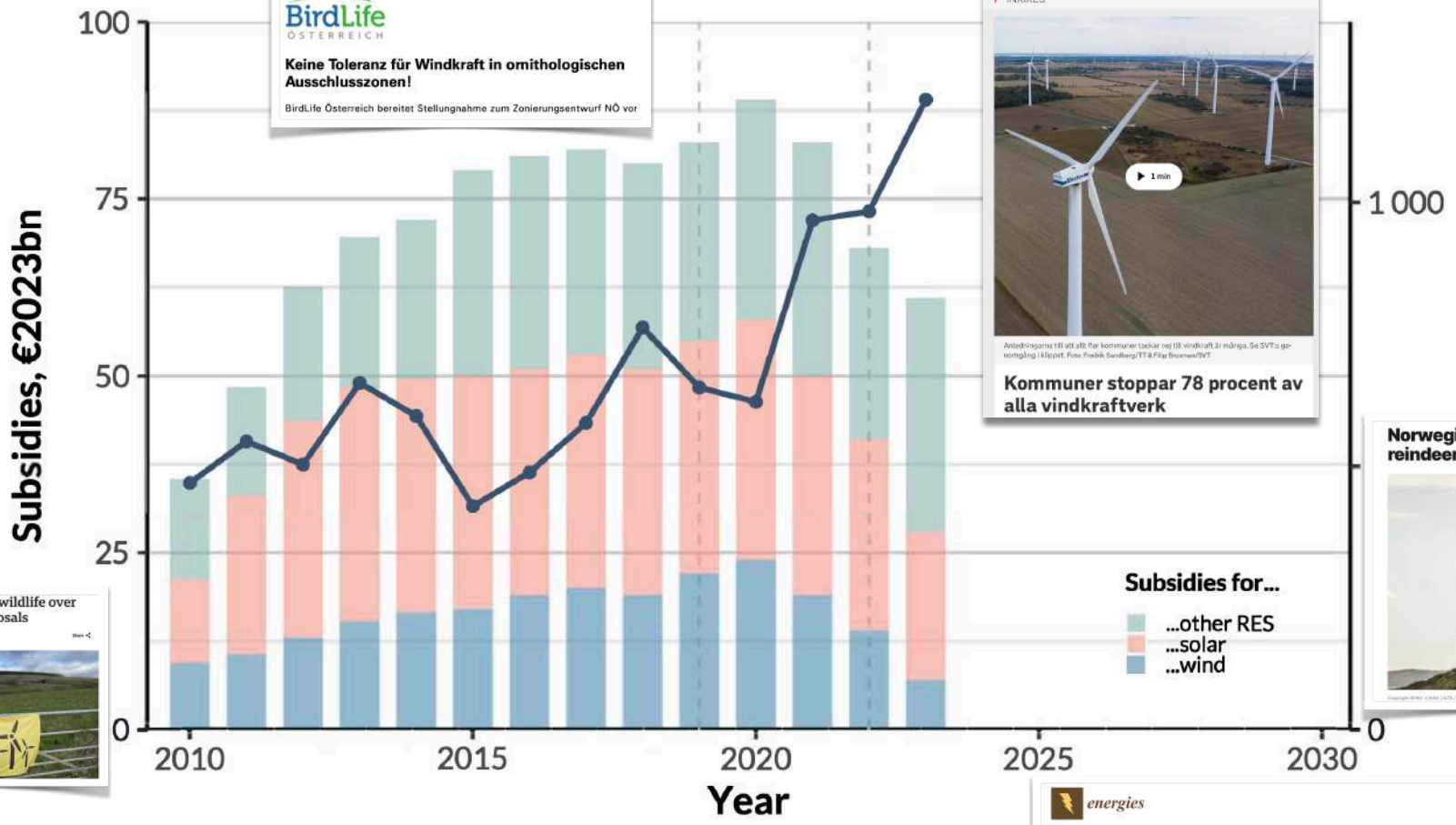
high energy prices force governments to subsidize energy (mostly fossils)

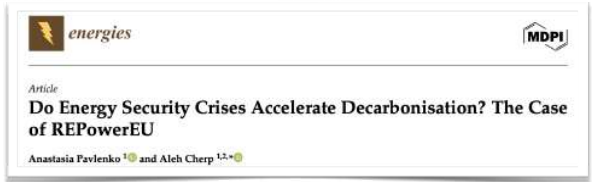
"We must become independent from Russian oil, coal and gas. … We need to act now to mitigate the impact of rising energy prices, diversify our gas supply for next winter and accelerate the clean energy transition. The quicker we switch to renewables and hydrogen, combined with more energy efficiency, the quicker we will be truly independent and master our energy system.

Ursula von der Leyen, 8 March 2022



Non-economic barriers become material at high market penetration





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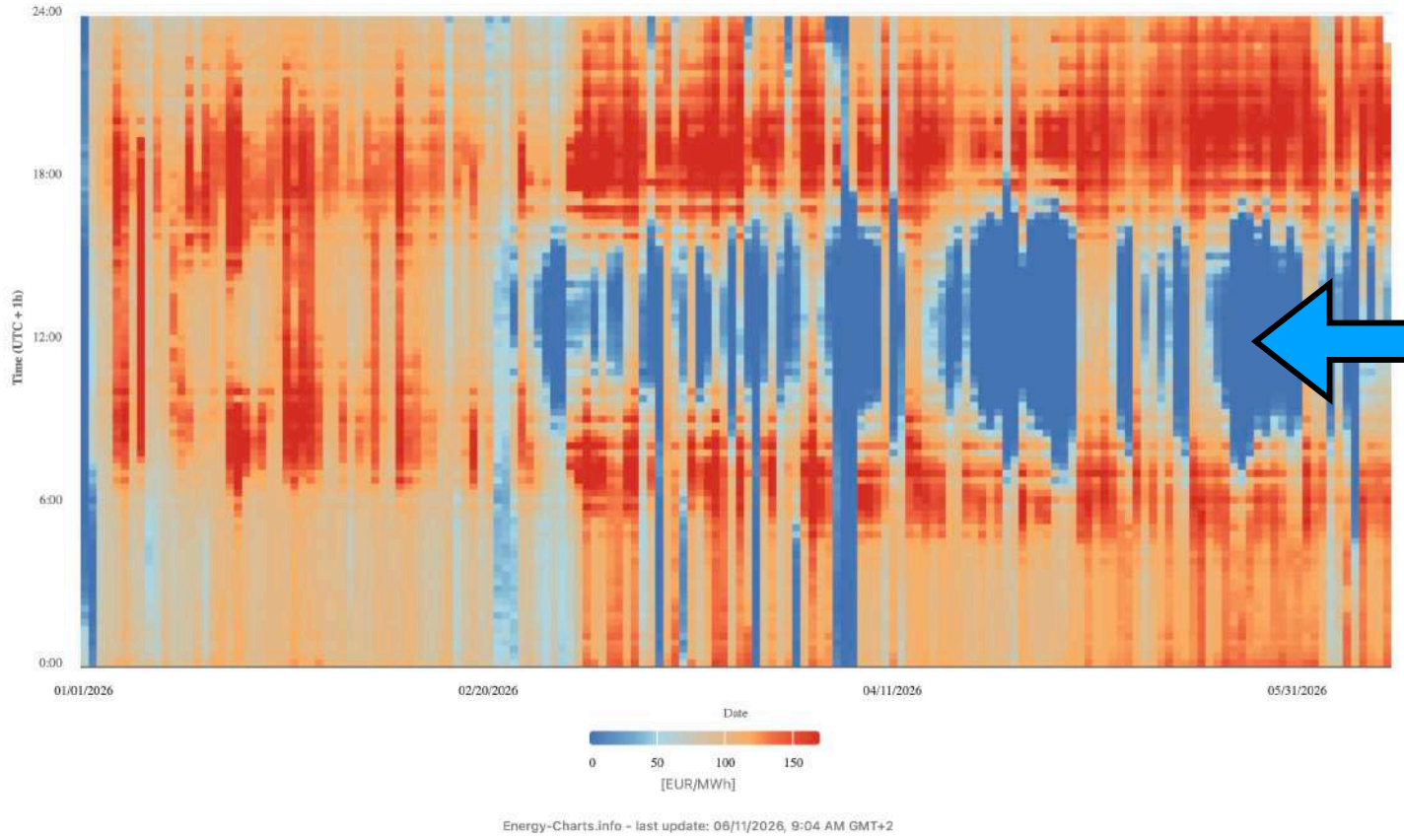
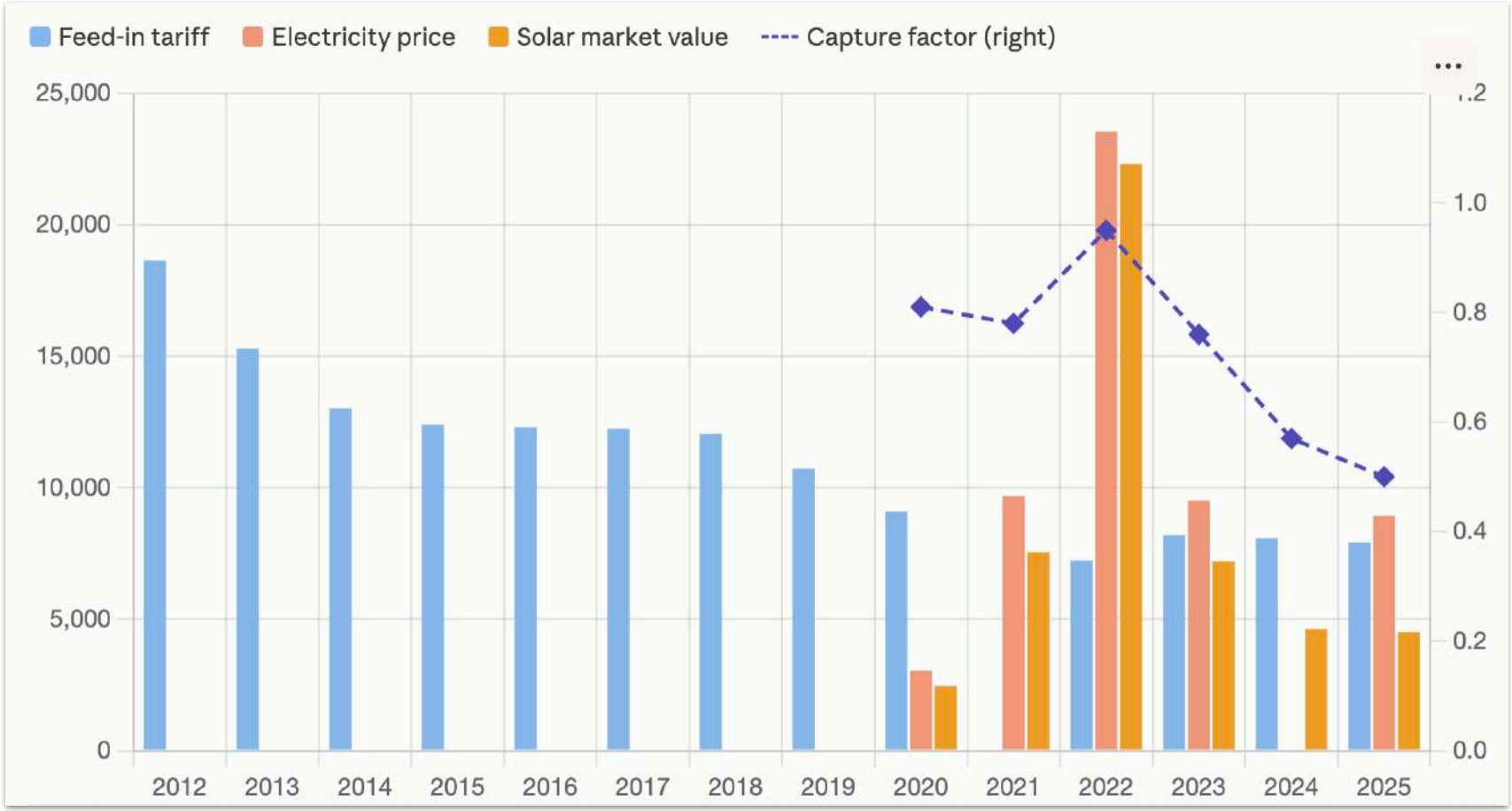
Future outlook: Day-ahead prices for electricity in Germany 2026

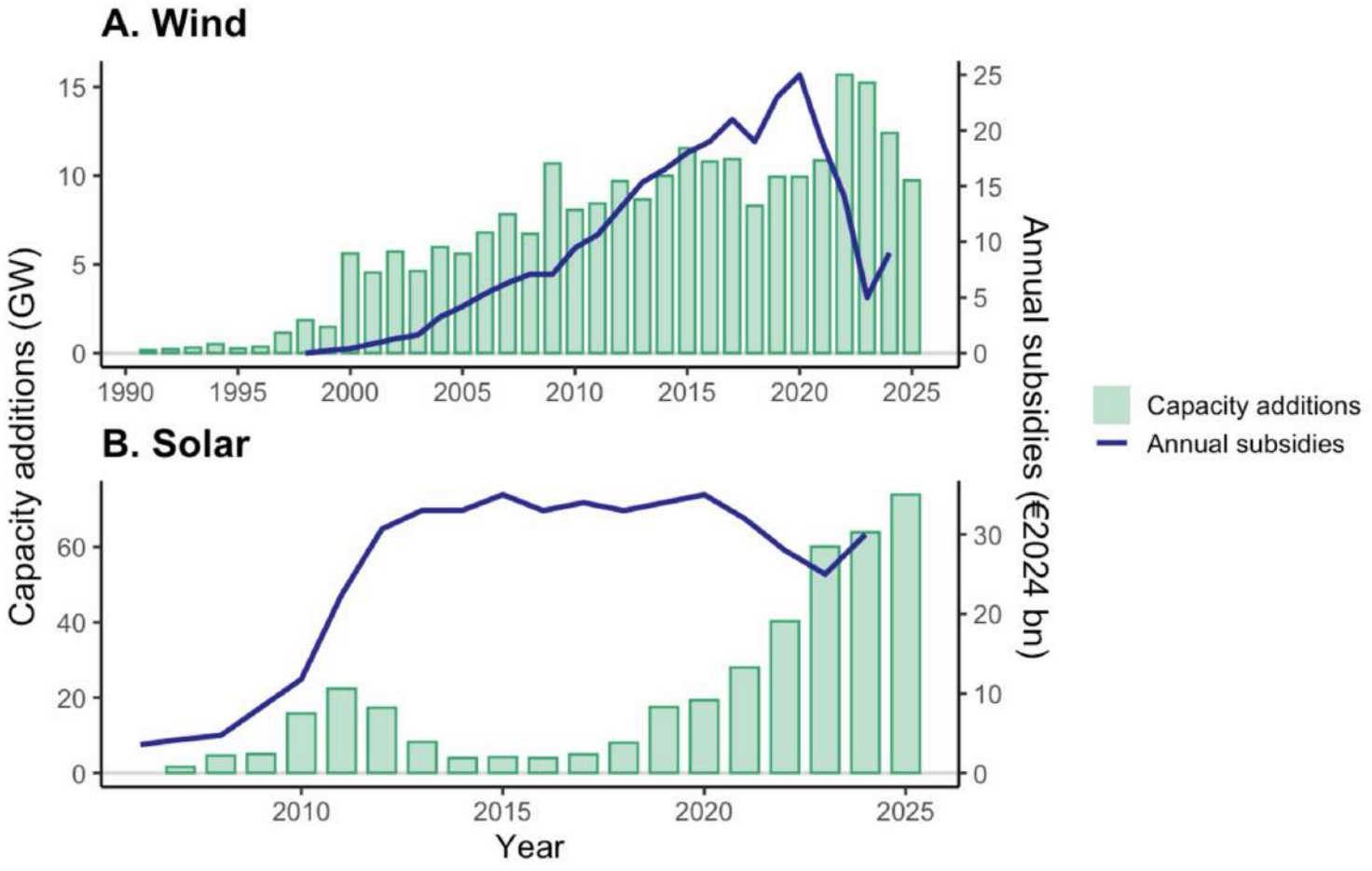


Sunny periods

Future outlook: Solar power fetches progressively lower prices



Future outlook: subsidies still needed for renewables



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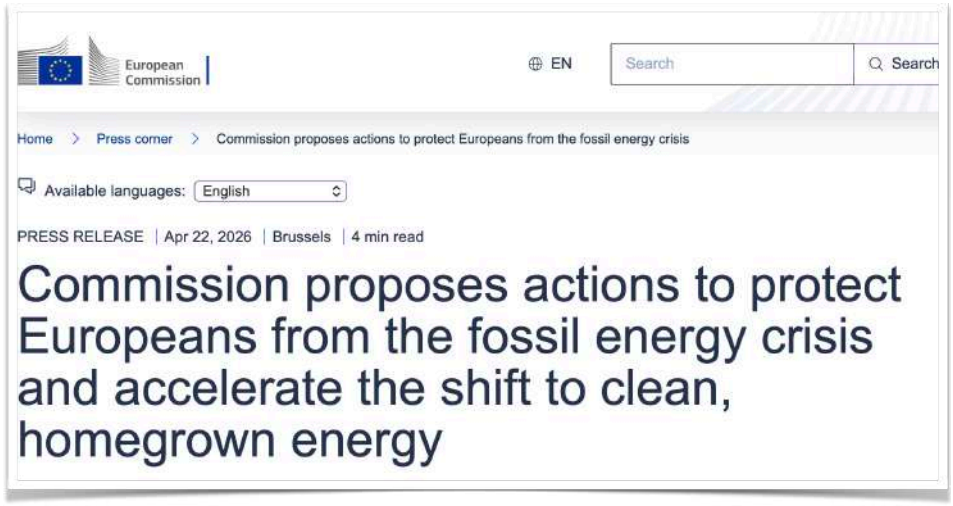
Future outlook: subsidies



European Commission | EN | Search | Search

Home > Press corner > Commission proposes actions to protect Europeans from the fossil energy crisis

Available languages: English

PRESS RELEASE | Apr 22, 2026 | Brussels | 4 min read

Commission proposes actions to protect Europeans from the fossil energy crisis and accelerate the shift to clean, homegrown energy

5 pillars of AccelerateEU

The plan will provide immediate relief to consumers facing energy price spikes and accelerate the transition to clean, secure and affordable clean energy. It sets out 5 key areas of action

Closer EU coordination

Increased coordination between EU countries, both within the single market and with fossil fuel providers, will support actions such as filling gas storage facilities, exceptional releases of oil stocks, and the adoption of national measures. The strong commitment and intensified coordination needed will be supported by the Energy Union Task Force, launched in 2025.

Protecting consumers and businesses

Measures suggested to support EU countries in protecting consumers and industry from price peaks include timely and temporary measures such as targeted income support schemes, energy vouchers, and lowering excise duties on electricity for vulnerable households.

More homegrown clean energy

Accelerating the shift to homegrown clean energy will reduce our imports of oil and gas. To encourage manufacturers to increase capacity and invest in more renewables and skills, measures include an electrification target, as well as the removal of barriers to electrification in the industrial, transport and building sectors.

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Summary how do crises affect transitions

- Low-carbon transition could benefit energy security in some, but not all regions
- Pursuit of energy independence does not have much effect on emissions (old model!)
- Crisis economics hurt renewables
- Subsidies matter and will continue to matter for low-carbon transitions
- Governments aim to protect consumers and often subsidise fossils

Thank you!