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# Powering Through the Middle Ground:

## Navigating Market Forces, Government Policy, and User Agency in the Energy Transition

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# ‘Middle ground’: we are in between the easy and the difficult phase of the energy transition

- Fossil resilience (share of fossil fuels in European energy demand);

  82% in 1990 – 78% in 2005 – 68% in 2023 – 0% in 2050?

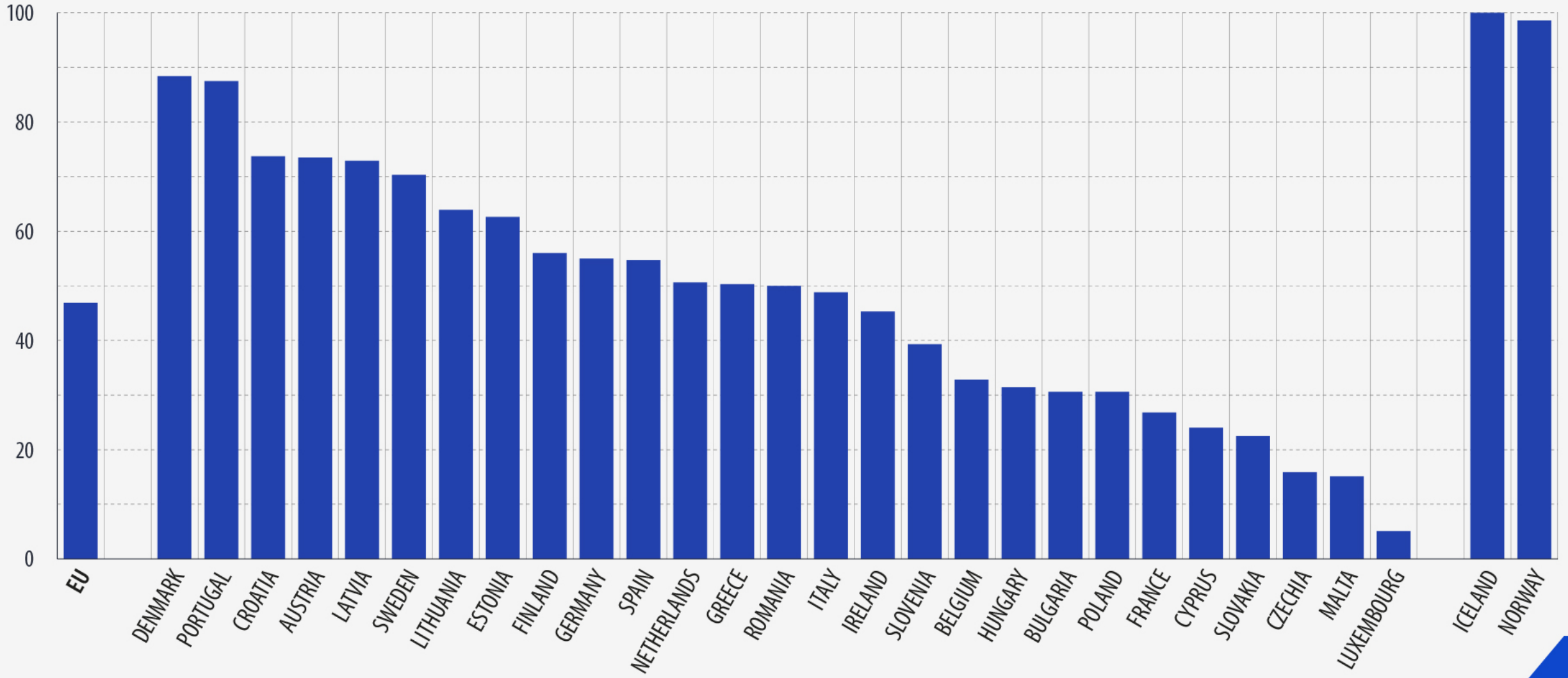
  BE (2023): 73%

- Powering through or muddling along in the middle ground?
- How to align policies, market forces and user involvement?

Sources: Eurostat, Energy Statistics, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_statistics_-_an_overview

# Share of renewables in net electricity generation, 2024

*(%)*




*Data for Spain in Q4: provisional. Data for Iceland in November and December 2024 not available.*

# Electricity in Europe: renewables do not (yet) push fossil-based generation capacity (MW) out of the market

**Maximum electrical capacity, EU, 2000 - 2022**
(Megawatt)

| | 2000 | 2003 | 2006 | 2009 | 2012 | 2015 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total capacity** | 613 221 | 637 307 | 693 041 | 755 769 | 852 965 | 887 633 | 929 613 | 947 042 | 964 312 | 992 587 | 1 046 113 |
| **Combustible fuels** | 340 088 | 346 552 | 379 790 | 402 193 | 424 772 | 409 763 | 404 403 | 396 041 | 389 230 | 381 404 | 379 968 |
| **Hydro** | 134 729 | 135 861 | 139 516 | 142 131 | 144 943 | 148 192 | 150 364 | 150 793 | 151 056 | 151 368 | 152 733 |
| *Pure hydro power* | 95 750 | 97 002 | 98 044 | 99 733 | 101 704 | 103 145 | 104 407 | 104 815 | 105 142 | 105 441 | 105 851 |
| *Mixed hydro power* | 18 468 | 18 477 | 19 784 | 20 289 | 21 208 | 21 956 | 23 302 | 23 323 | 23 260 | 23 272 | 24 241 |
| *Pumped hydro power* | 20 511 | 20 382 | 21 688 | 22 108 | 22 031 | 23 091 | 22 655 | 22 655 | 22 654 | 22 654 | 22 641 |
| **Geothermal** | 604 | 723 | 697 | 727 | 783 | 838 | 861 | 866 | 871 | 876 | 880 |
| **Wind** | 12 297 | 27 253 | 45 612 | 70 883 | 97 145 | 127 174 | 157 212 | 167 140 | 177 072 | 187 948 | 203 554 |
| **Solar** | 175 | 588 | 3 224 | 16 999 | 71 041 | 87 687 | 104 004 | 120 113 | 138 317 | 164 199 | 205 462 |
| *Solar thermal* | 0 | 0 | 11 | 284 | 2 002 | 2 306 | 2 306 | 2 306 | 2 306 | 2 306 | 2 306 |
| *Solar photovoltaic* | 175 | 588 | 3 213 | 16 715 | 69 039 | 85 381 | 101 697 | 117 807 | 136 011 | 161 893 | 203 156 |
| **Tide, wave, ocean** | 213 | 219 | 215 | 216 | 216 | 223 | 223 | 219 | 217 | 216 | 217 |
| **Nuclear** | 124 851 | 125 416 | 122 837 | 121 684 | 113 237 | 112 497 | 111 267 | 109 981 | 106 035 | 105 112 | 100 200 |
| **Other sources** | 263 | 695 | 1 149 | 936 | 827 | 1 259 | 1 280 | 1 889 | 1 515 | 1 888 | 3 672 |

*Source:* Eurostat (online data code: nrg_inf_epc)

eurostat

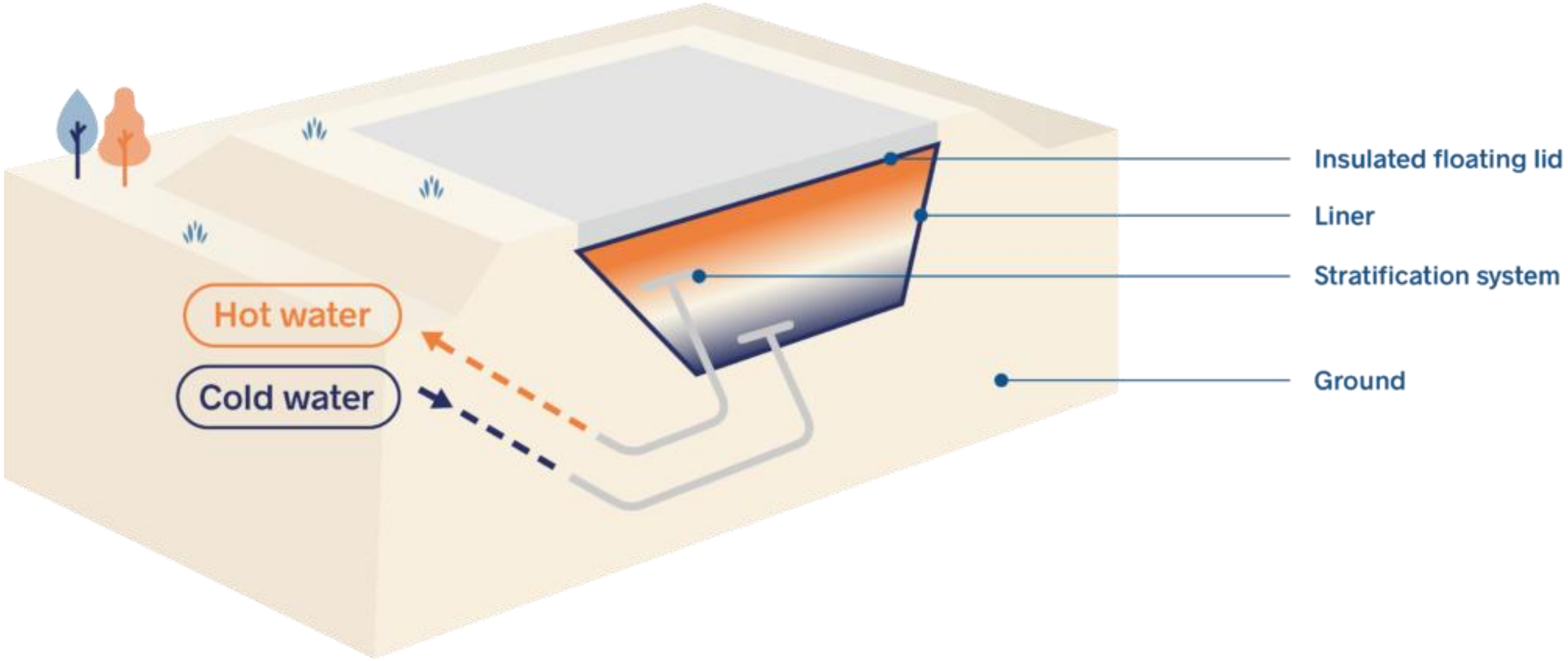
# Rådet for Grøn Omstilling / Green Transition Denmark

https://rgo.dk/en/energy-within-planetary-boundaries-a/

*“ In the national climate and energy accounts, Denmark's international transport is not counted but if you look at the entire Danish economy and include our international transport, 68% of the total energy consumption is still fossil. Only 13% of energy consumption is electrified, and Denmark's fossil consumption increased by 63% since 1968. Today, only 13% of Denmark's gross energy consumption comes from clean renewable energy sources such as sun, wind, heat pumps, hydropower and geothermal energy. The report estimates that Denmark is at most one sixth of the way with the green transition away from fossil fuels.”*

*“RGO recommends that Denmark increases its production of solar and wind energy ninefold towards 2040, and make a much faster electrification of road transport, heat supply and industry.”*

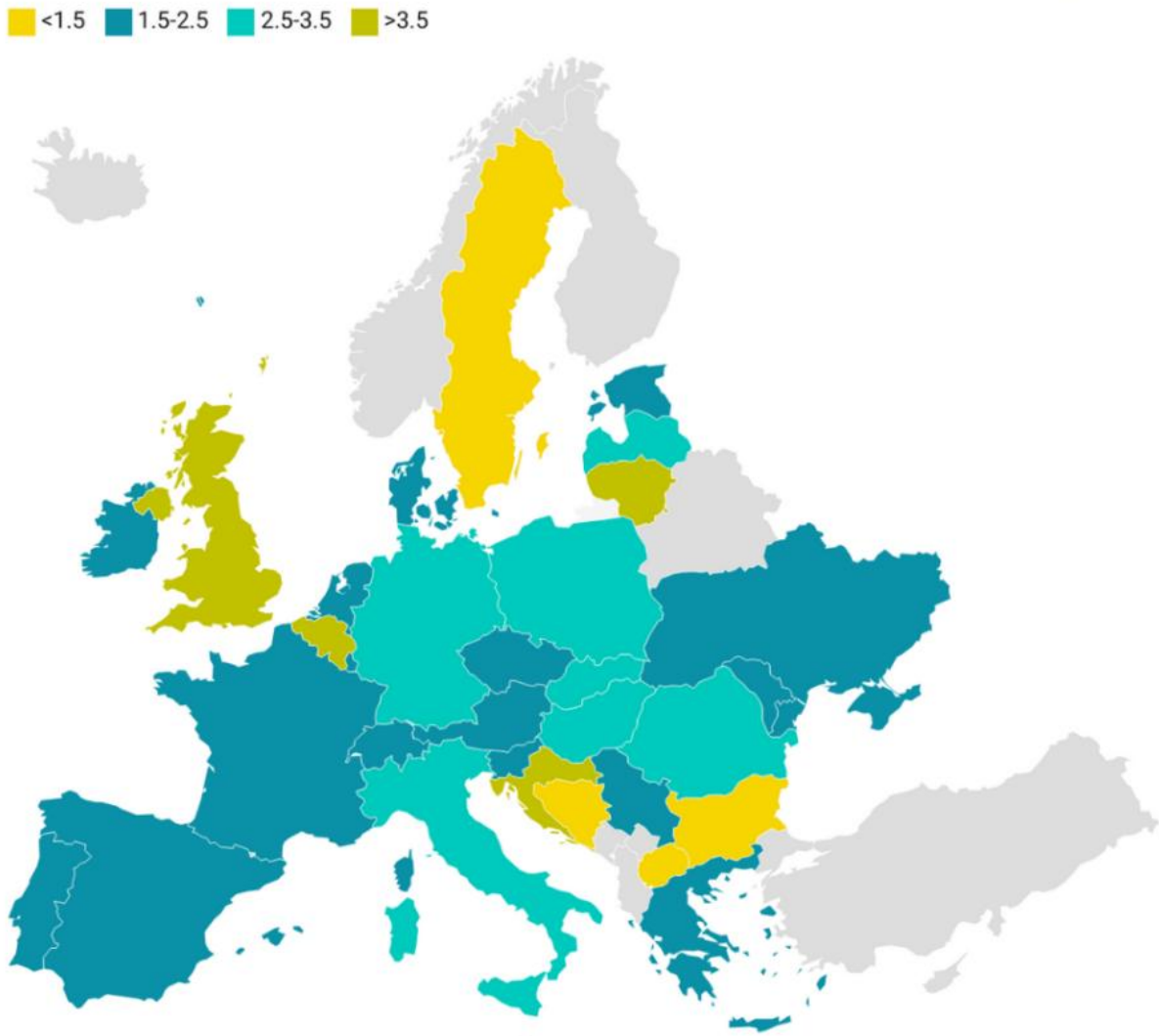
# Pit Thermal Energy Storage



# Local involvement in energy infrastructure;

markets + consistent policy framework (incl. evaluation) + support schemes + energy literacy

# Electricity to gas price ratio

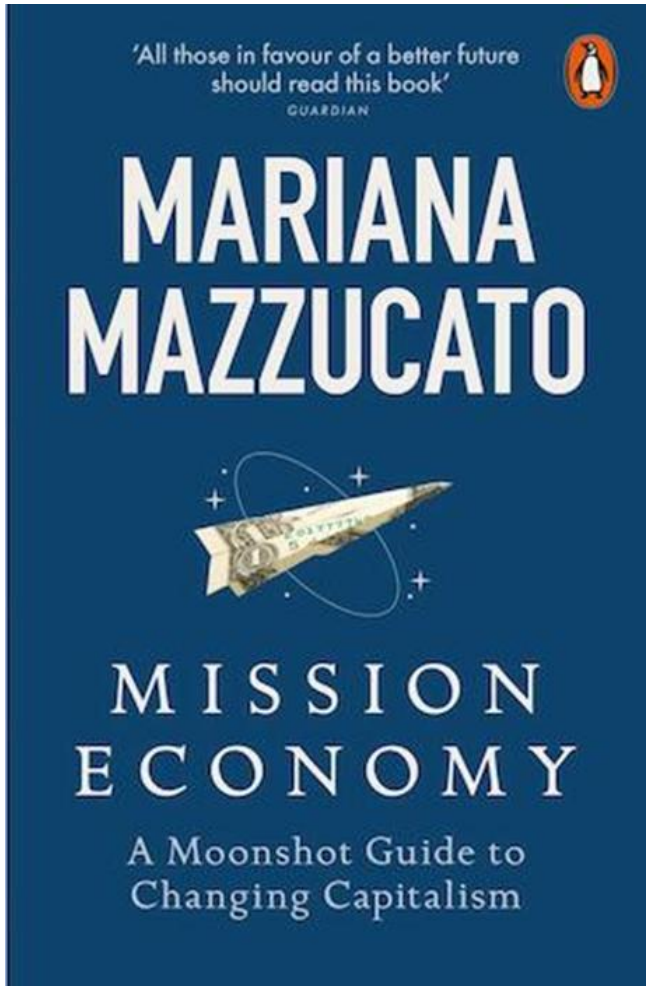



Source: Eurostat, using prices from first half 2023. Created with: Datawrapper


UNFCCC 1992, Kyoto Protocol, EU ETS 2005, Clean Energy Package (2016-2018), European Green Deal (2019), *Fit for 55*,…

EU: liberalized energy markets + climate/energy policy targets + ‘market-based’ approach (ETS & ETS2) + R&D-support

Member States: ‘*muddling in the middle ground*’




# Mazzucato:

carbon tax (ETS) + R&D subsidies =

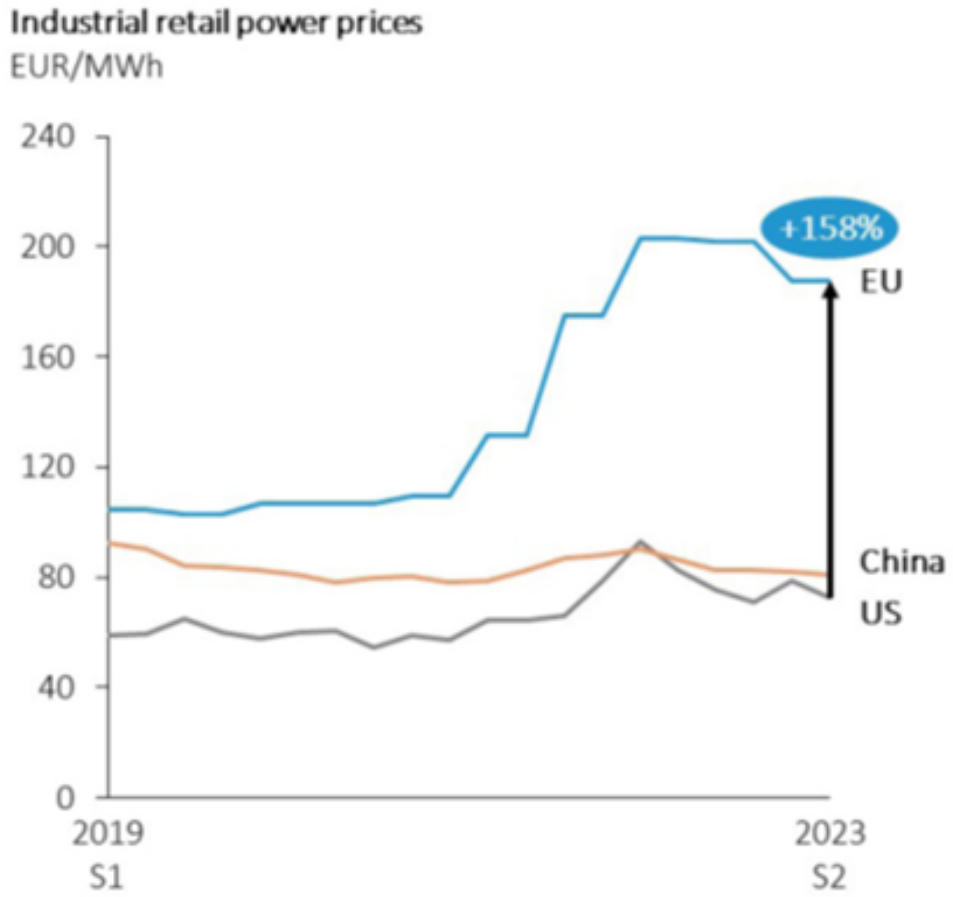
a worryingly slow transition

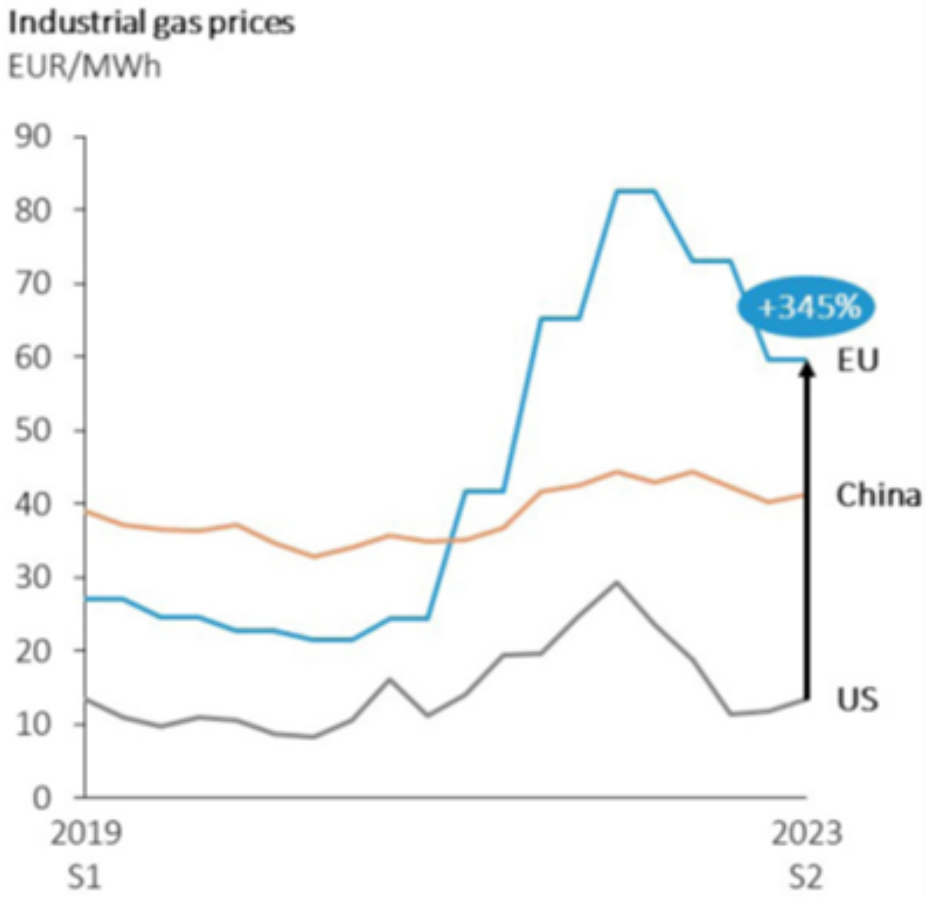
-> we need transformative public investments and transformative regulation

***'Our lethargic transition pace is a lesson in what can happen if government leaves the market to sort out problems and abstains from assuming its entrepreneurial role in society.'***


‘The second area for action is a joint plan for decarbonisation and competitiveness. If Europe’s ambitious climate targets are matched by a coherent plan to achieve them, decarbonisation will be an opportunity for Europe. But if we fail to coordinate our policies, there is a risk that decarbonisation could run contrary to competitiveness and growth.’

# Energy prices gap EU-US for industrial users; electricity and gas (€/MWh)




source: Draghi, M. (2024). The future of European competitiveness, Part A | A competitiveness strategy for Europe, p.11

# The Clean Industrial Deal:
# A joint roadmap for competitiveness and decarbonisation
# (COM(2025) 85 final)

‘*As natural gas is overall expected to remain the main price-setter for electricity in the next years in the EU, the Commission stands* ***ready to support Member States when designing State aid measures.*** *These would allow Member States to address extreme price spikes and exceptional price environments and to decouple the translation of high gas prices into electricity prices, based on proven models in emergency situations (p.4).*’


*“To digitalise and decarbonise the economy and increase our defence capacity, the investment share in Europe will have to rise by around 5 percentage points of GDP to levels last seen in the 1960s and 70s. This is unprecedented: for comparison, the additional investments provided by the Marshall Plan between 1948-51 amounted to around 1-2% of GDP annually.”*

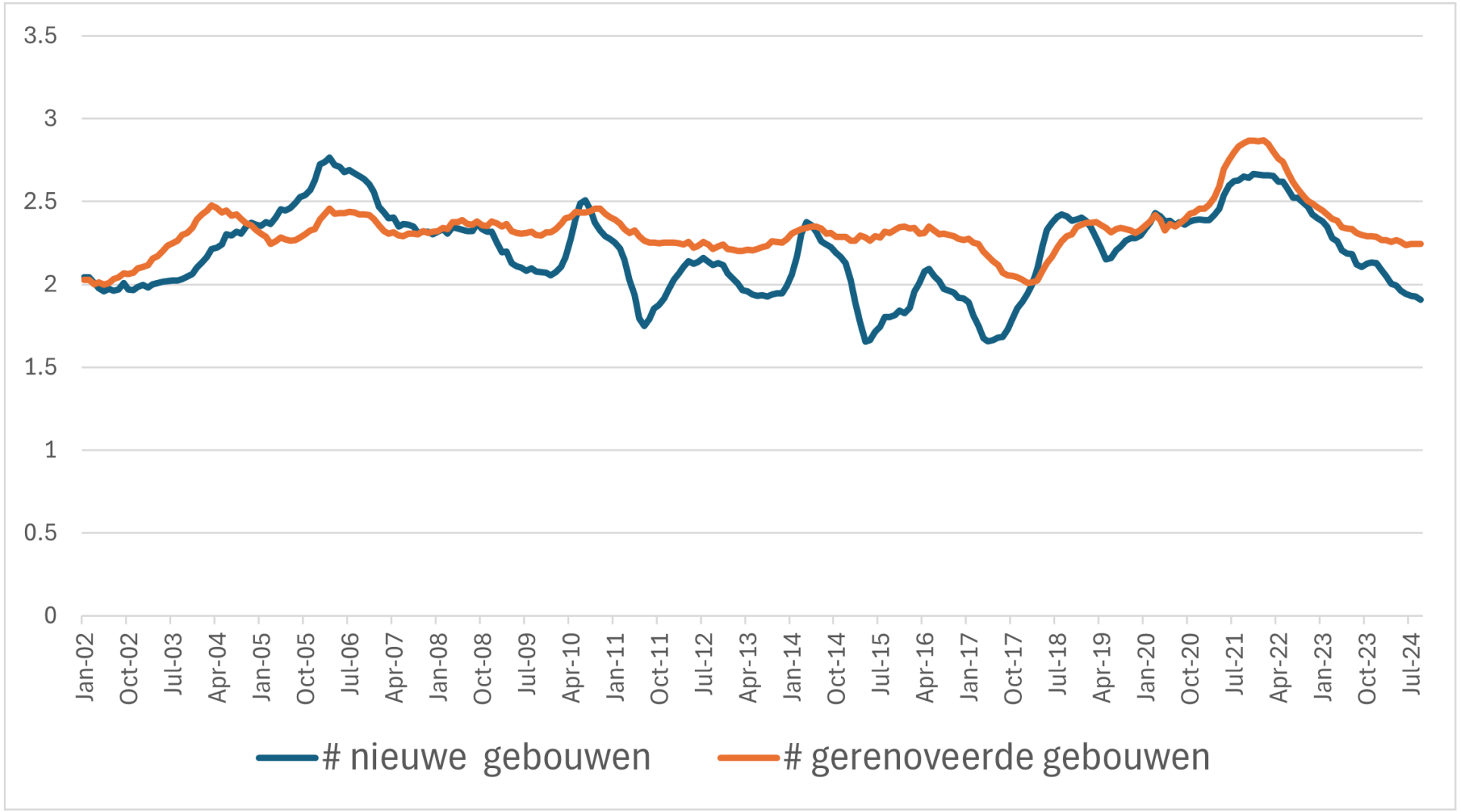

*„Jeder investierte Euro in Infrastruktur lässt das Bruttoinlandsprodukt um fast drei Euro steigen.“*

Mariana and Mario argue for transformative public investments
(& Merz is in)

- Mazzucato; entrepreneurial role of government in society
- Moonshot; market forces can transform societies, but this takes many decades
- What is the goal or purpose of transformative investments?
- Where is the consumer/citizen in this transformation?

# Transformative investments and building stock challenges

# Impact of 20 years of '*market-based*' renovation policies in Flanders?



# EC (2019): 90% of ‘energetic renovations’ are side-product of functional renovations

# Cost of renovation?

- Small terraced: € 40 000
- Apartment: € 40 000
- Large, detached: + € 100 000
- Complete make-over of large detached house: + € 300 000
- Market says ‘no’

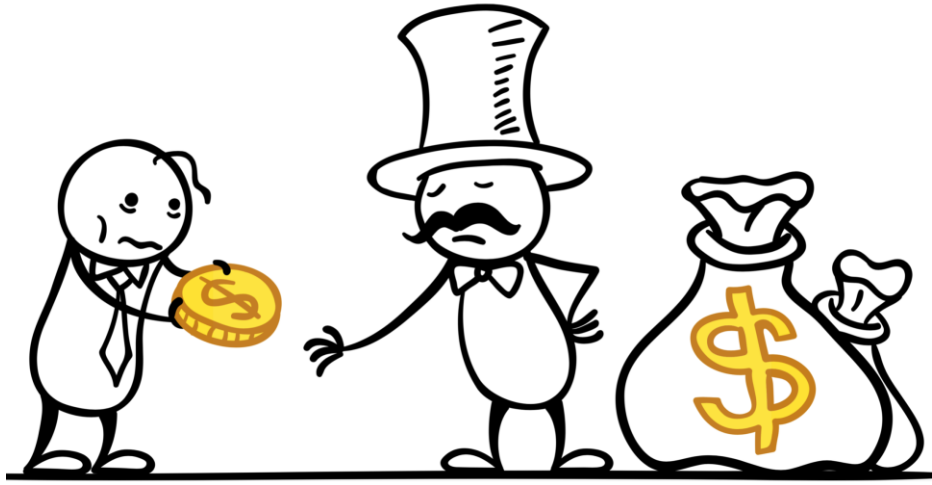
# The financial barrier for renovation investments towards carbon neutrality

| | VL | WALL | BXL |
|---|---|---|---|
| **% of owners with insufficient resources for carbon neutral renovations** | 40-54 | 43-57 | 36-47 |
| **% of owners lacking up to € 6.250** | 4 | 3 | 5 |
| **% of owners lacking € 6.250 to € 12.500** | 4 | 4 | 5 |
| **% of owners lacking € 12.500 to € 25.000** | 8 | 8 | 9 |
| **% of owners lacking € 25.000 to € 50.000** | 19 | 18 | 18 |
| **% of owners lacking more than € 50.000** | 9 | 14 | 7 |

source: Albrecht, J. en Hamels, S. (2021). The financial barrier for renovation investments towards a carbon neutral building stock. An assessment for the Flemish region in Belgium, *Energy & Buildings*, Vol.248, DOI10.1016/j.enbuild.2021.111177

# Efficiency of renovation subsidies?

- Limited *additionality*: low $CO_2$-gains per public EUR spent
- High ‘Mathew-effect’; 66% free riders among subsidized owners
- Subsidized increase of capital and housing inequality
- Just transition?
- Most likely renovation incentives did increase prices of inefficient houses



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# To renovate or to transform?

The division or compartmentalization of large old houses into three small apartments is economically profitable (market says ‘yes’), allows for energy savings, and addresses housing market shortage. **Hence this opportunity is prohibited in Flanders.**

# To renovate or to transform?

STADT WIEN
WIENER
WOHNEN


Vienna; 950.000 rental units
28% City of Vienna
27% Limited-profit housing associations
45% private market

Social housing production since 2014: + 11.000/year

# Vienna, ‘The Welfare City’

- *‘For over a century, the city has pursued a housing policy that treats housing as a public good.*
- *The majority of Vienna’s two million residents live with long-term leases, often with shared infrastructure such as parks, libraries and community centers in the vicinity. It’s not just a numbers game – it’s also about shaping how people live together in the city.*
- *How could Vienna become a genuine Caring City – a city in which not only the public sector care for its citizens but people themselves care for one another and for their city? The idea is that everyone shoulders responsibility: for the well-being of their neighbours, of their building, of their surrounding.’*

- Source: ARCH+ (2025). Agency for better living, Wien/Rome

# ‘Social projects’ in Copenhagen

- Housing projects are part of city transformation ambitions
- Public-Private Partnership
- Nordhavn, 2007-2050 + 40 000 units
- Ørestad, 1992 – now + 10 000 units

# Urban landscape transformation is an *attitude*

- Entrepreneurial role of local government
- Goal is to increase quality of life
- Vienna: cooperative models to cocreate the city – some projects are developed by their future tenants;
- *experimenting with new forms of housing and functional diversity (e.g. Frauenwohnproject Ro*sa 2010)*
- *empowerment of residents/citizens to boost innovation, entrepreneurship and local initiatives*
- Vienna: no dedicated ‘heat pump’ or decarbonisation policies

# Powering through the middle ground…

- Mazzucato & Draghi: we need transformative public investment programs (up to 5% of GDP)
- Entrepreneurial governments will have to pick up the challenge (local?)
- Expertise?
- Market forces should be used, not blocked
- City transformation is an attitude, with a focus on cocreation and caring
- What is possible with housing, is equally possible with energy
- Do we want to transform? So, let’s change our attitude…

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# Bedankt voor uw aandacht!

Nieuwe publicatie;

**‘Energieprijzen en competitiviteit. Een alternatieve lezing van het Draghi-rapport’**

https://www.itinera.team/nl/publicaties/rapporten/energieprijzen-en-competitiviteit

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