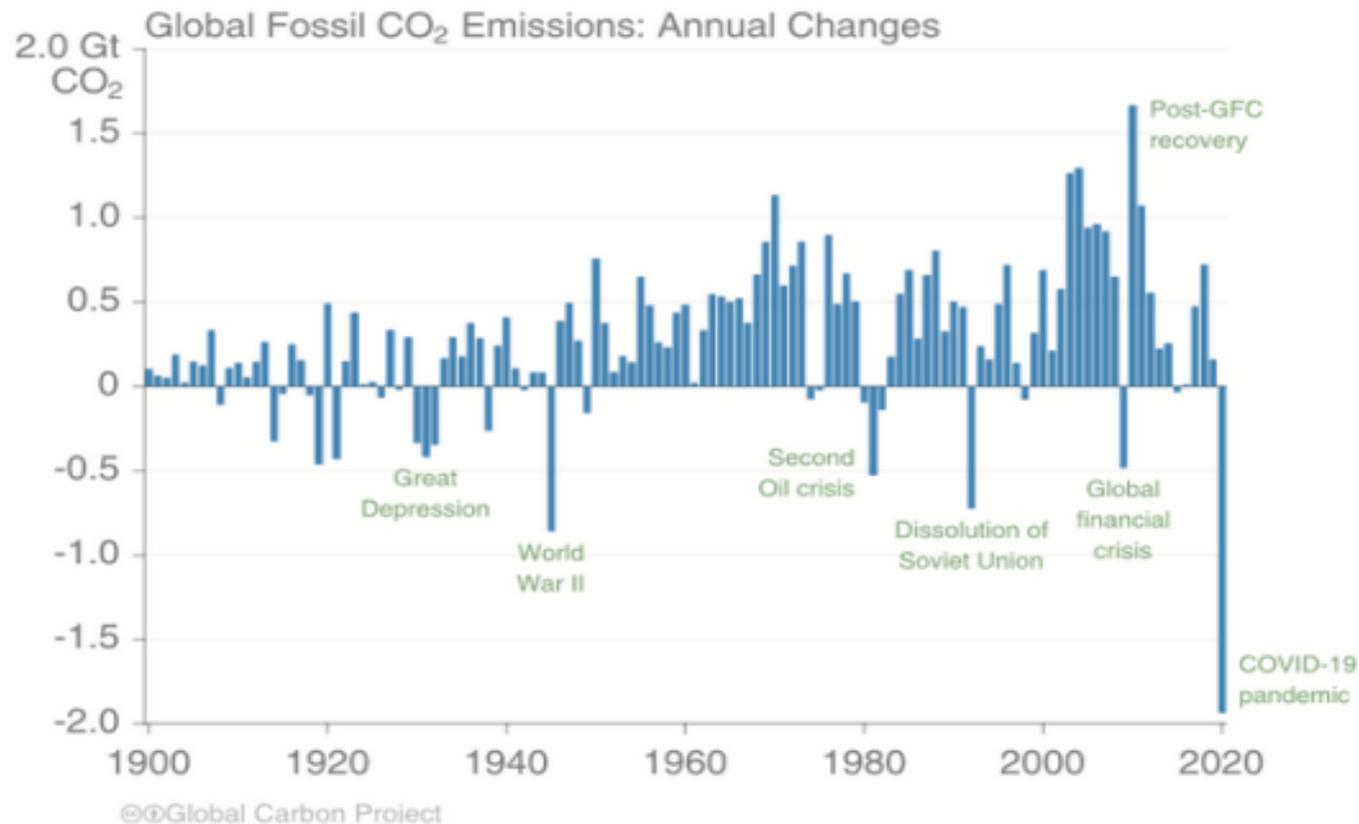


The EU's electricity crisis: Is “greening” feasible now?

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CO₂ emissions and dramatic events

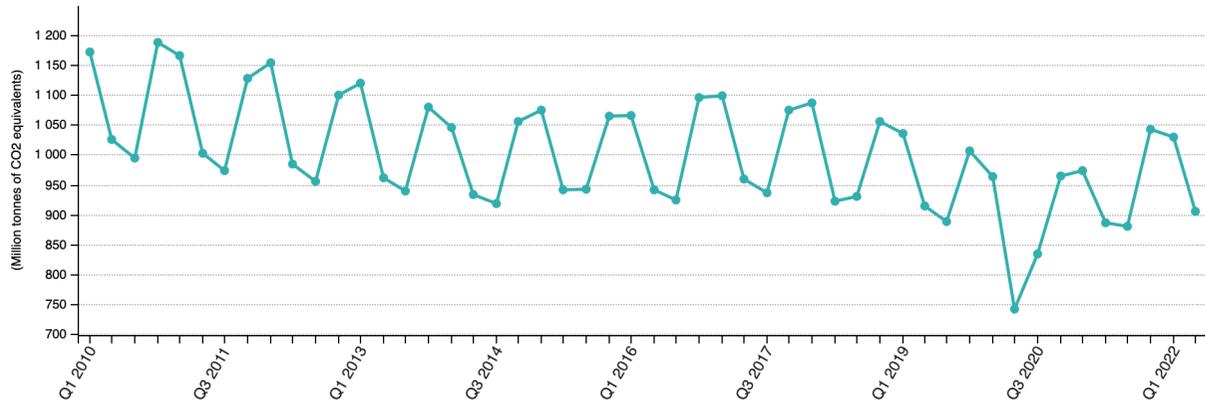


COVID-19 pandemic offers a natural experiment :

- Fossil CO₂ emissions (coal, oil, gas and cement) during the 2020 have experienced an **extraordinary drop of 5.6%**

Green transition after COVID-19

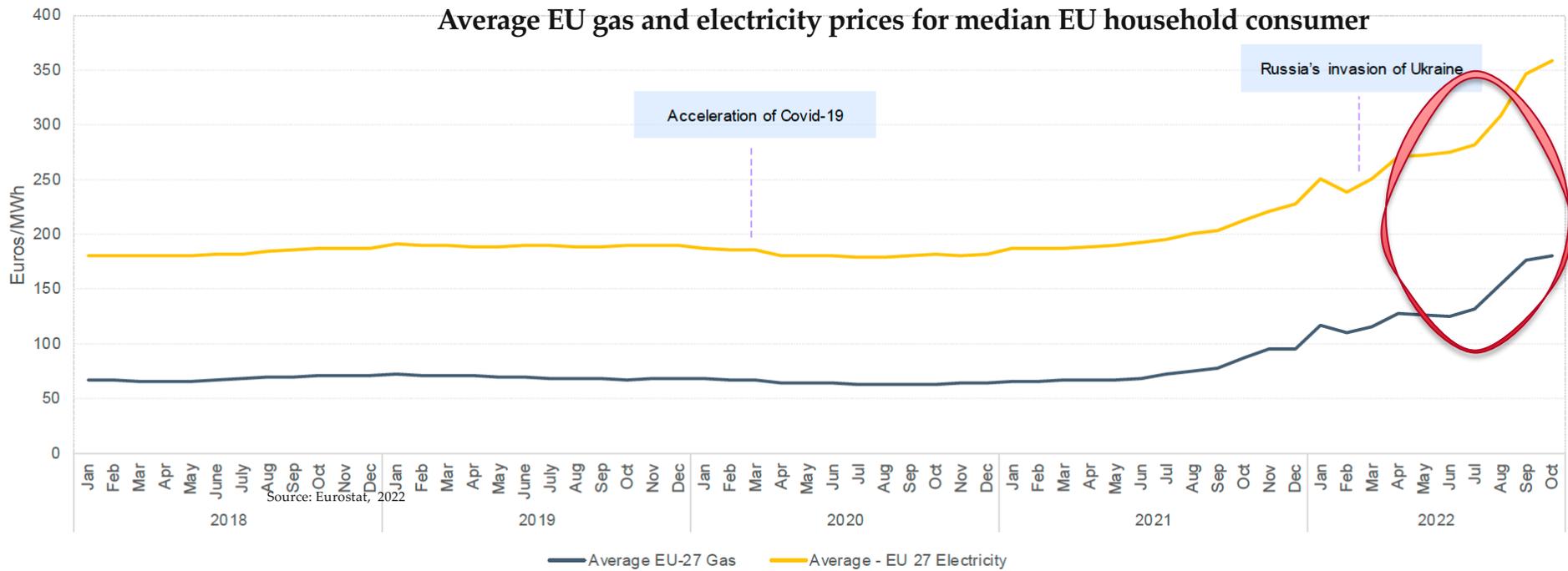
EU economy greenhouse emissions



Source: Eurostat, 2022

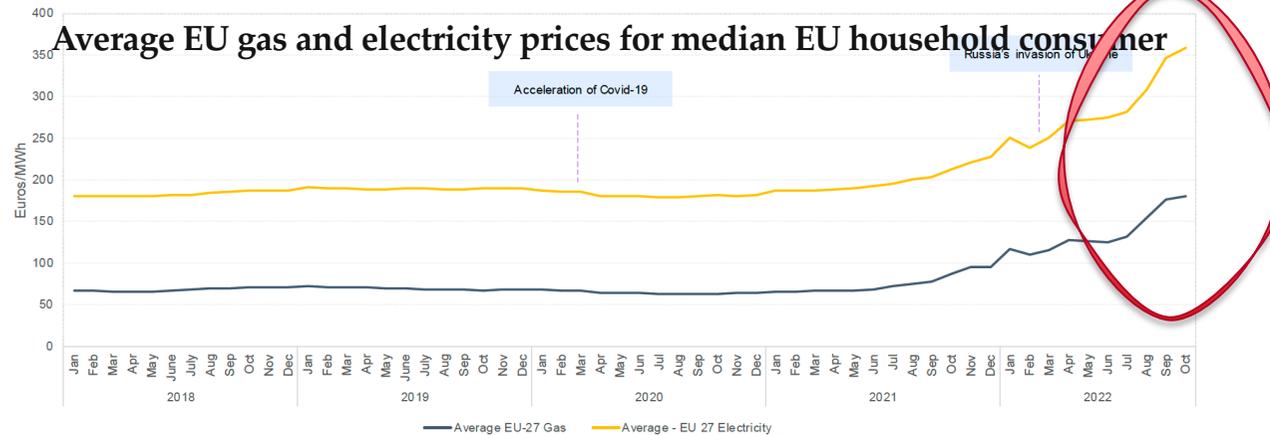
- To facilitate no more than 1.5 degree temperature increase, we need 7-8% decline in emissions every year between 2020 and 2030 (UNEP, 2019)
- COVID-19 **extraordinary drop of 5.6%** in 2020 did not even get us on this path!
- Since 2021 emissions from energy and industry bounced back to high level

Current energy crisis: unprecedented high prices



=> Are high electricity(gas) prices a green opportunity?

Current energy crisis: unprecedented high prices



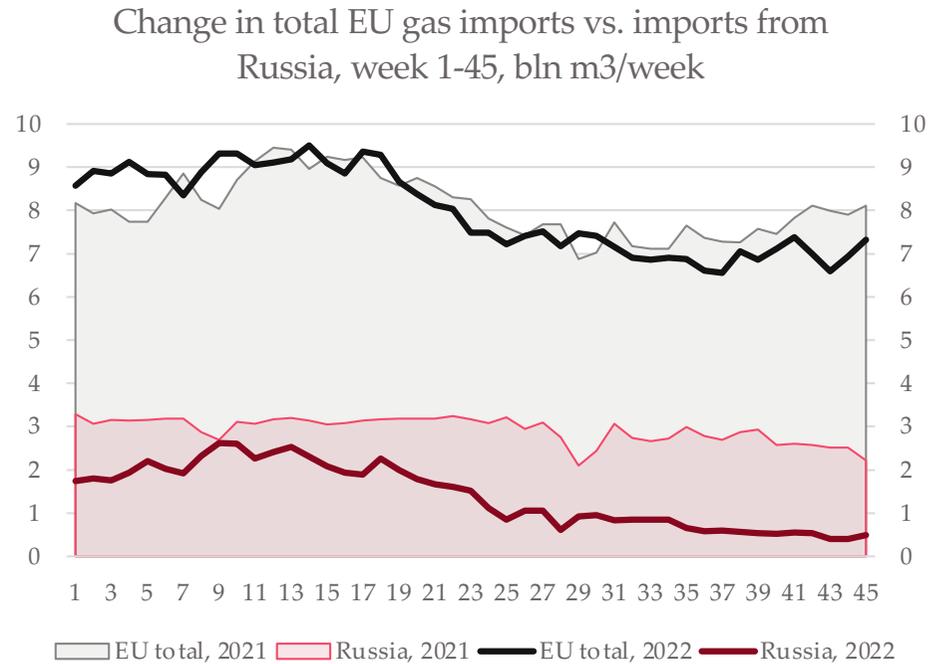
- Two expected effects (in theory) from sudden high market prices:

Substitution effect: opportunity to change the energy mix

Price effect: opportunity to stimulate demand response and investments

Crisis management: Replacing Russian gas

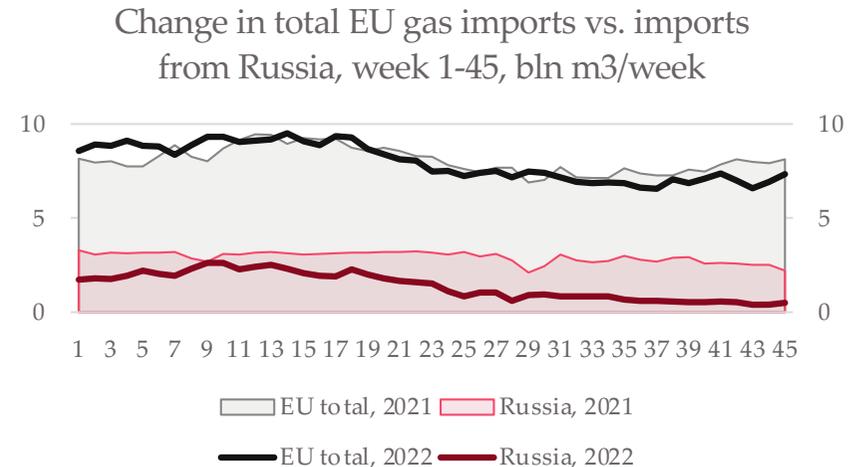
European countries' dependence on Russian natural gas as part of their energy transitions—in their phasing out of coal and phasing in of renewables.



Source: Paltseva, 2022

Crisis management: Replacing Russian gas

European countries' dependence on Russian natural gas as part of their energy transitions—in their phasing out of coal and phasing in of renewables.



REPowerEU plan (May 2022)

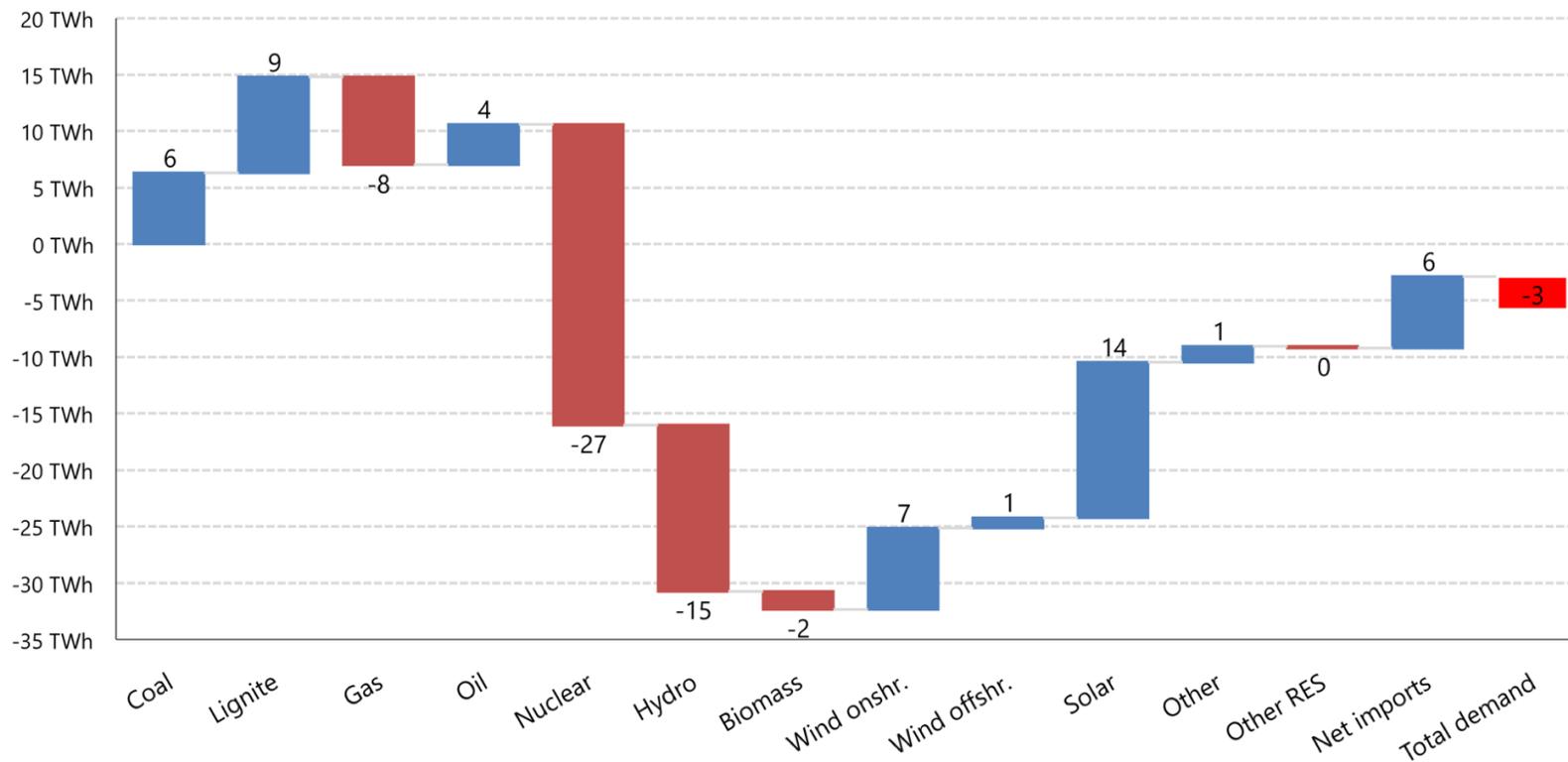
- _Diversify gas supply (imports from other suppliers + domestic production)
- _Use other fuels (coal, oil, nuclear)
- _Improve energy efficiency and reduce demand
- _Longer-term: accelerate green transition (FIT for 55 package)

How is EU doing? well in the short term ...

- The EU has already surpassed 80% of gas storage
 - The share of Russian pipeline gas in EU imports has dropped from 41% in 2021 to 9% in September 2022.
 - Liquefied natural gas (LNG) is now a key source of supply, accounting for 32% of the EU's total net gas imports.
 - The EU generated a record 12% of its electricity from solar from May to August 2022, and 13% from wind.
 - => the growth in EU electricity generation from wind and solar has avoided Euro 11bn in gas import since Russia invasion of Ukraine (Ember, 2022)
-

Limited green substitution effect

Changes in power generation in the EU between Q2 2021 and Q2 2022

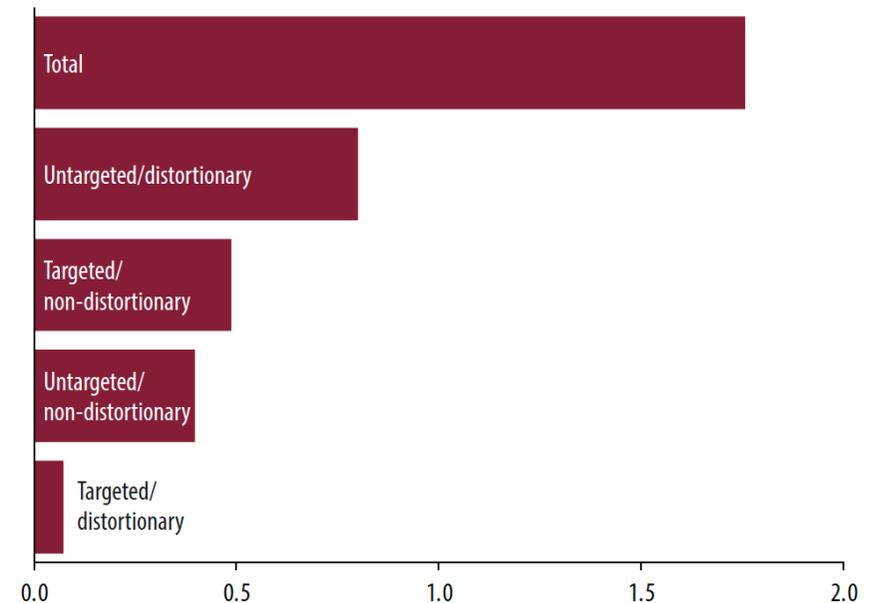


Source: ENTSO-E, Eurostat, DG ENER. Data represent net generation

Limited price effect (D-response)

- the fiscal cost of the energy crisis response is set to exceed 1.5 percent of GDP in some countries
- more than half non-targeted measures

Fiscal costs of household support measures, percent of GDP, in European countries



Source: IMF, 2022

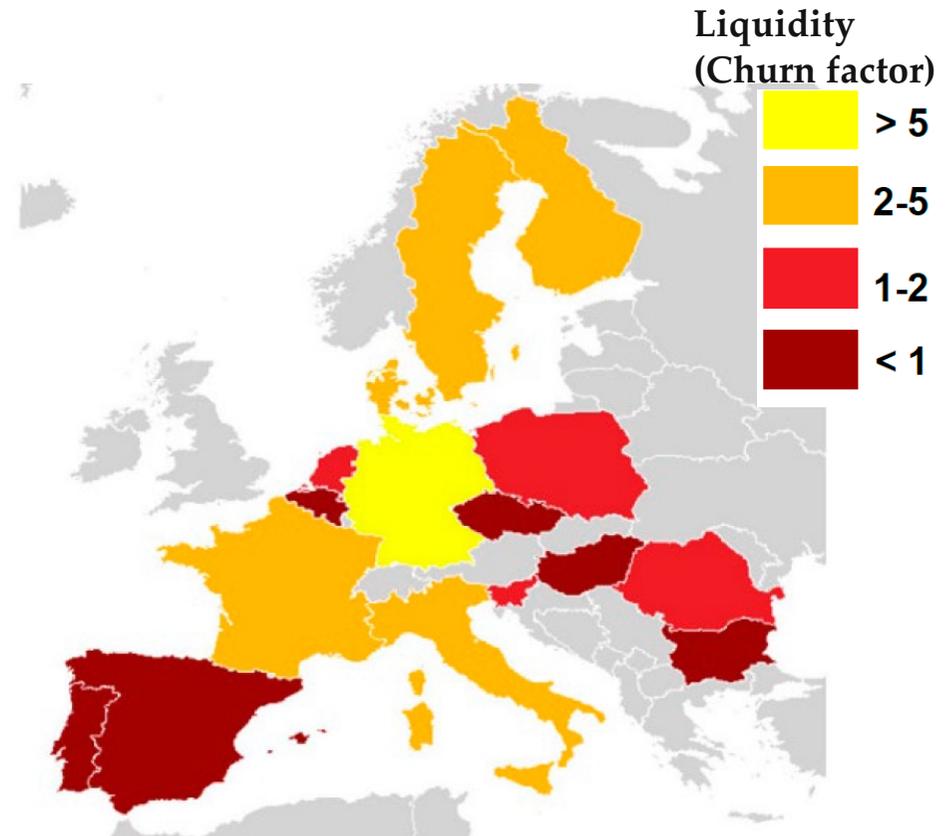
=> IMF estimates that it would cost 0.9 percent to let price signals operate and provide lump-sum transfers to vulnerable households

Limited price effect (Green Investment)

Markets exhibit limited liquidity

(especially beyond 3 years)

⇒ Bad for the development of low-carbon technologies

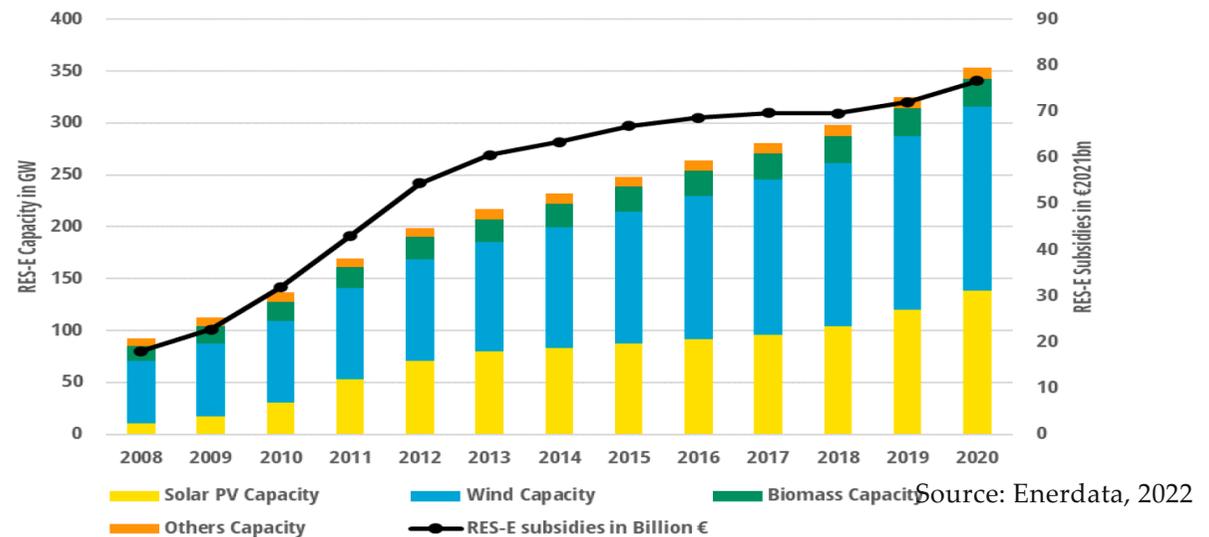


Source: ACER Monitoring report, 2022

How much gvt support for green investments?

Subsidies vs. Power Production Capacity (2008-2020)

No 1-to-1 relationship between subsidies and capacity
+ Much lower percentage increase in the power capacity in the late period

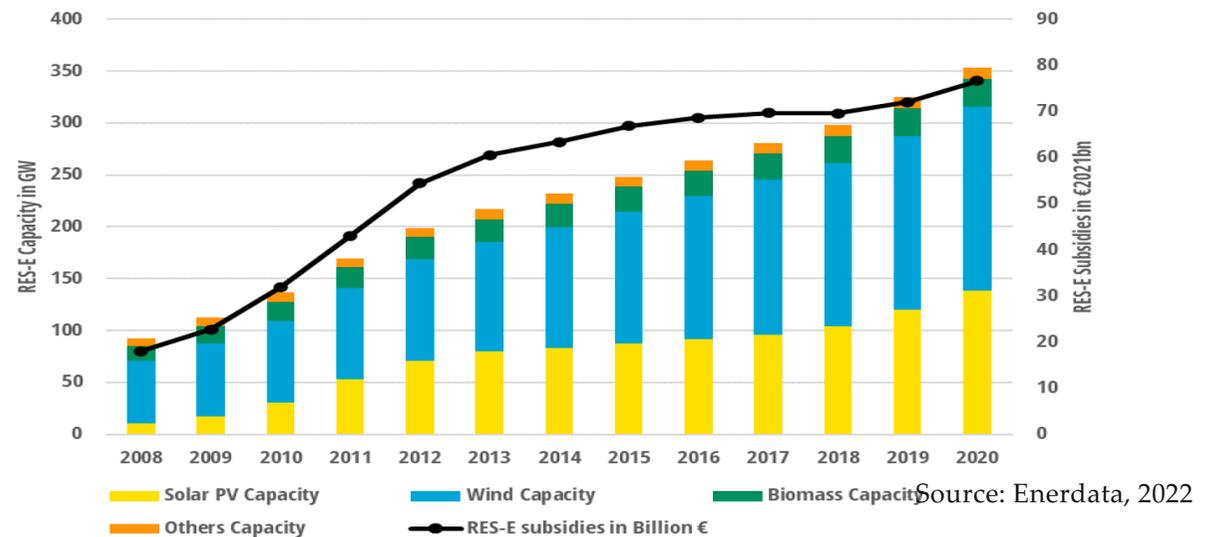


=> Government support is not enough

How much gvt support for green investments?

Subsidies vs. Power Production Capacity (2008-2020)

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+ Much lower percentage increase in the power capacity in the late period



Can the market deliver the right incentives to ensure a green transition?

Thank you

Check our CERRE report!

“The European Wholesale Electricity Market: From Crisis to Net Zero”

Pollitt M. et al (2022)

Chloé Le Coq

<http://chloelecoq.org>