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

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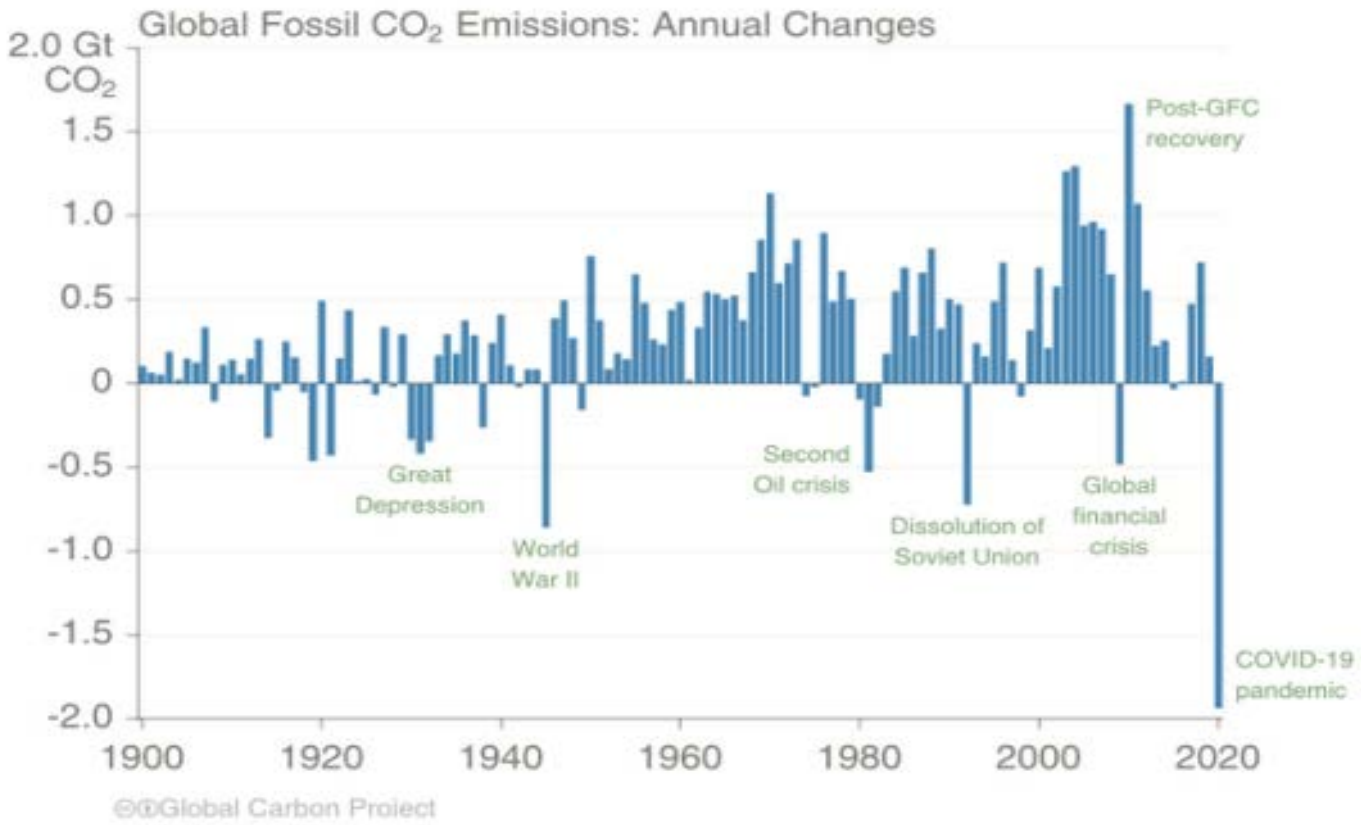
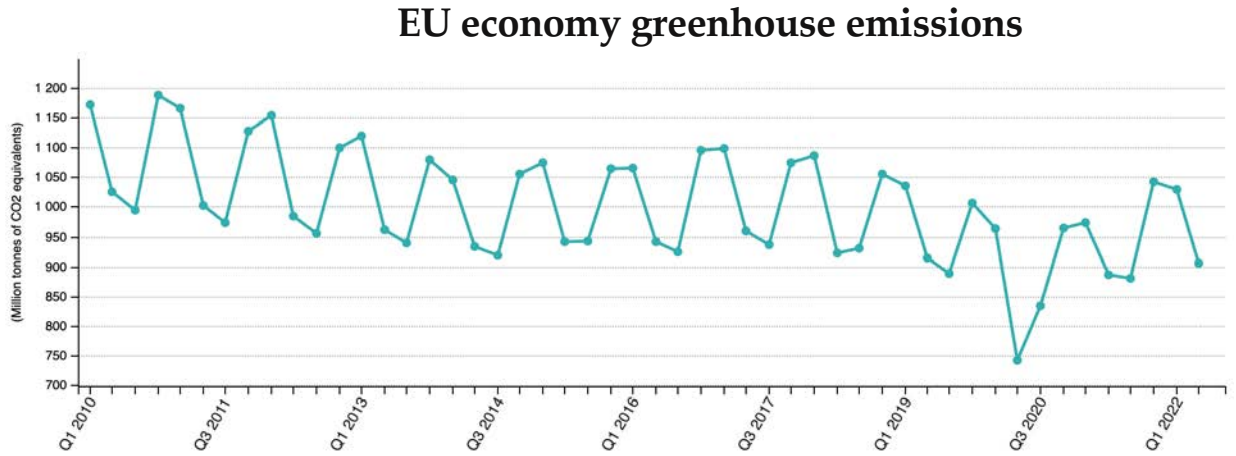
CO_2 emissions and dramatic events



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%**

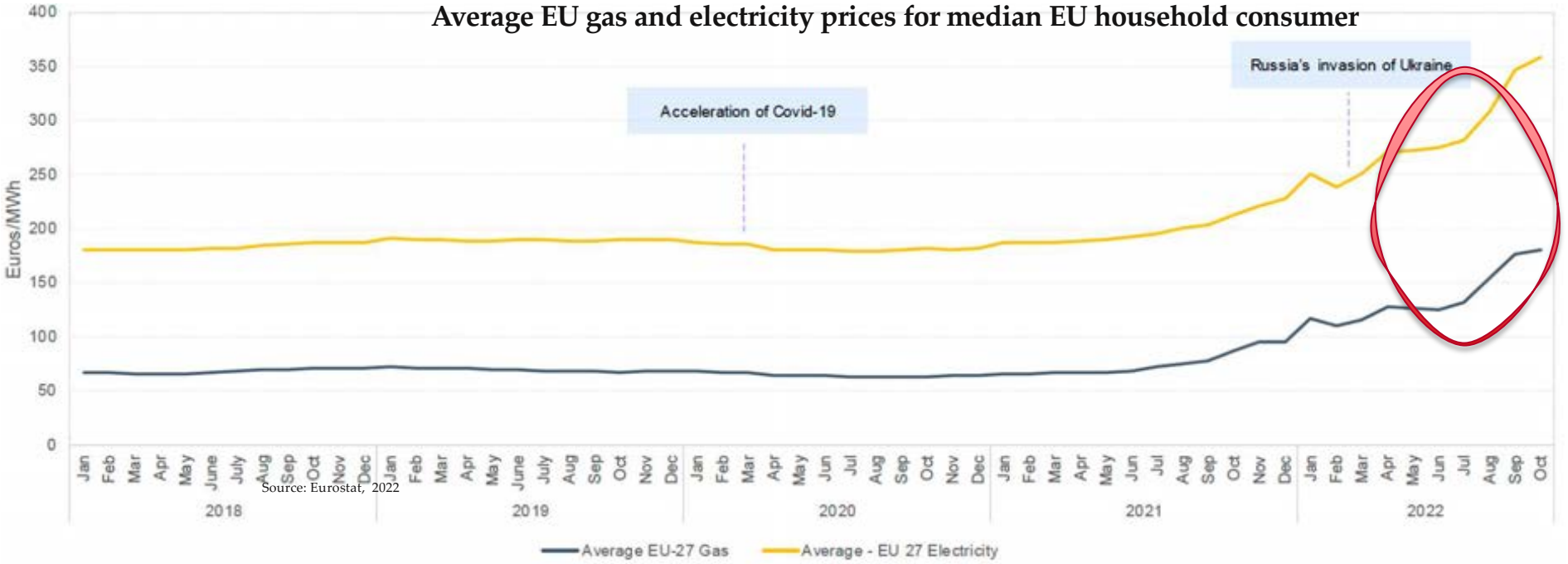
Green transition after COVID-19



Source: Eurostat, 2022

- To facilitate no more that 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

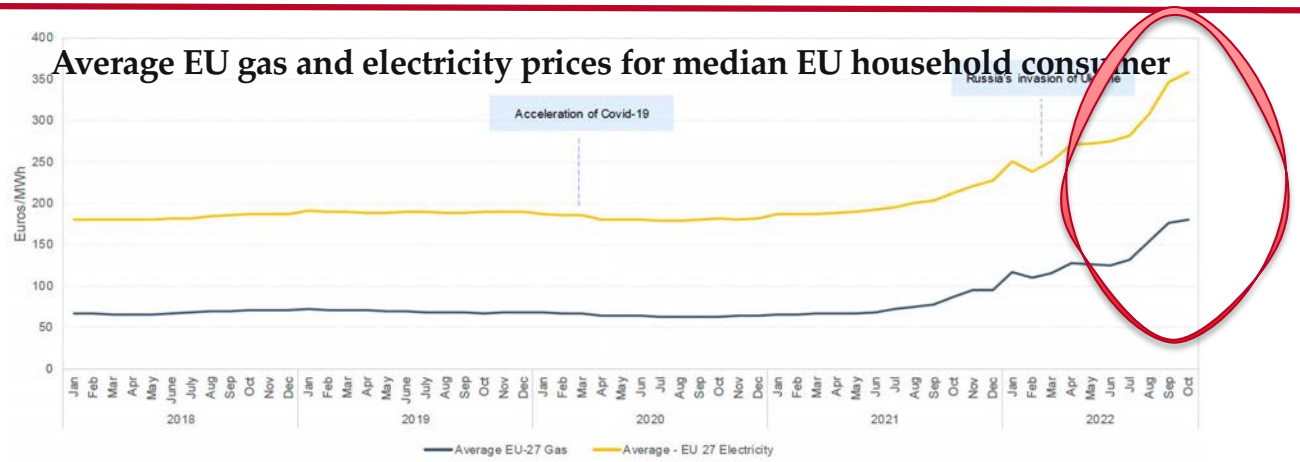
Current energy crisis: unprecedented high prices



Source: Eurostat, 2022

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

Current energy crisis: unprecedented high prices



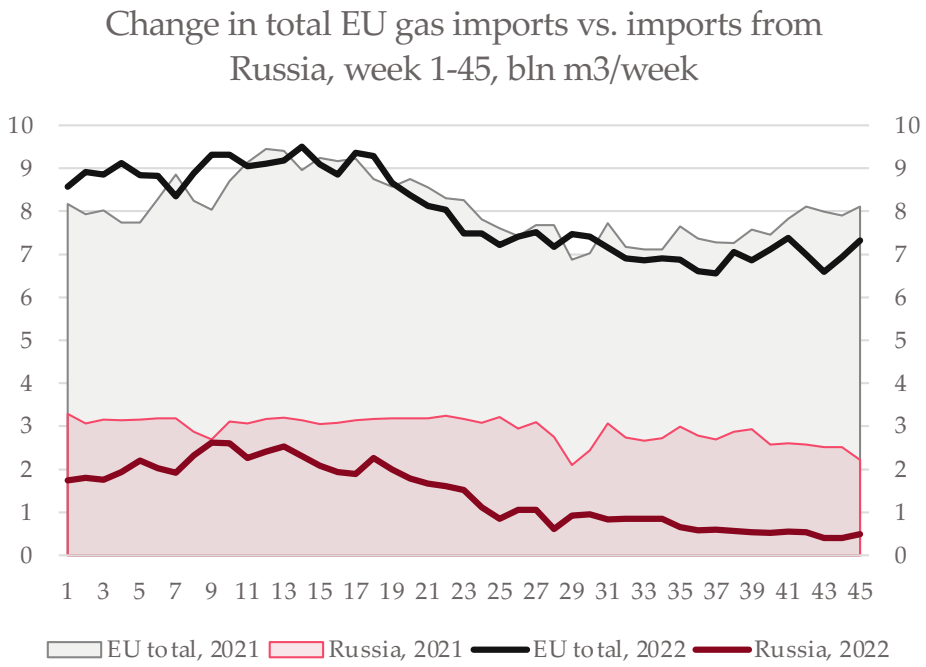
- **Two expected effects (in theory) from sudden high market prices:**

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

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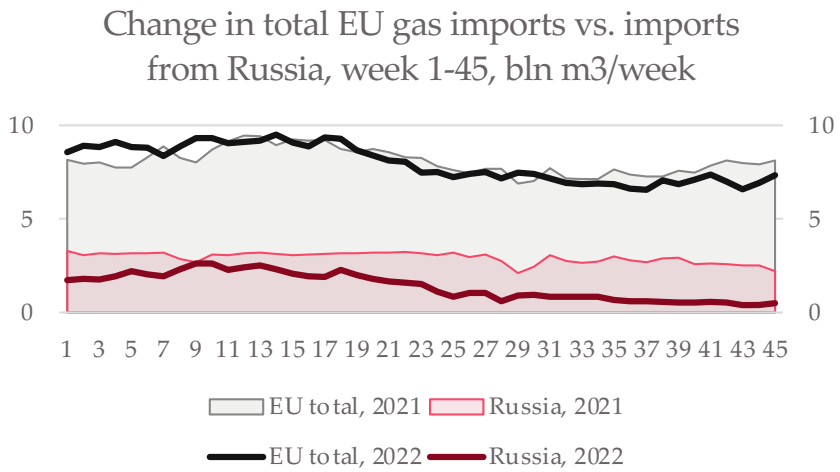


REPowerEU plan (May 2022)

_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)

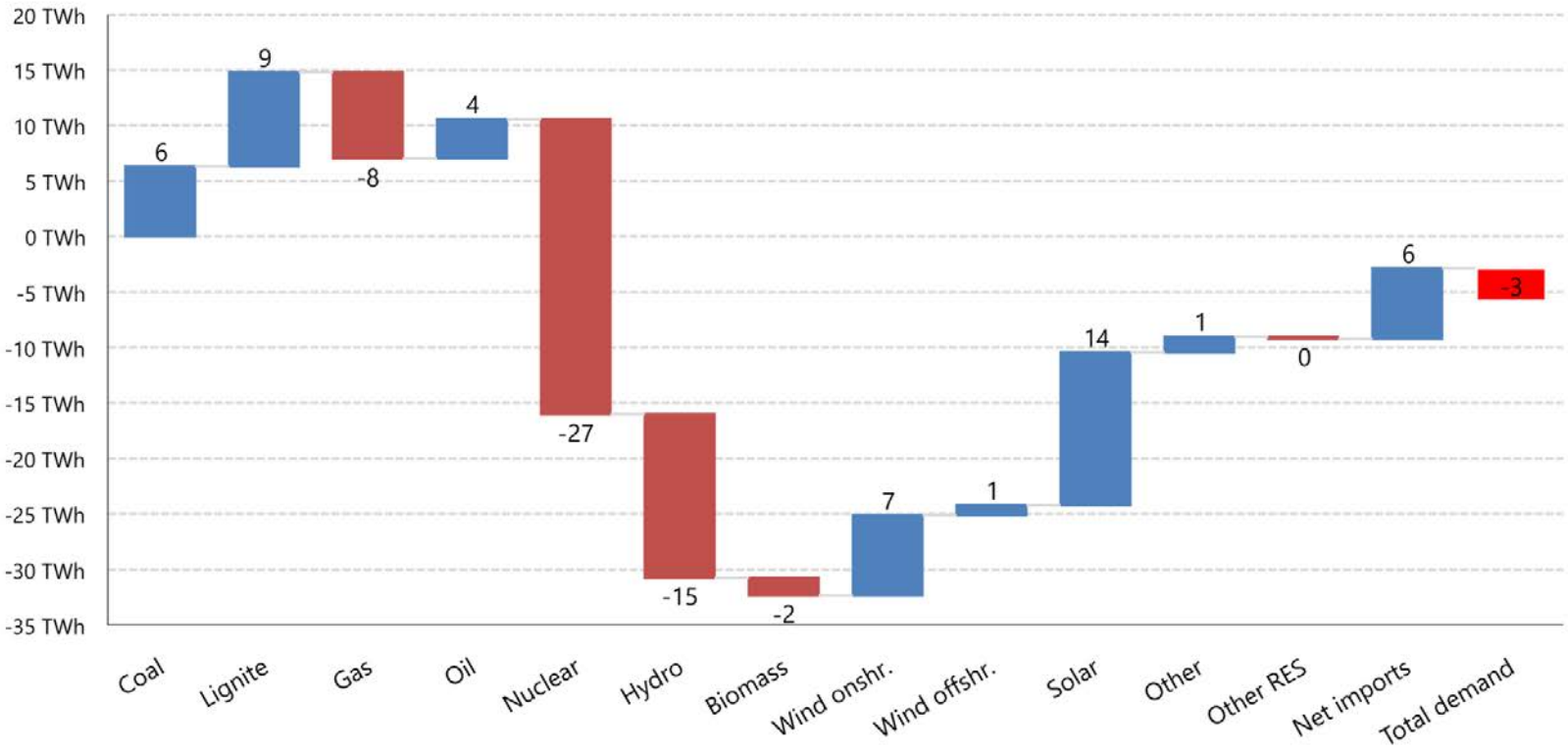
How is EU doing? well in the short term …

- 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

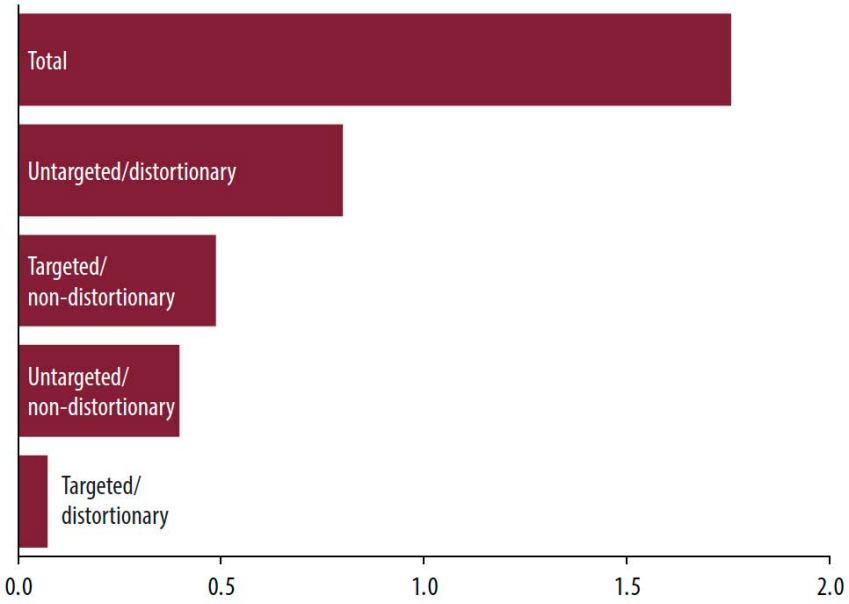


Source: ENTSO-E, Eurostat, DG ENER. Data represent net generation

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

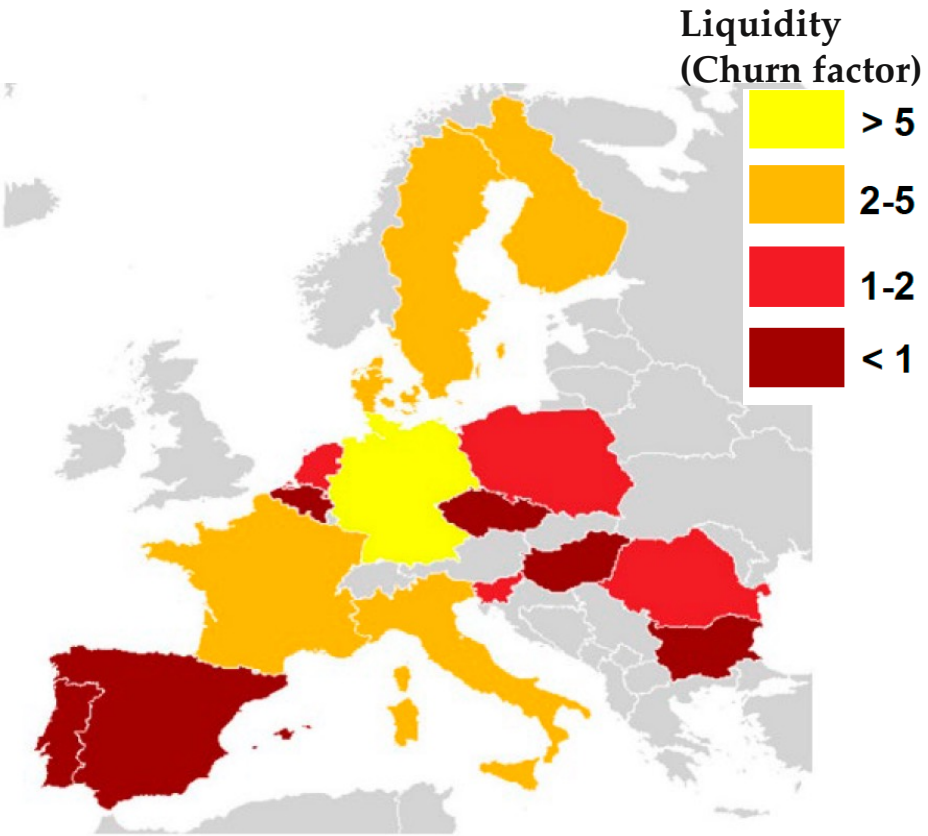
=> IMF estimates that it would cost 0.9 percent to let price signals operate and provide lump-sum transfers to vulnerable households

Limited price effect (Green Investment)

Markets exhibit limited liquidity

(especially beyond 3 years)

⇒Bad for the development of low-carbon technologies

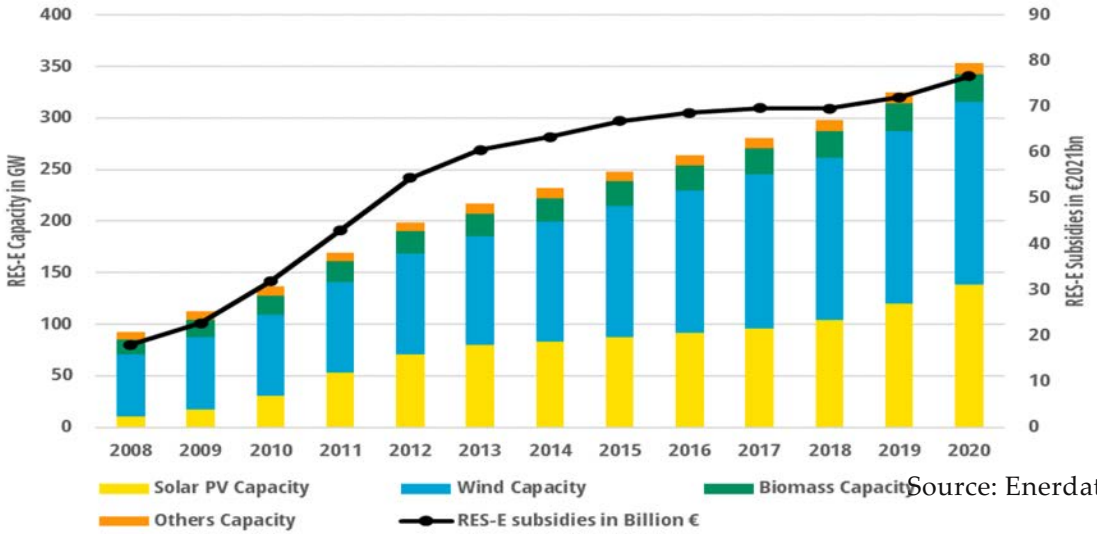


Source: ACER Monitoring report, 2022

How much gvt support for green investments?

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

Subsidies vs. Power Production Capacity (2008-2020)



Source: Enerdata, 2022

=> Government support is not enough

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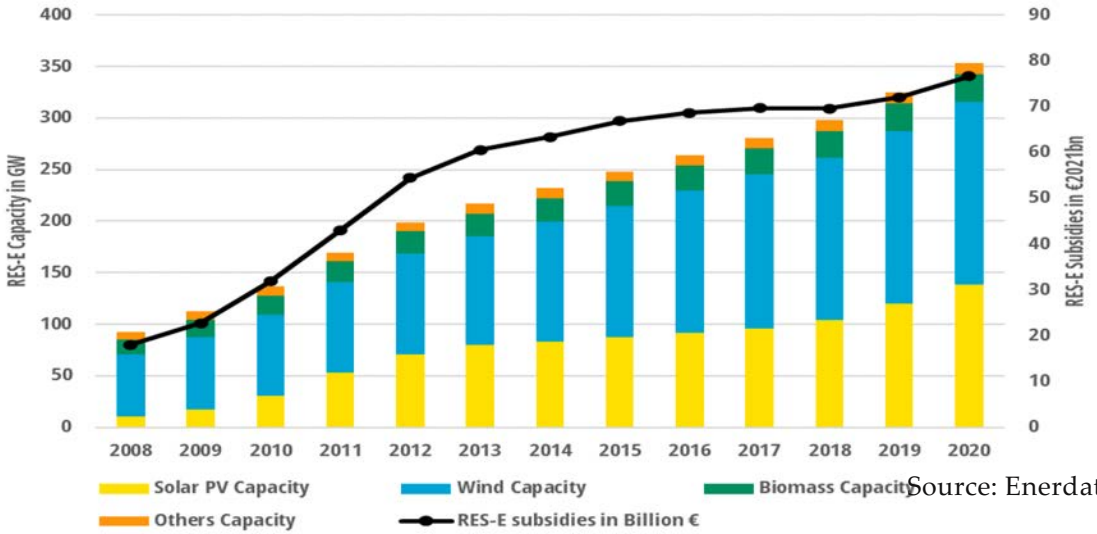

Source: Enerdata, 2022

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