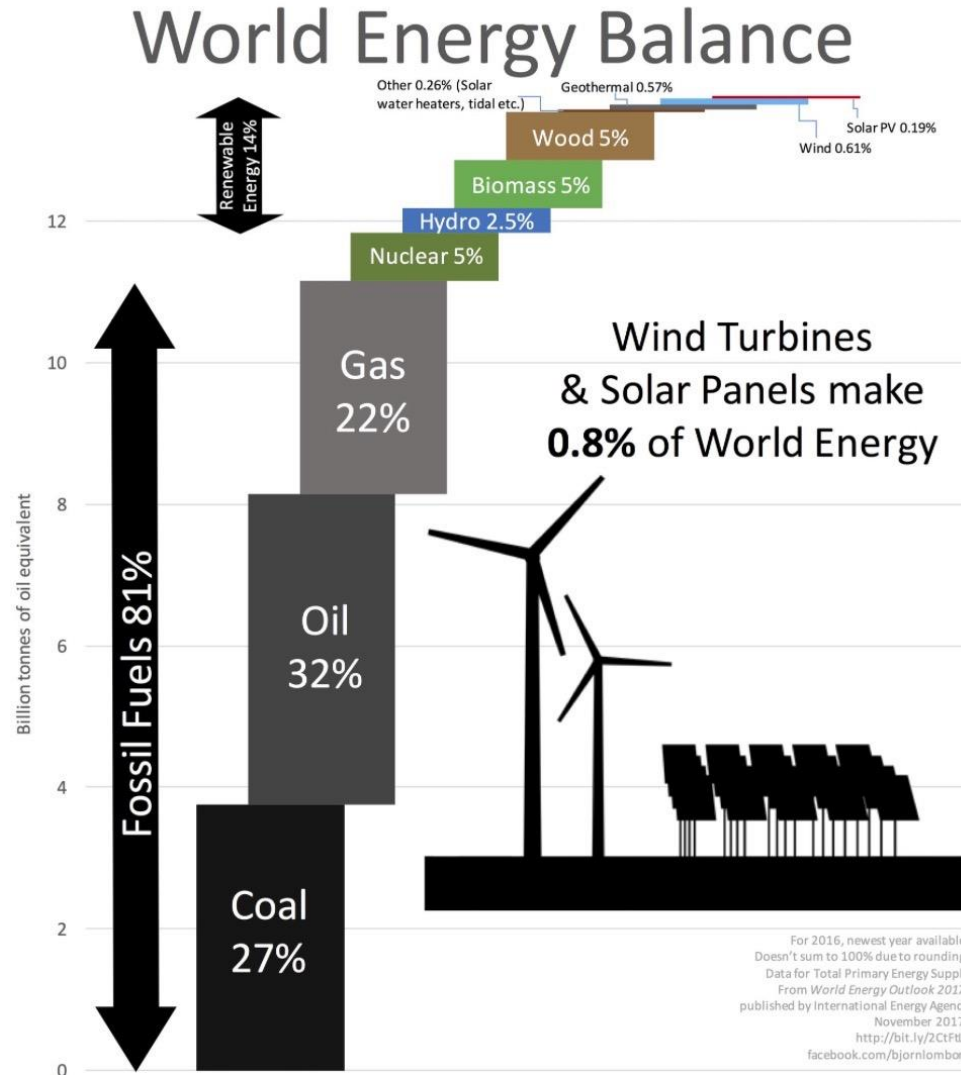


Discussion: Towards a solid strategy for the Group of Experts on Cleaner Electricity Systems

Vladimir Budinsky

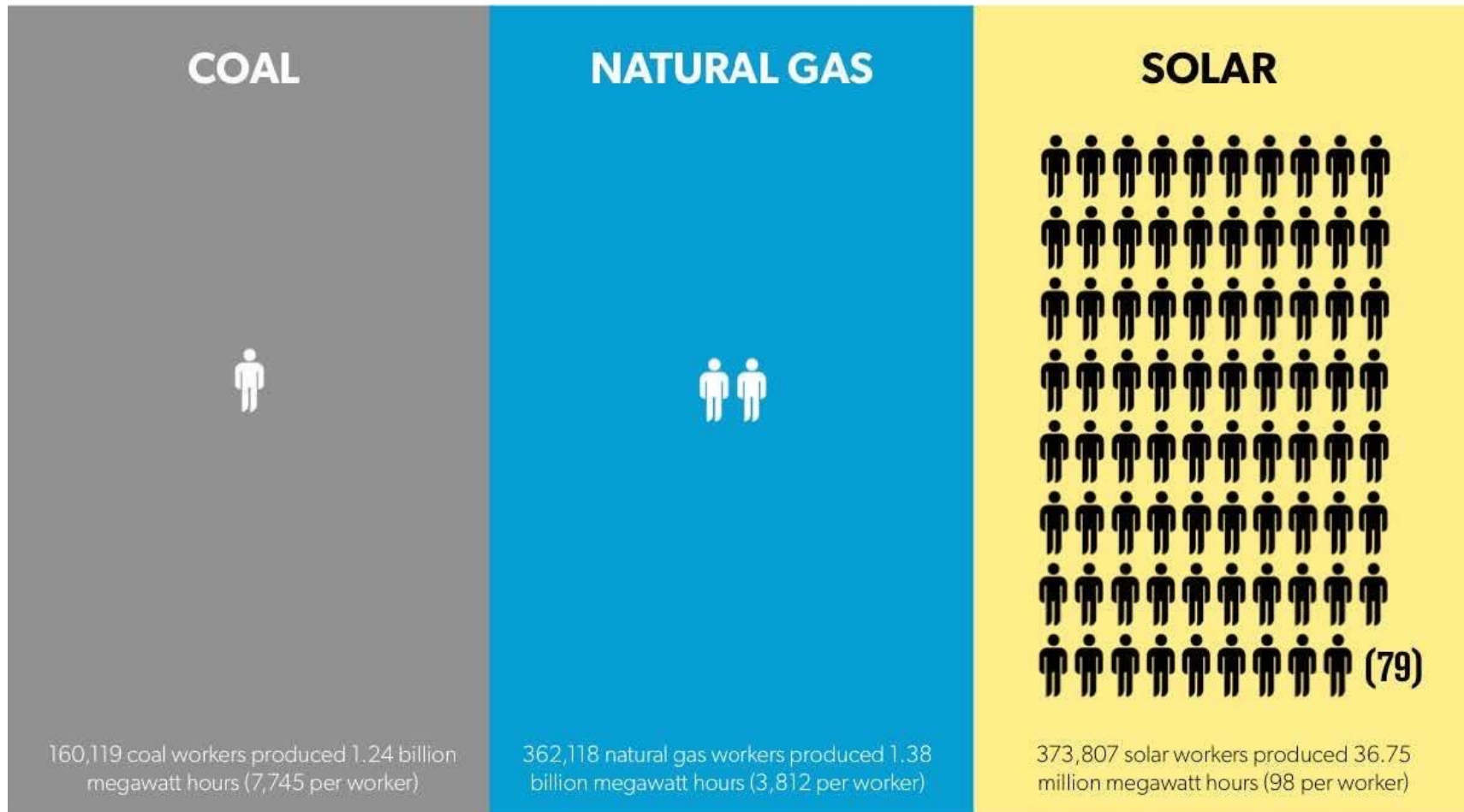
Vice-chairman Group of Experts
Cleaner Electricity Systems UN ECE

The role of coal/fossil fuels in sustainable energy and meeting climate goals priorities



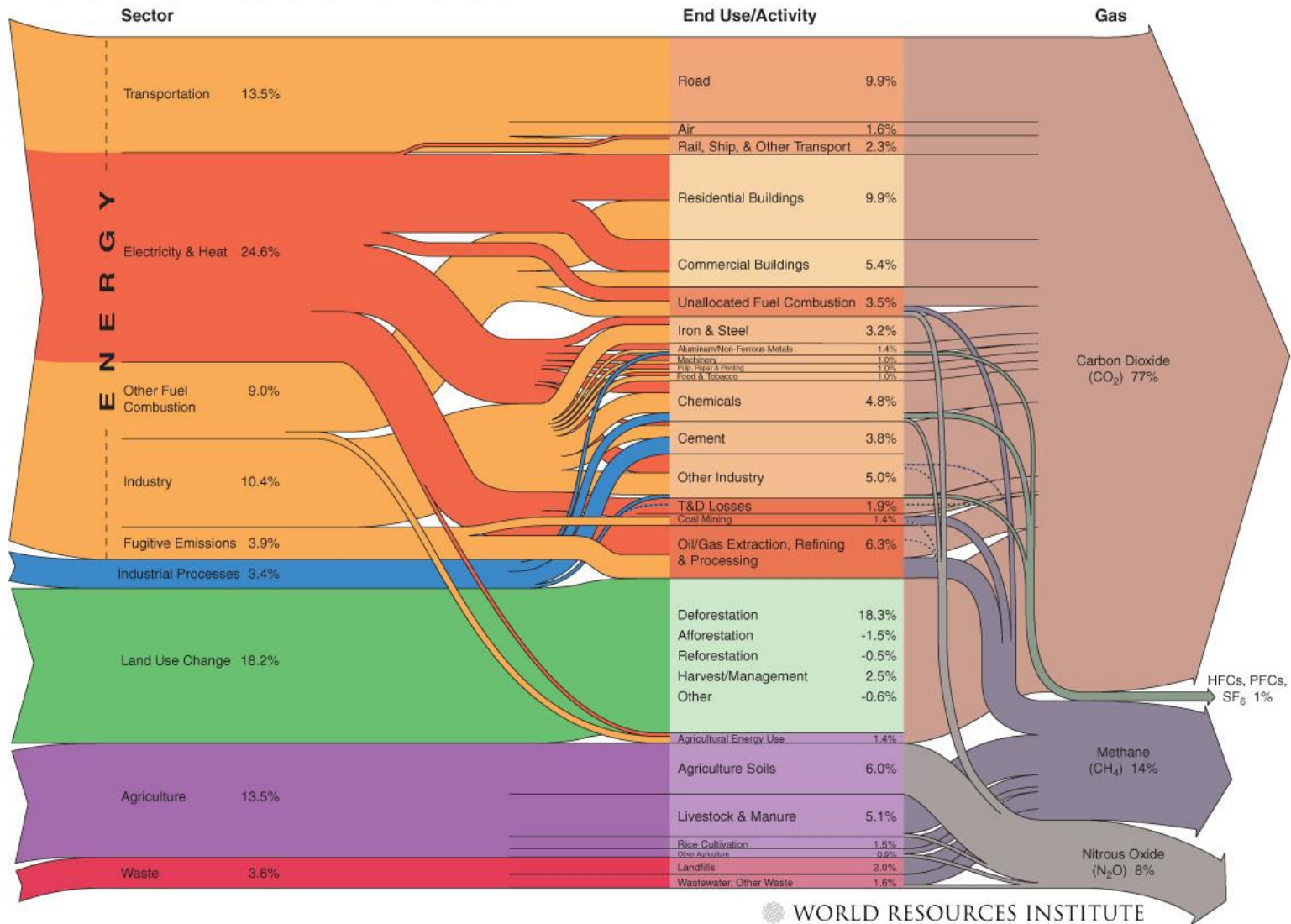
Fossil fuel energy remains competitive

Workers Required to Produce the Same Amount of Electric Power (2016)



Both fossil fuels (coal and gas) use produce GHG emissions

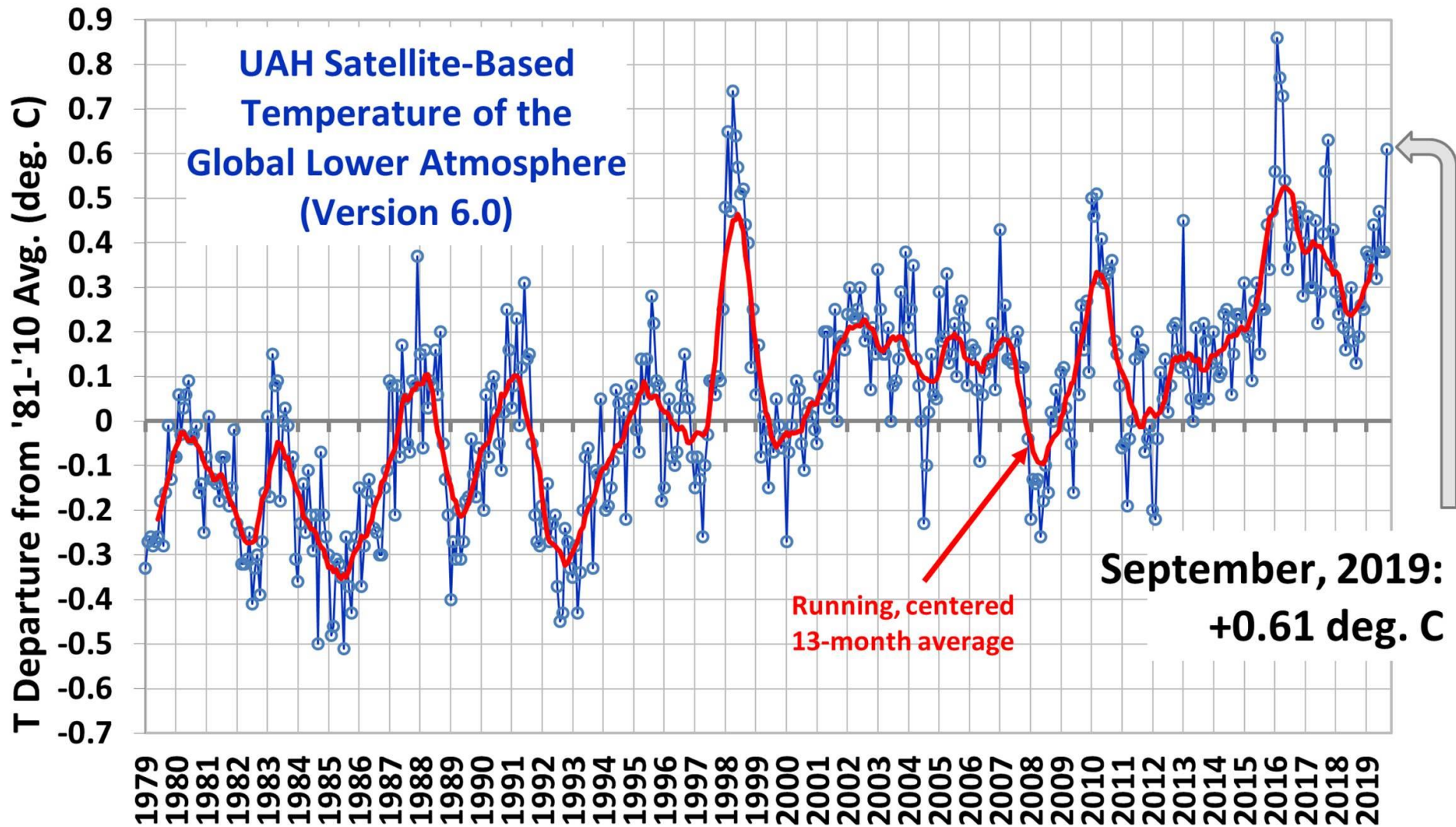
World GHG Emissions Flow Chart



What is at stake and What is needed?

- Analyse Warming Actual Status
- Social and Political Changes
- Change in Energy Mix – Renewable Energy requires Back-Up
- Higher RE require Flexibility – Fossil fuels new role is to stabilize Grid
- CCS/ CCUS
- New technologies
- Global Emission Trading System

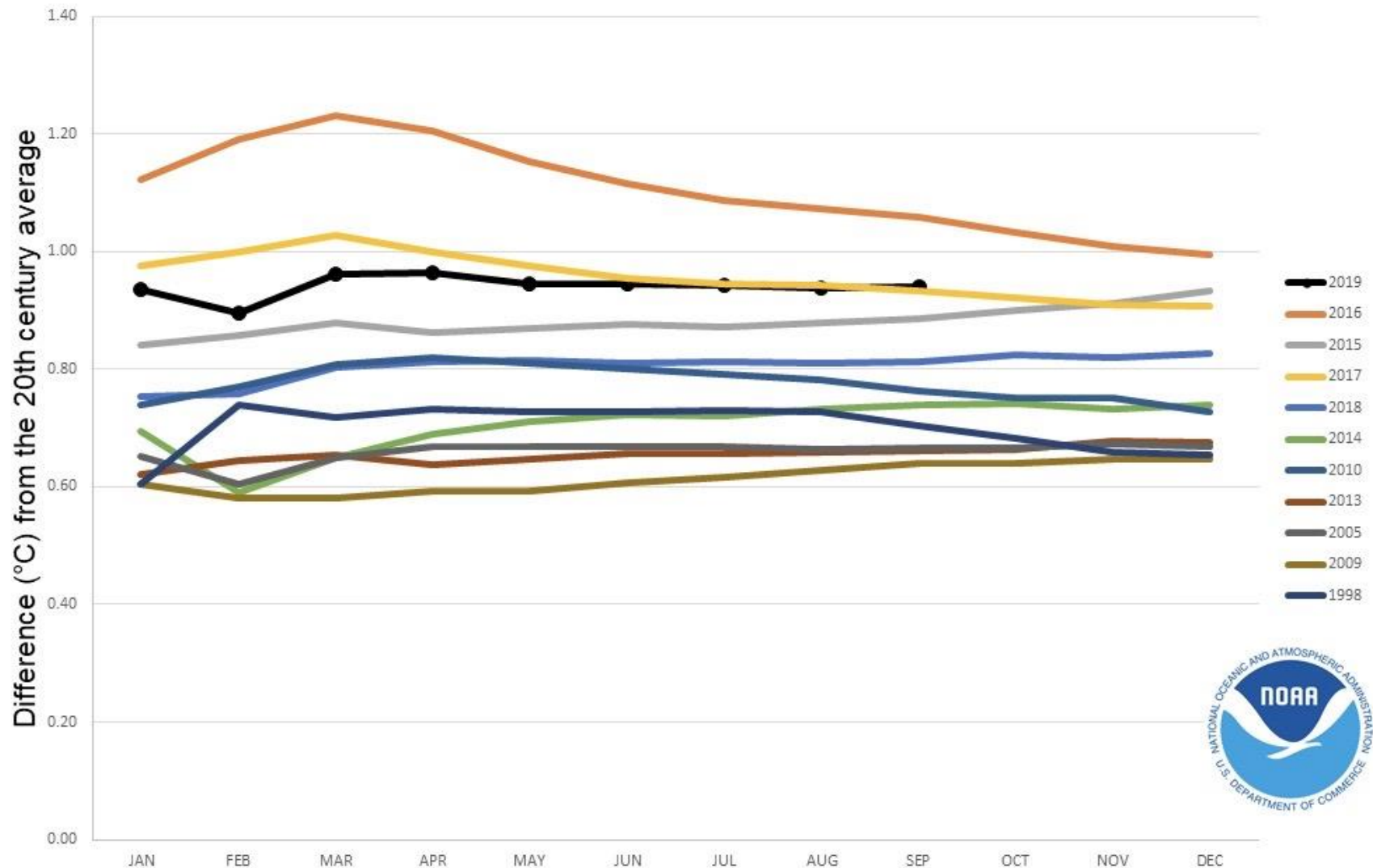
Warming: Climate Change – Warming Slow Down



Warming Global Temperatures Slow

Year-to-Date Global Temperatures





for 2019 and the ten warmest years on record

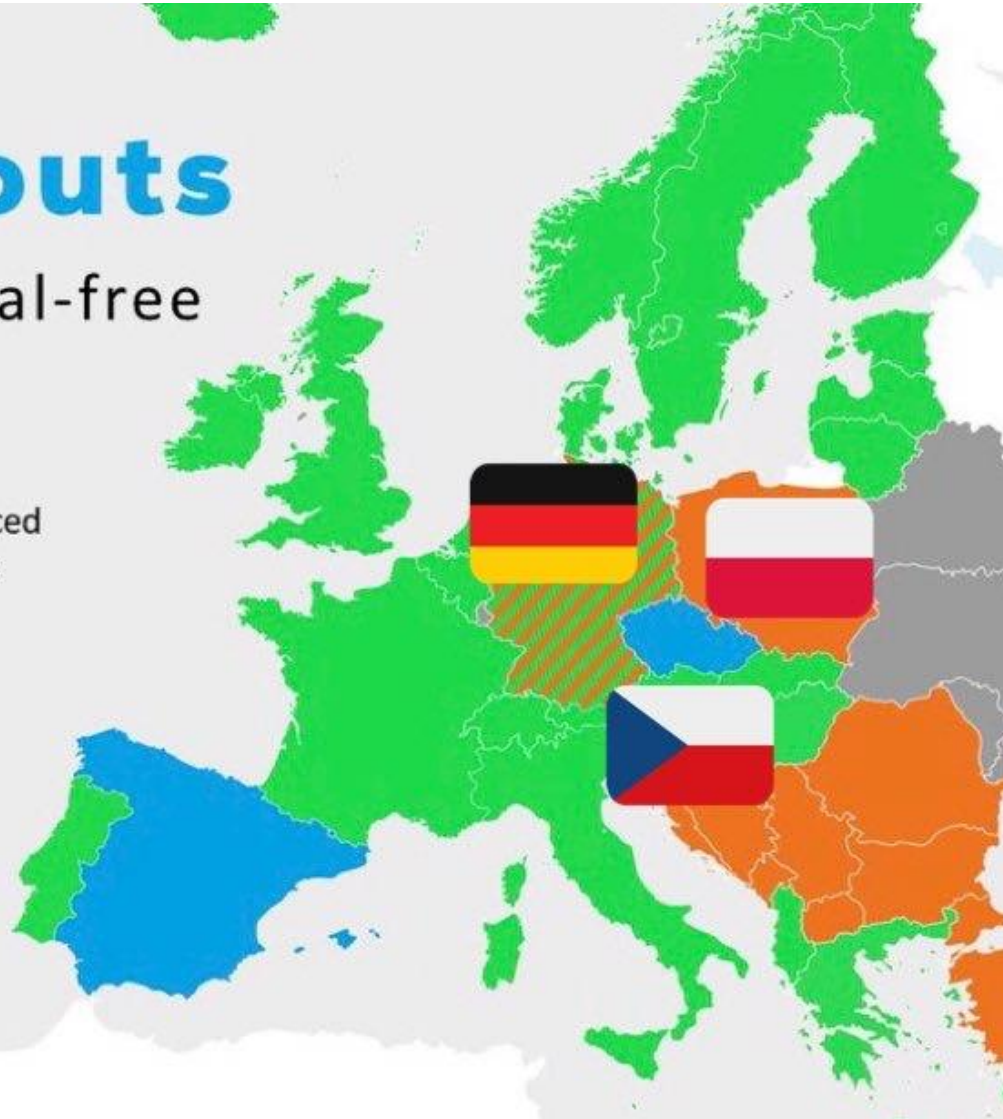


Political Changes: Europe Coal Phase Out

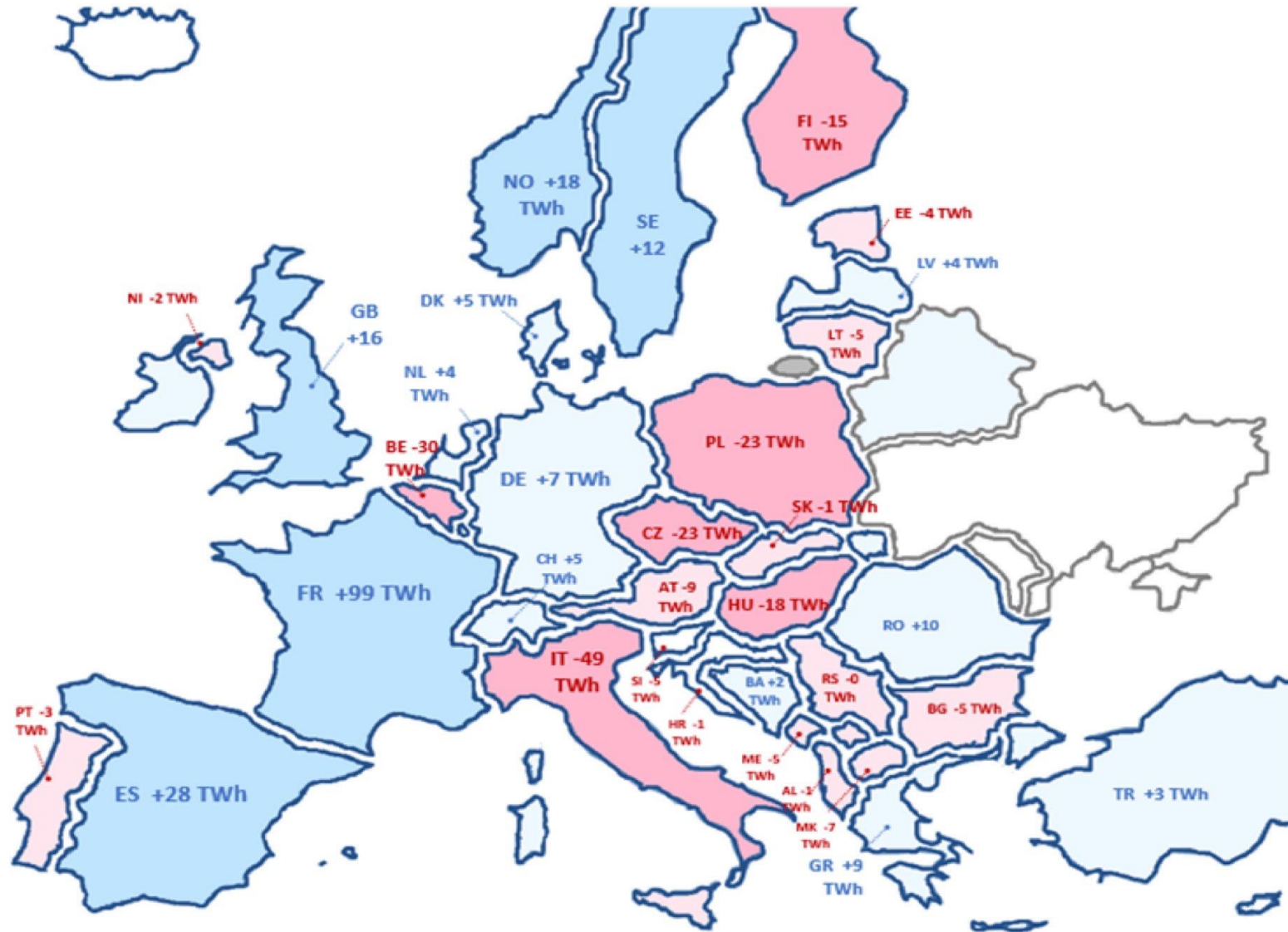
Coal phase-outs

Countries aiming to be coal-free

-  2030 or earlier coal phase-out announced or decided, or no coal in electricity mix
-  Coal phase-out under discussion
-  No phase-out discussion
-  Phase out only after 2030



Europe 2040: Risk in Energy Supply



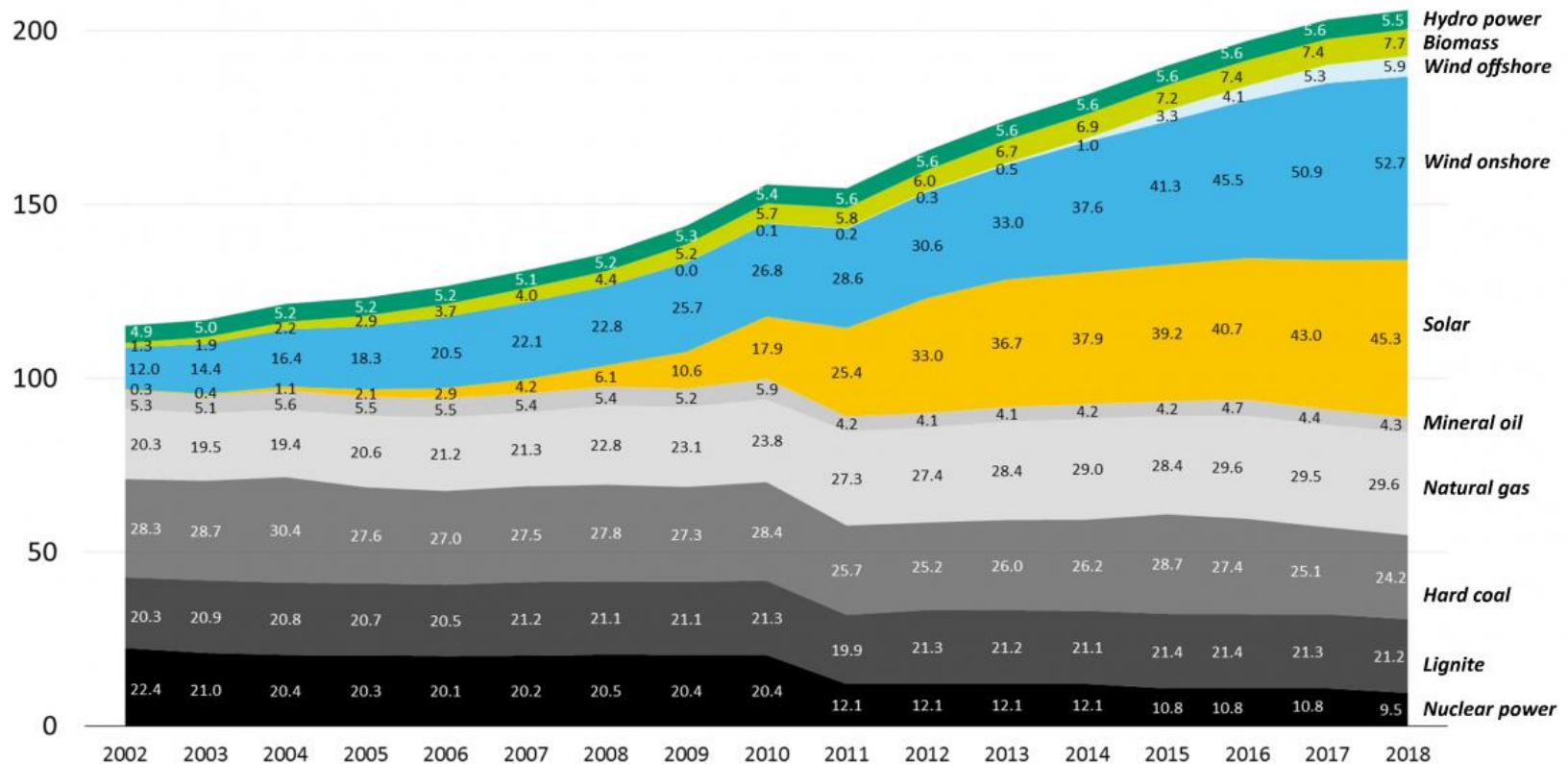
RE (GER) installed capacity share is 59%

Installed net power generation capacity in Germany 2002 - 2018.

Data: Fraunhofer ISE 2018.



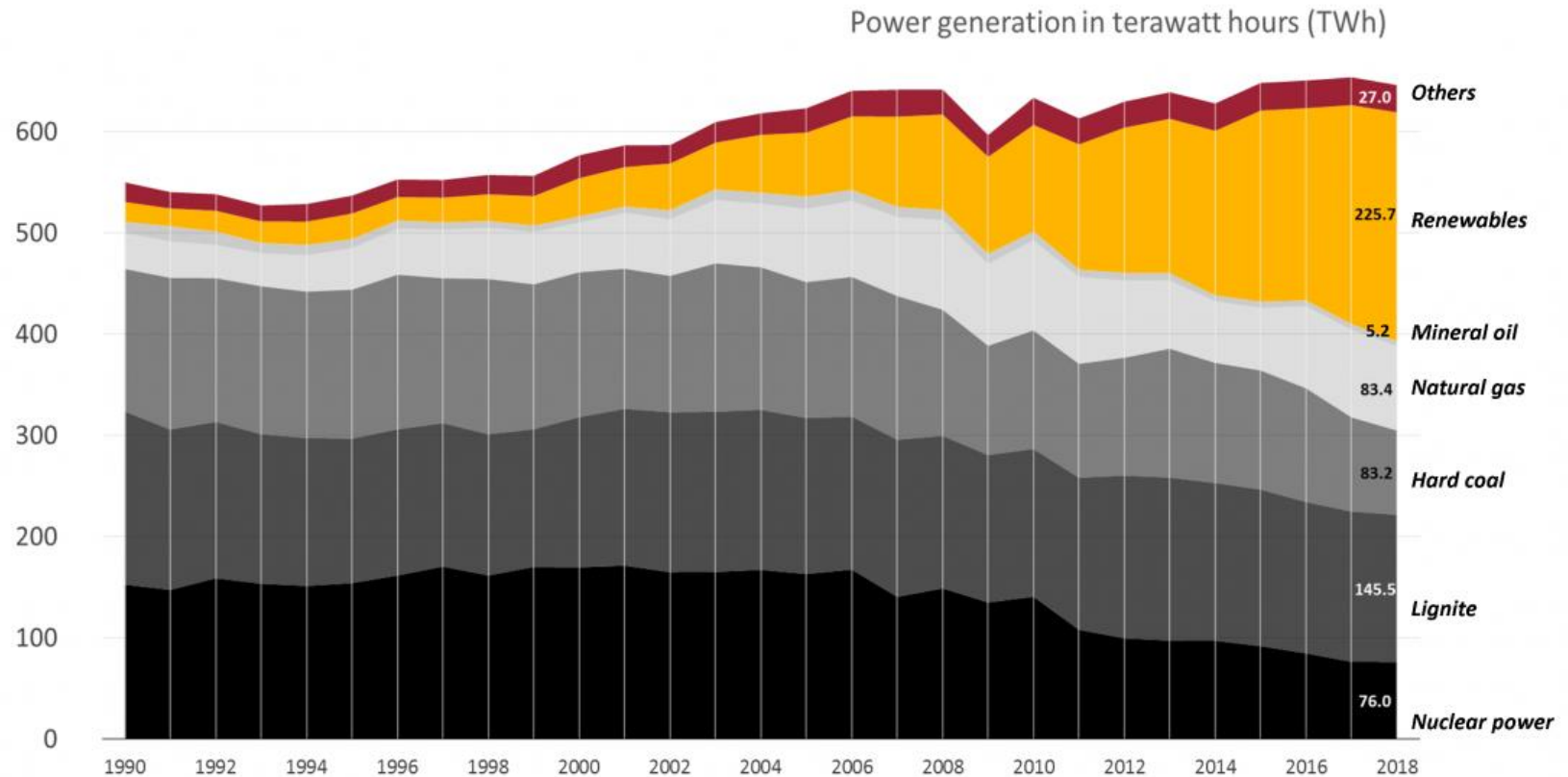
Capacity in gigawatts (GW)



RE (GER) produce only 35% Electricity

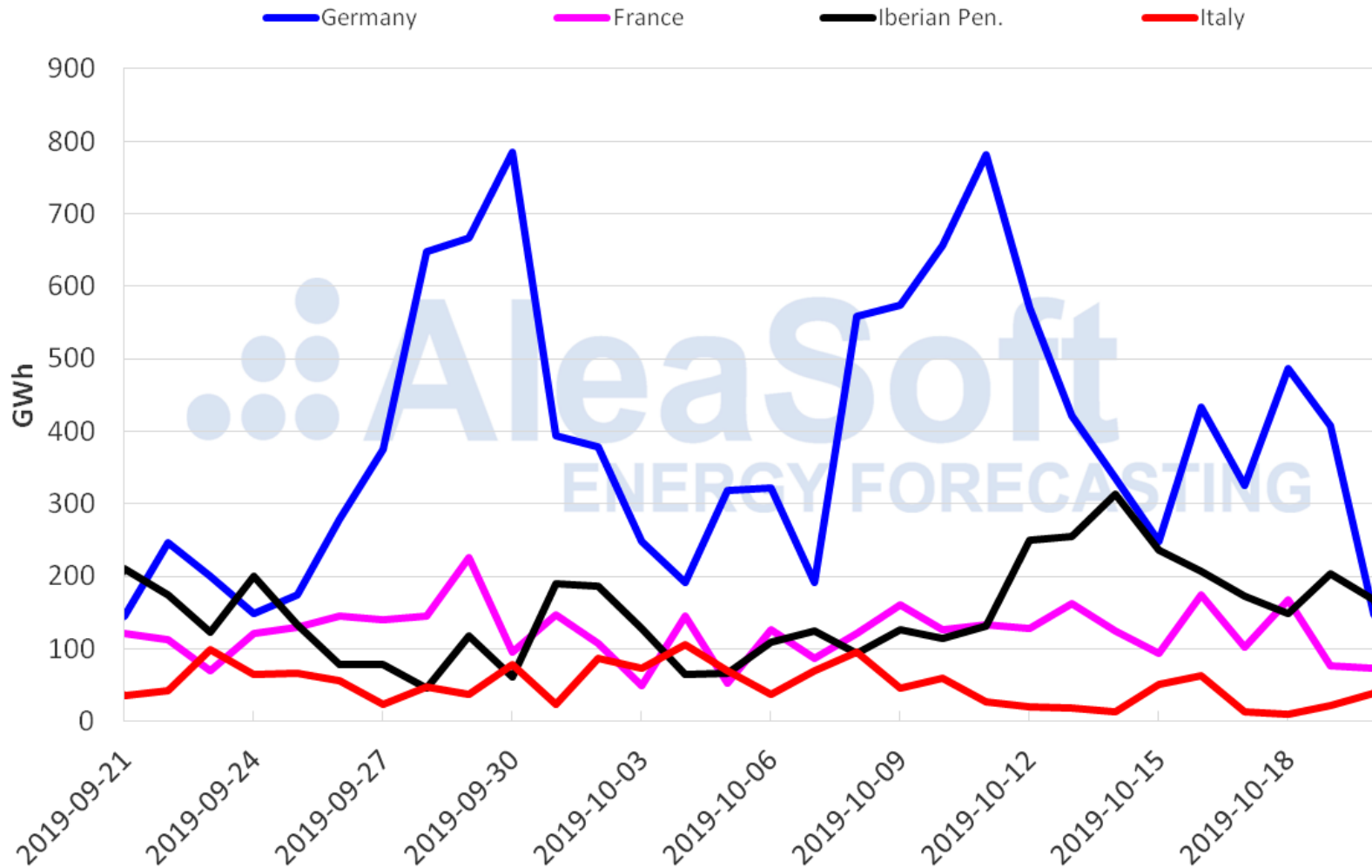
Gross power production in Germany 1990 - 2018, by source.

Data: AG Energiebilanzen 2019, preliminary.

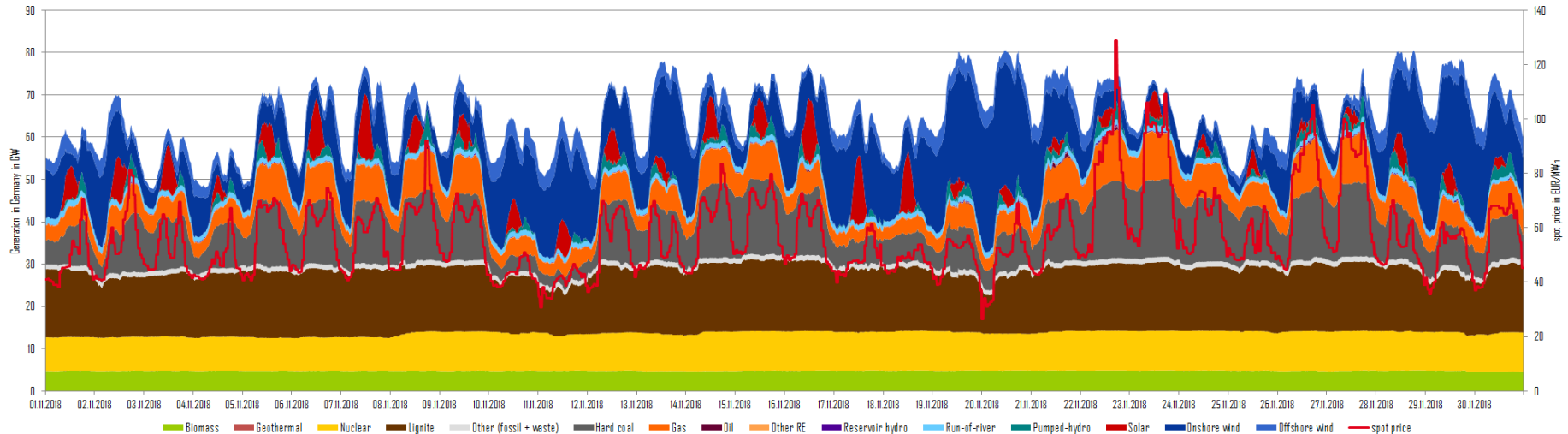
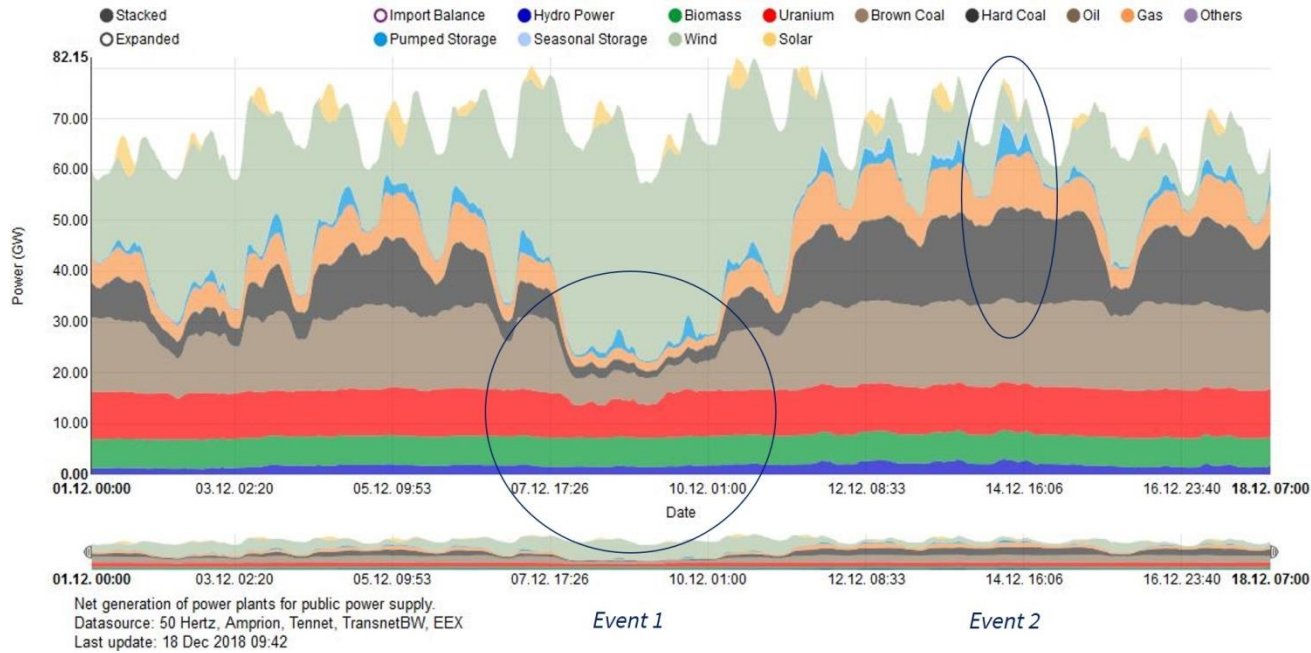


Renewables are not stabile

European wind energy production



RE seen as the GHG solution - WRONG

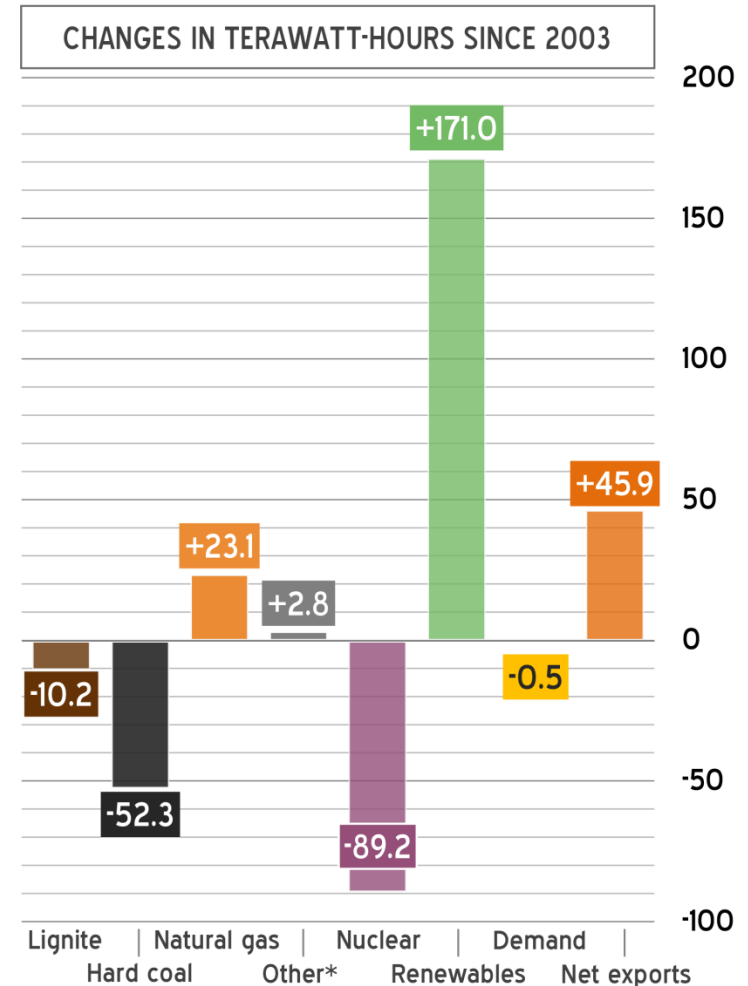
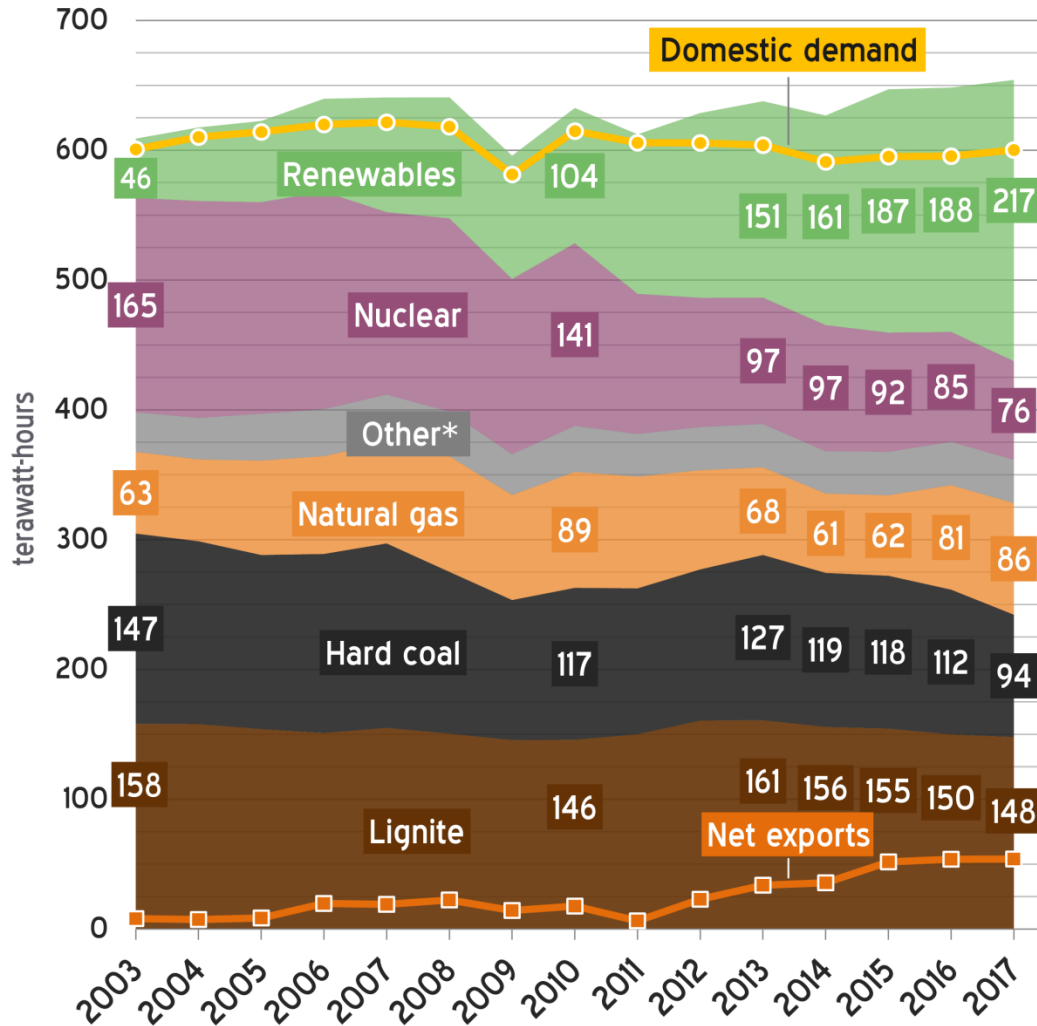


RE GER) grow as well as Gas, Lignite stable

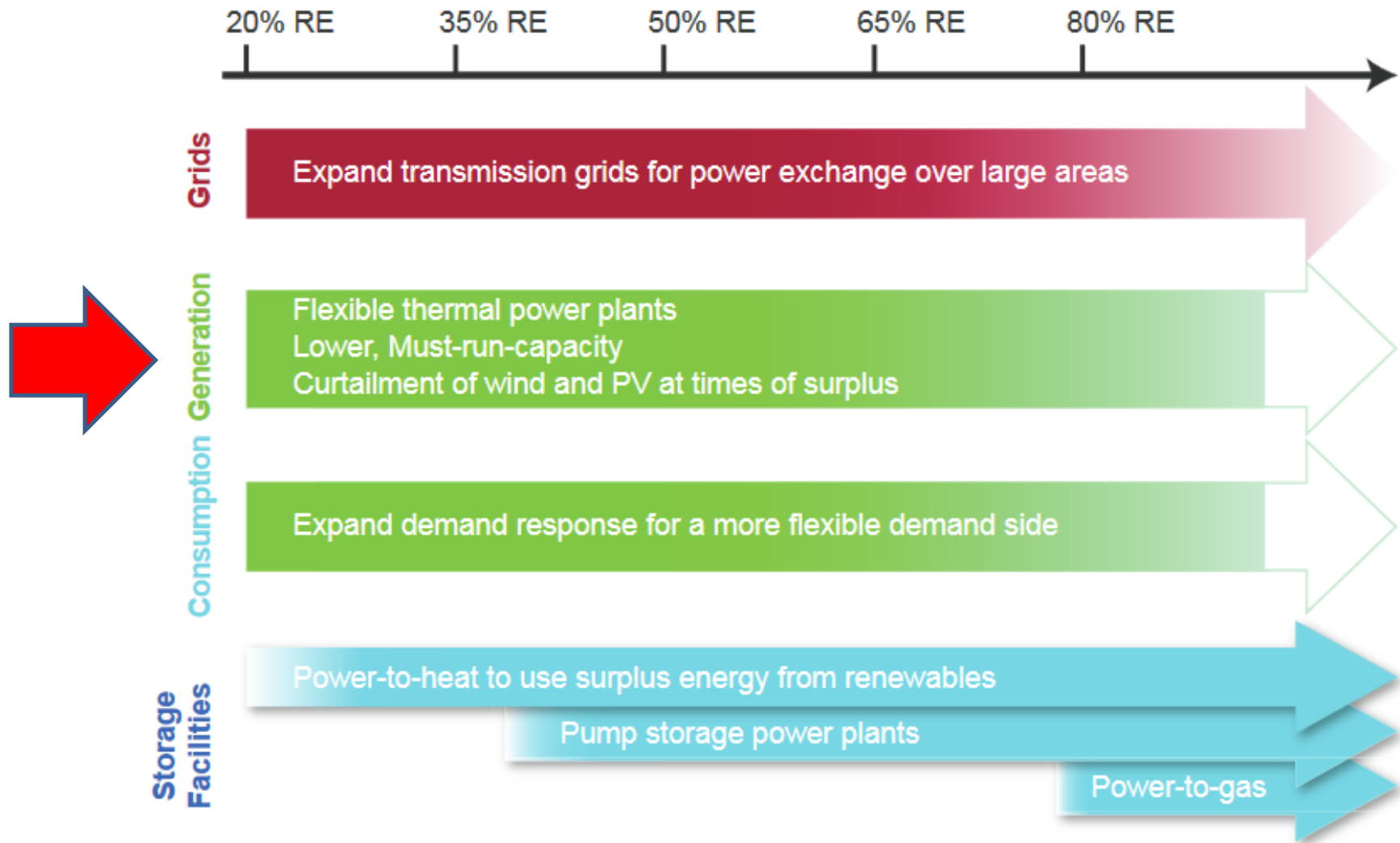
Renewables and power exports hit record high in 2017

Electricity generation, demand & exports in Germany, 2003-2017

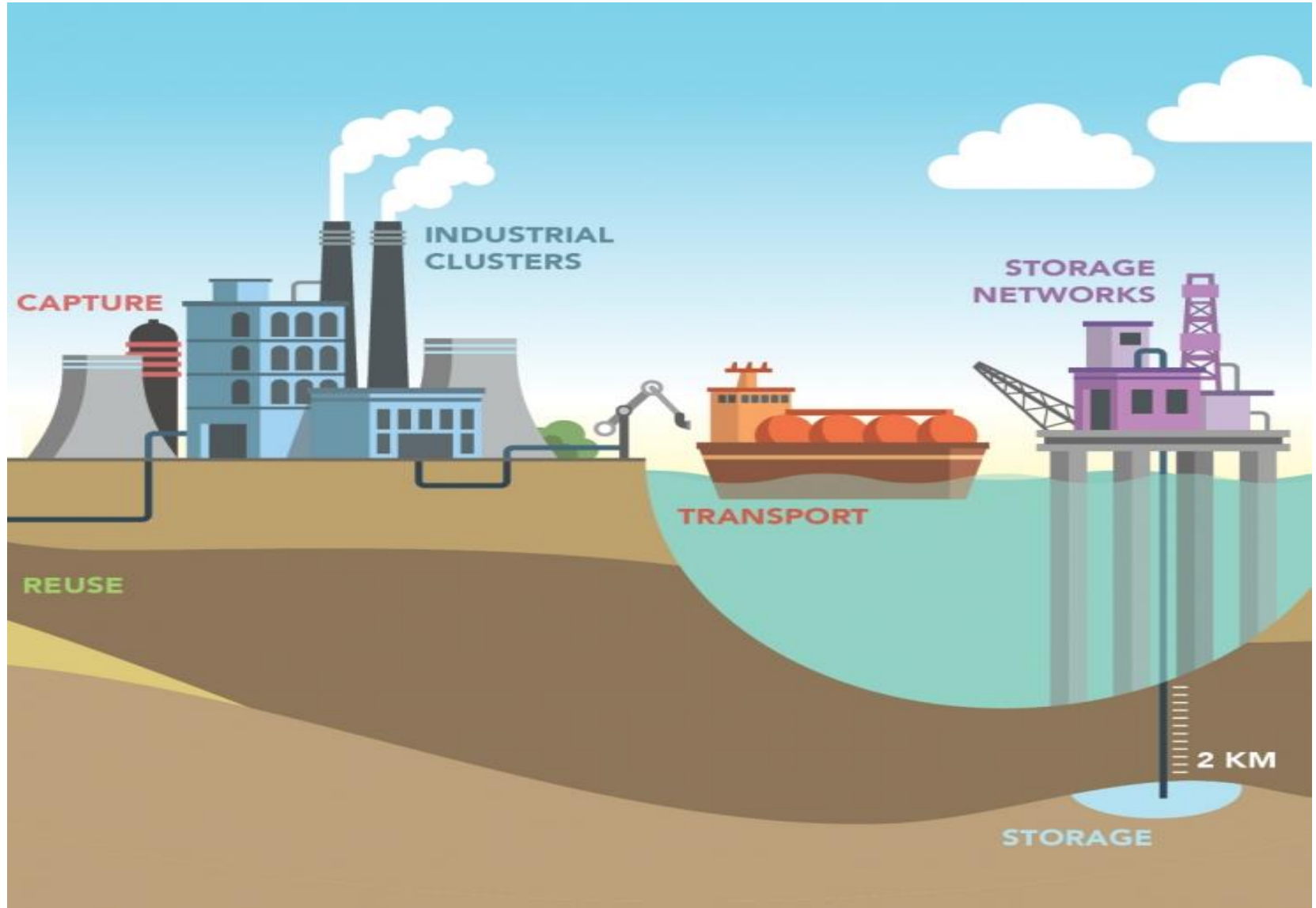
Source: AGEB (August 2017) | *Oil, waste, etc



RE requires flexible FOSSIL Back Up

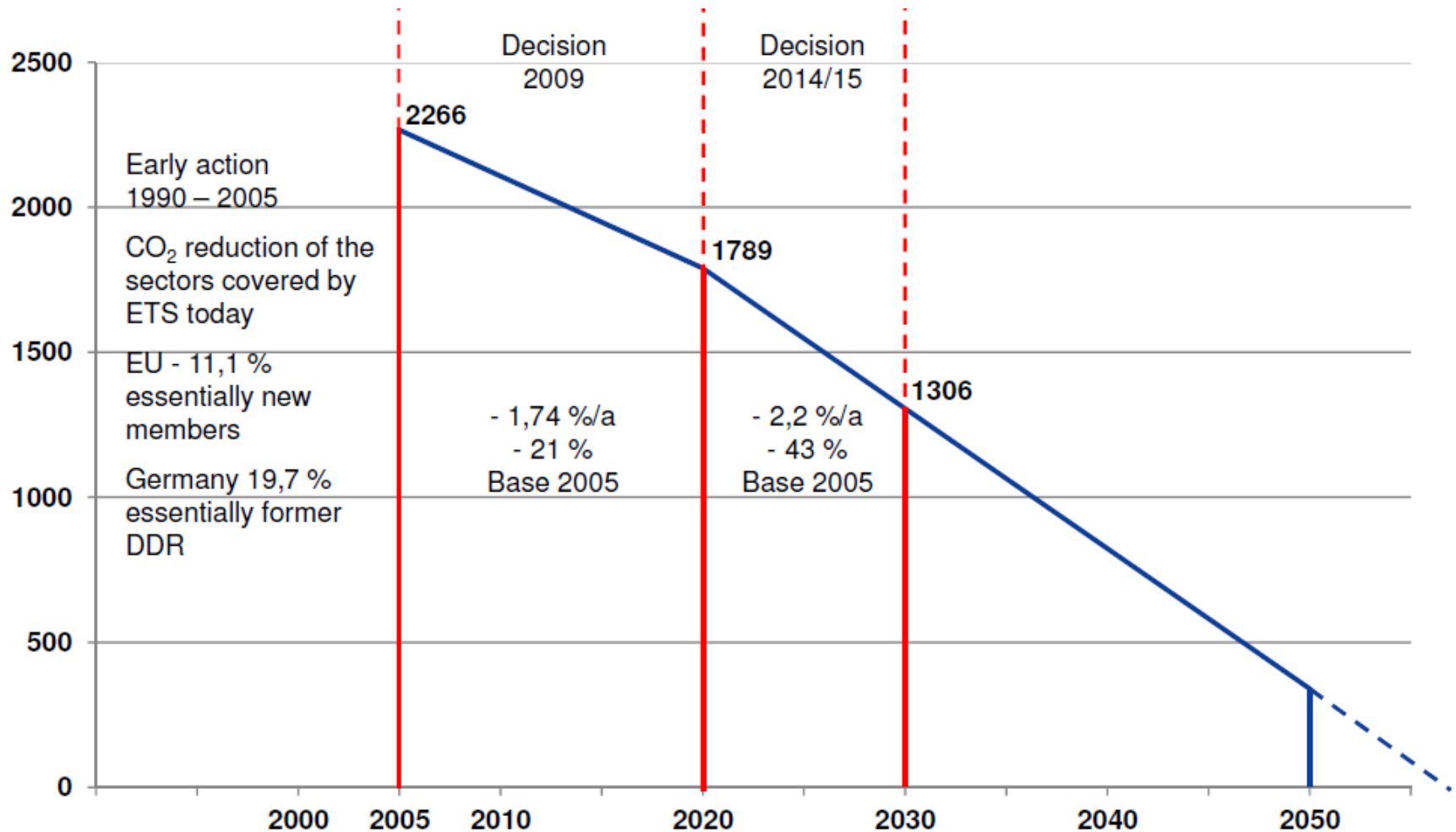


CCS/CCUS – Chance for Fossil Fuels



EU ETS Effective Tool for CO₂ Emission Decrease

MtCO₂-eq.



Emissions must have price

EU carbon emissions price took-off in 2018 and will now remain elevated
€/t CO₂



DATA: [Sandbag](#)

EU 2050 Strategy – 2050 EU GHG neutral

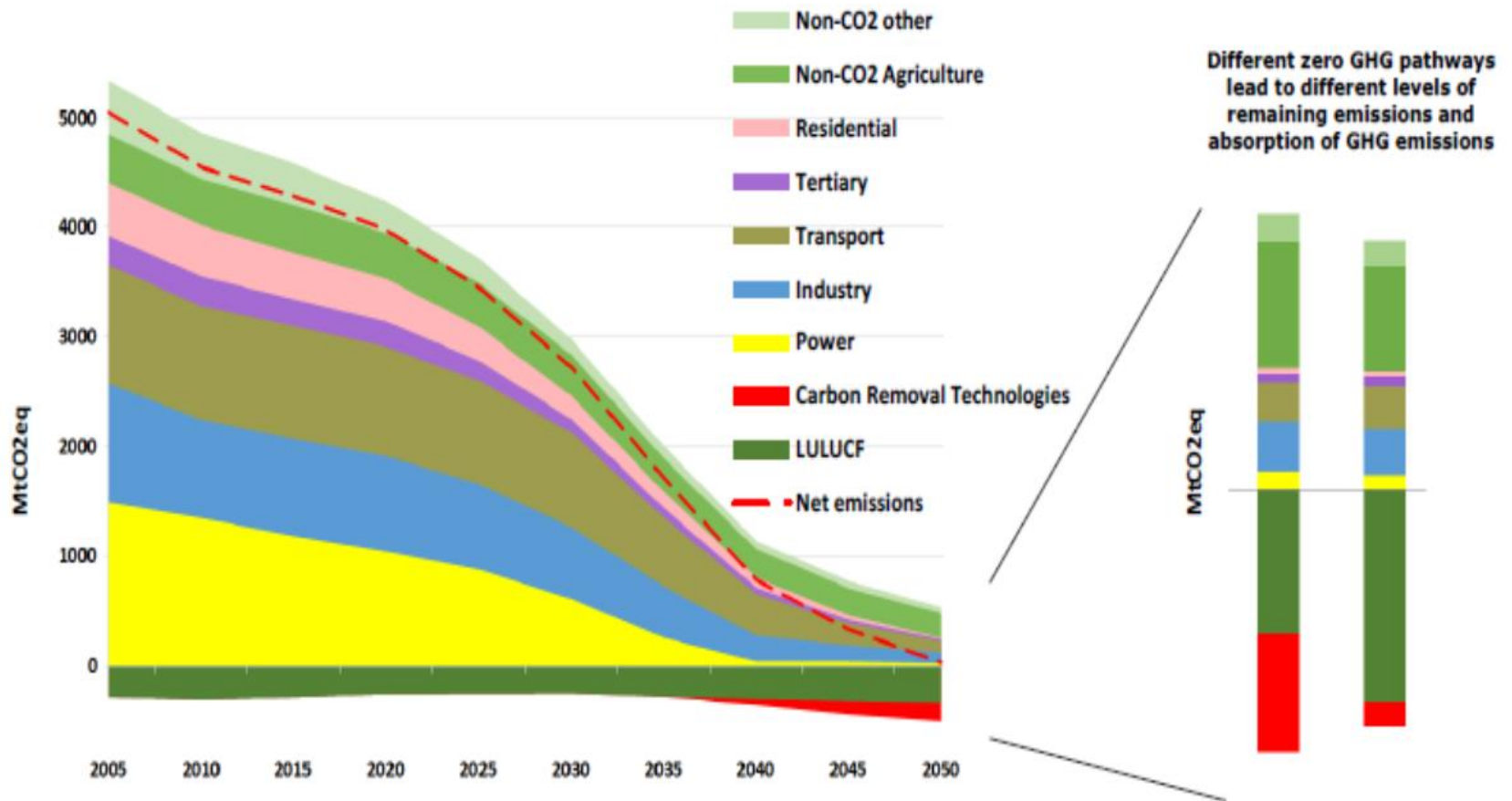


Figure 6. GHG emissions trajectory in a 1.5°C scenario⁸

What is needed?

- More RE deployed **require the flexible fossil fuels** as the support for renewable energy deployment
- **Gas and hard coal play at the moment the role of flexible back up and lignite is mostly used as baseload**, but lignite and even the nuclear power plants can be flexible, lignite up to 50% of capacity
- **Fossil fuels with CCS/CCU are essential** for RE deployment when RE share exceeds 20%

Role of the Expert Group and its Priorities:

- **Climate Challenge** requires **Global Solution**
- Carbon Neutrality is ambitious, necessary **technologies must be first developed and deployed,**
- **Carbon leakage is high risk**
- **Energy storage** is condition for fossil fuels replacement
- **SDG Goal 7 – Affordable, Reliable, Sustainable and Modern Energy for all**
- **UN ECE countries must remain to be free to choose own energy mix**