

# Russian War on the Ukraine, Global Climate Change, and New Directions in Energy

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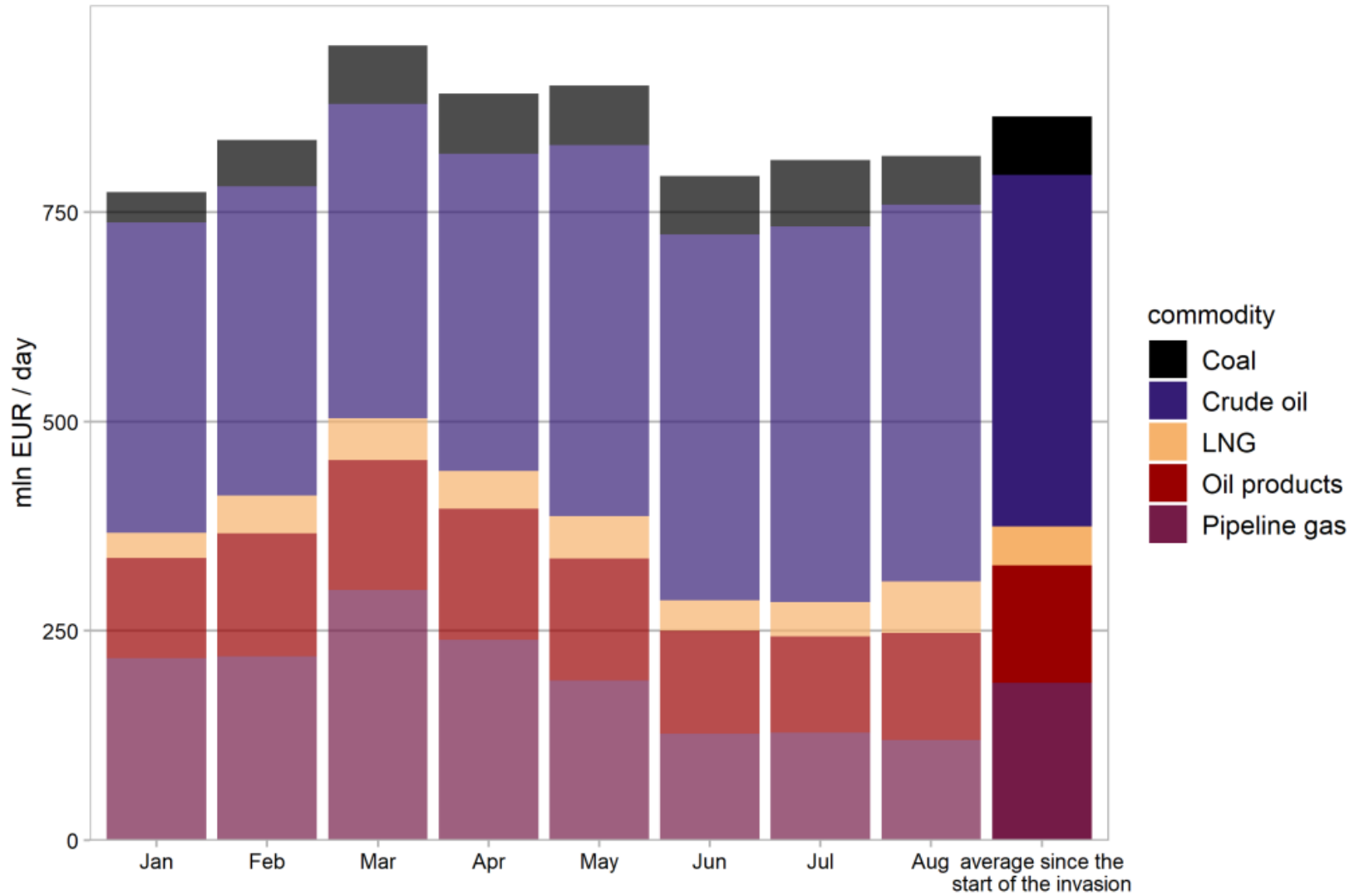
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# Russia's estimated revenue from fossil fuel exports

2022

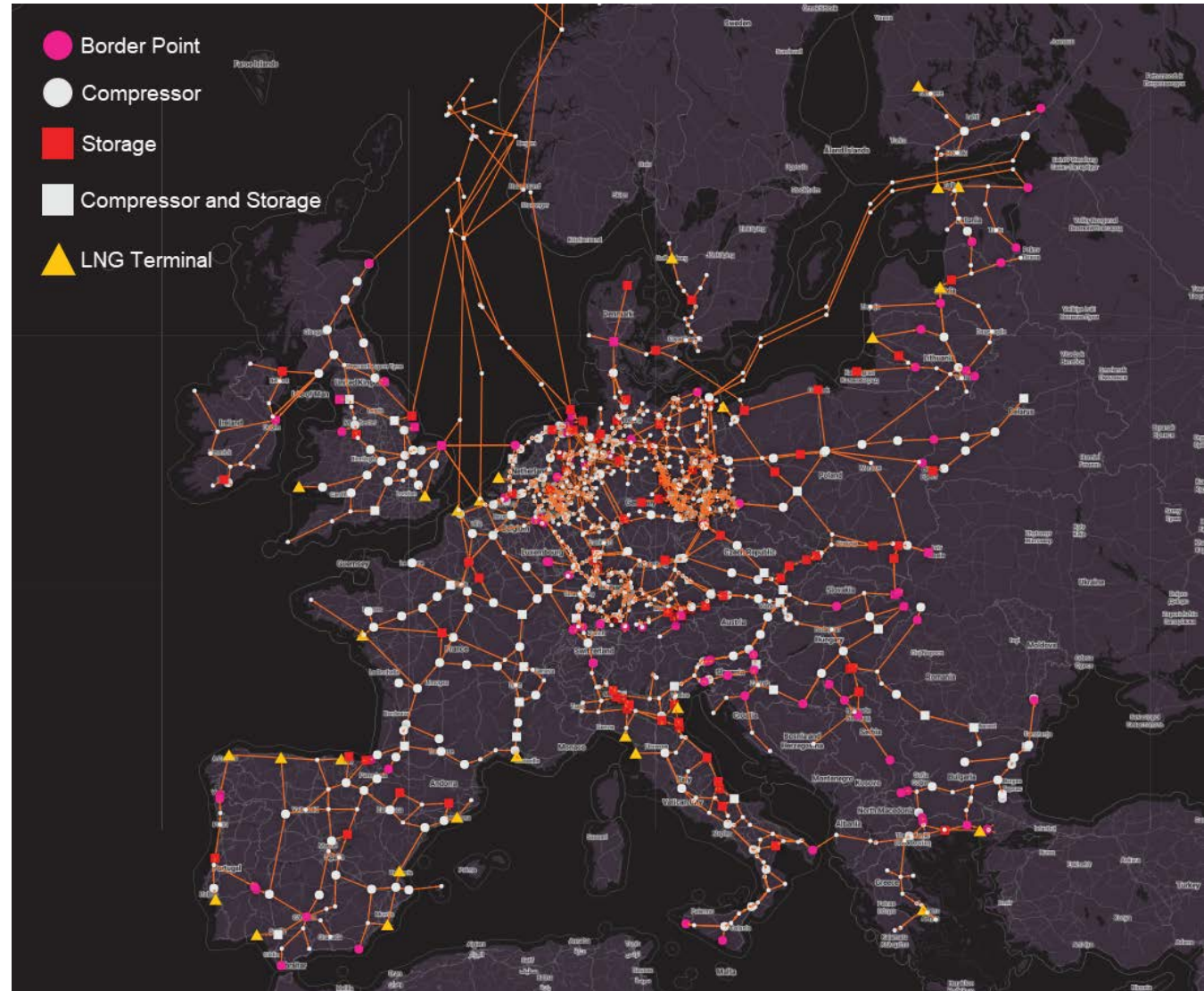


*values are seasonally adjusted*

<https://energyandcleanair.org/publication/financing-putins-war-fossil-fuel-exports-from-russia-in-the-first-six-months-of-the-invasion-of-ukraine/>

# EU natural gas pipelines network.

<https://memgraph.com/blog/gas-pipelines-in-europe>

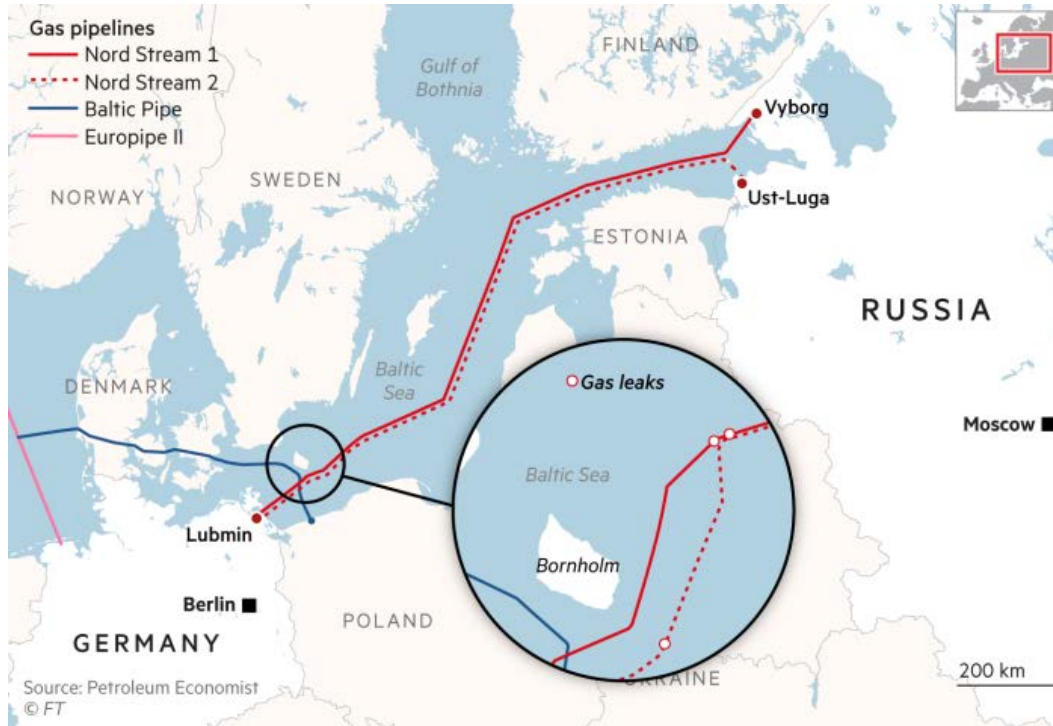




# Nordstream 2 pipeline project suspended



# Sabotage on Gas Pipelines



# Coal Embargo

- Agreed upon 5 April
- Europe imported 45% of its coal from Russia.
- Coal Embargo to go into effect at beginning of August

# Oil Embargo

- After long negotiations, embargo of oil imports by end of 2022 with the exception of pipeline to Hungary



# New Energy Efficiency Program

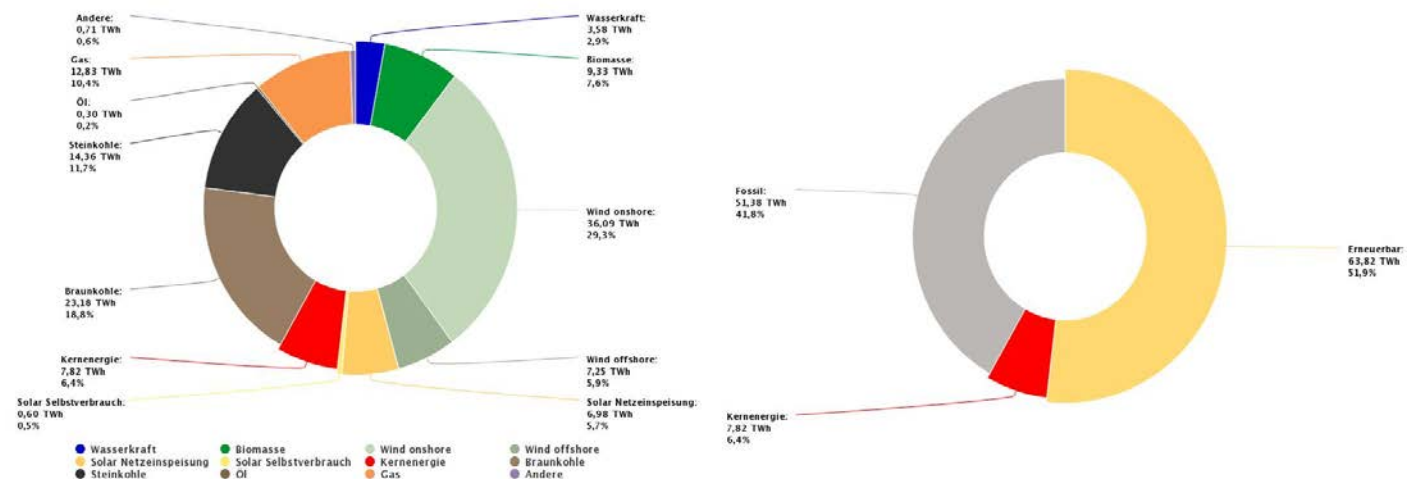
- Push to rapidly advance energy efficiency
- Reduce demand
- Electrify
- Smart metering...

# Speed Up Renewables Development

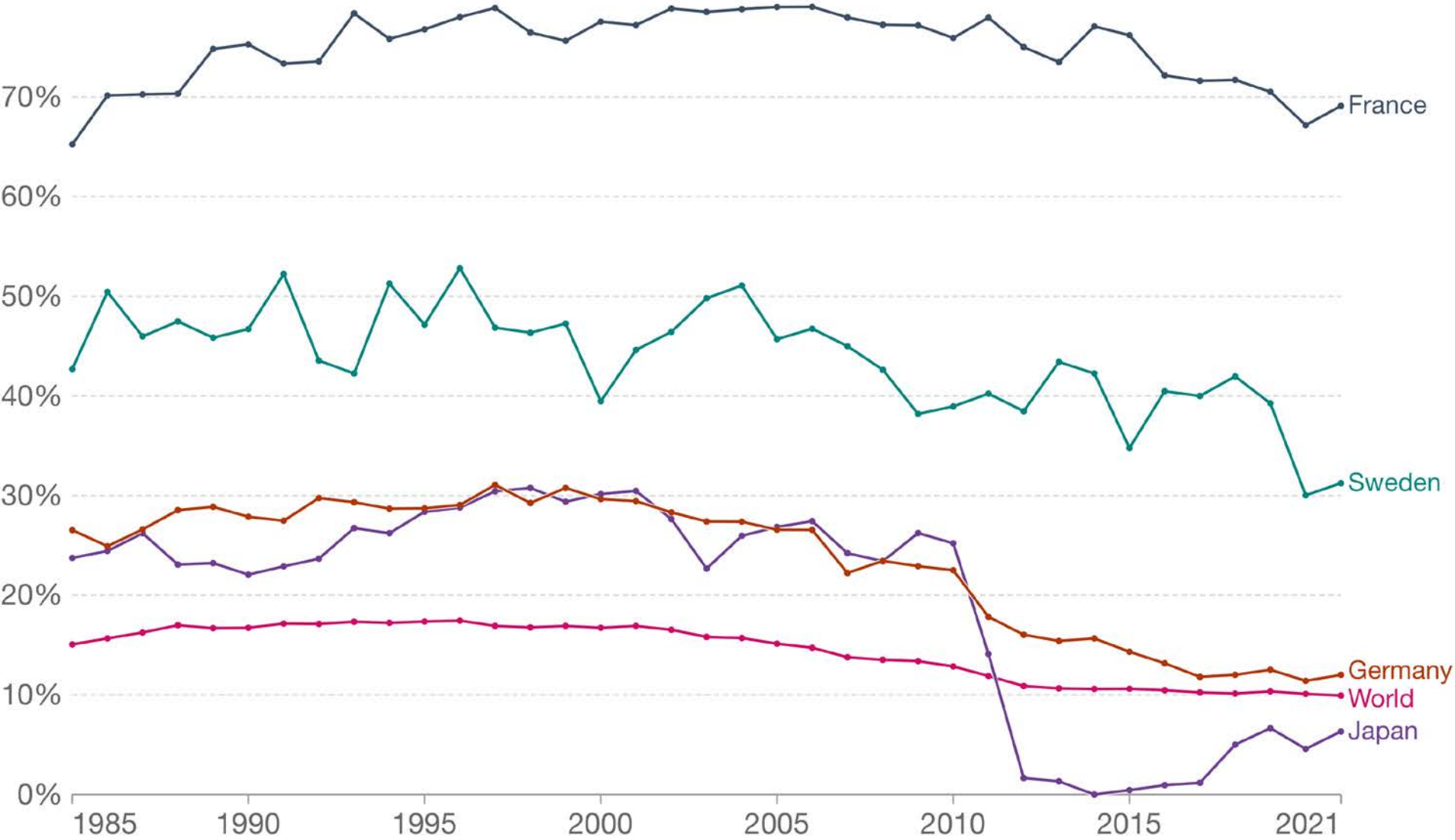
- Revise Renewable Energy Policy Act
- Speed up installation of PV (20GW solar tenders/yr), wind onshore (10GW/yr)
- Achieve 80% Renewable electricity by 2030, 100% RE by 2035
- Targets for 2035: onshore wind (110GW), offshore wind (30GW), solar (200 GW)
- Target for 2045: 70 GW offshore wind

[https://energy-charts.info/charts/energy\\_pie/chart.htm?l=de&c=DE&interval=year&download-format=image%2Fjpeg](https://energy-charts.info/charts/energy_pie/chart.htm?l=de&c=DE&interval=year&download-format=image%2Fjpeg)

Renewables in  
Germany Jan-March  
2022



# Share of electricity production from nuclear



Source: Our World in Data based on BP Statistical Review of World Energy, Ember Global Electricity Review (2022) & Ember European Electricity Review (2022)  
OurWorldInData.org/energy • CC BY

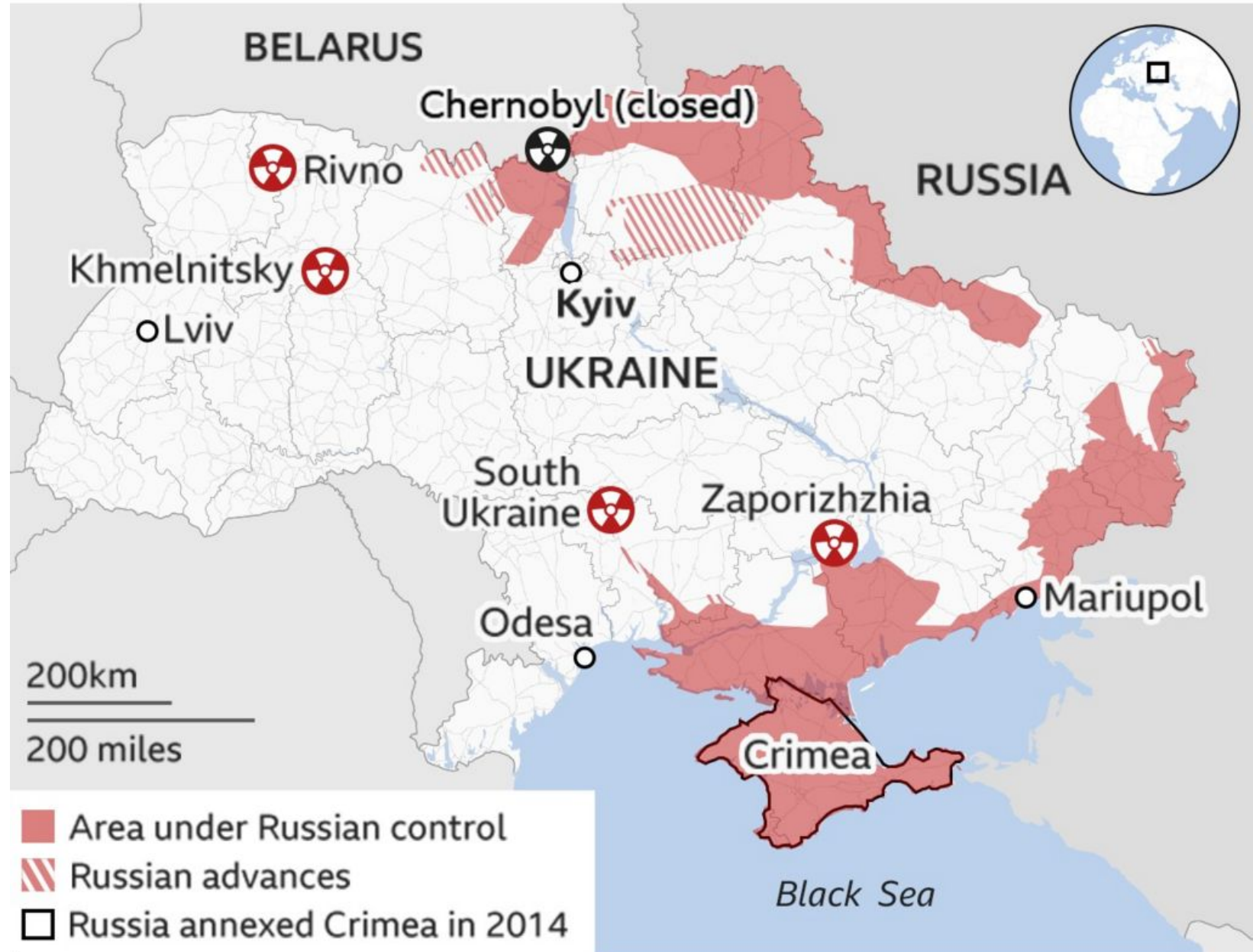
# Nuclear power plants in Ukraine



Zaporizhzhia nuclear power plant shows a bright flaring object landing in the grounds of the nuclear plant in Enerhodar, Ukraine, on March 4, 2022.



Chernobyl nuclear facilities Occupied by Russian forces.



Source: Institute for the Study of War (as of 21:00 GMT, 3 March)

# National reactions: Belgium

- Belgium announces plans to delay shut down of two reactors by 10 years. Couples this announcement with pledge to invest €1.1 billion to "accelerate independence from fossil fuels."
- Renewable energies are to be accelerated through additional investments in offshore wind power, hydrogen, solar energy and sustainable mobility.
- Belgium also signaled "its interest" in small modular nuclear reactors and said it will invest €25 million a year in this field for the next four years.



# Germany

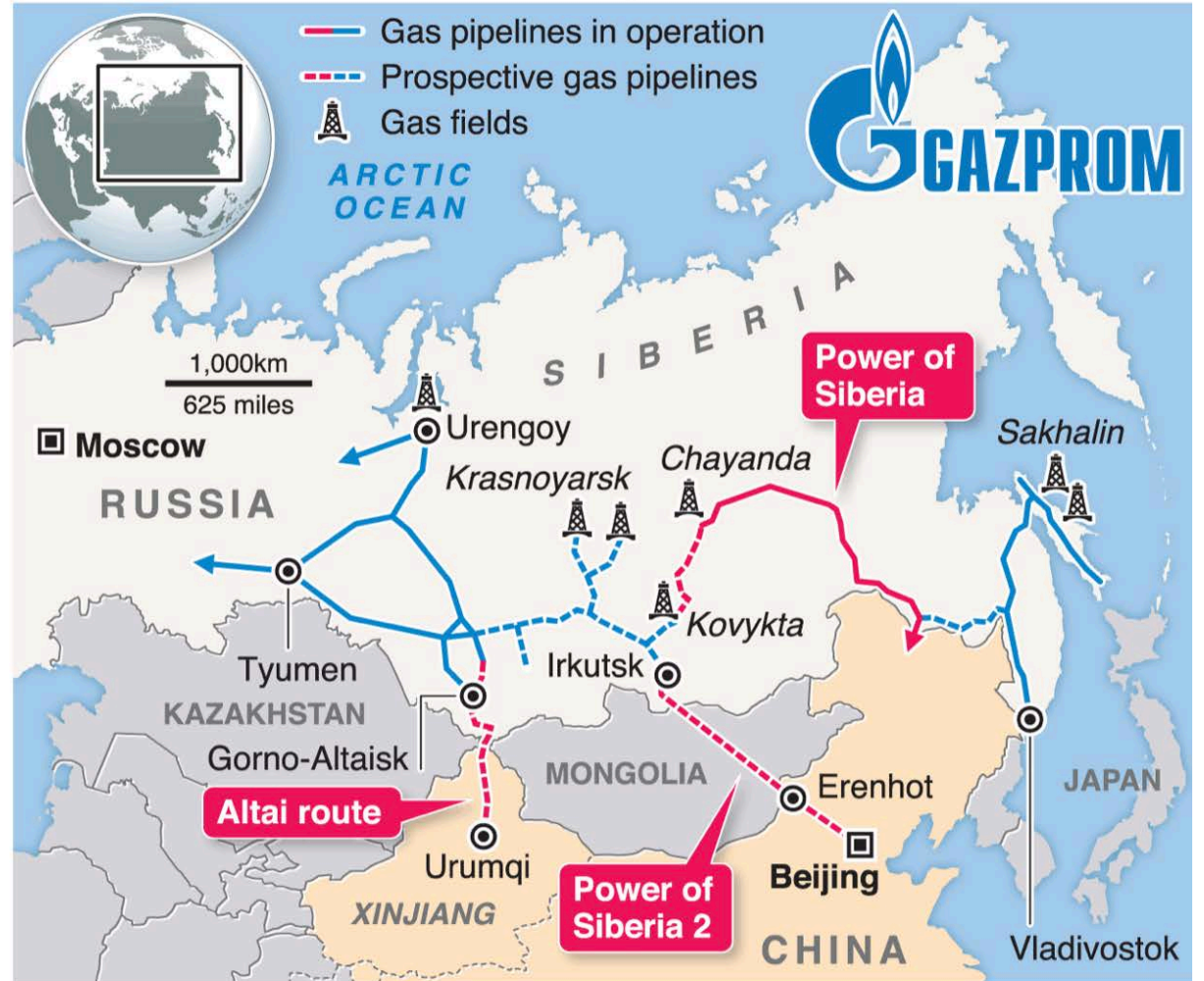
- Extension of 2 of remaining nuclear power plants through April 2023 (reserve).
- Russian control of Chernobyl and attack on Zaporizhzhia nuclear plant has raised alarm bells about security of nuclear facilities at a time of war
- Fragile political consensus on nuclear waste repository

# Power of Siberia Pipeline II

July 2022, China and Russia announced plans for a gas pipeline,, which will transit Mongolia and deliver gas from western Siberia to China

## Russia planning second gas pipeline to China

Russian energy giant Gazprom says it has begun design work for a new pipeline project, dubbed Power of Siberia 2, that would more than double the volumes of natural gas it could deliver to China



■ POWER OF SIBERIA	■ POWER OF SIBERIA 2
<b>Launch date:</b> Dec 2019 – Russia to supply gas to China for 30 years	<b>Possible launch date:</b> 2030
<b>Capacity:</b> 5 billion cubic metres (bcm) expected in first year, rising to 38bcm per year by 2025. Pipeline	<b>Capacity:</b> Up to 50bcm
	<b>Route:</b> Gazprom looking at building pipeline across Mongolia instead of through Russia's Altai region –

# Biden Administration

Rejoined Paris Agreement

Infrastructure Bill

Inflation Reduction  
Act



# US-China Joint Statement on Climate (April 17, 2021) U.S.

Special Presidential Envoy for Climate John Kerry

China Special Envoy for Climate Change Xie Zhenhua

- Raise ambitions in the 2020s in the context of the Paris Agreement
- Develop by COP 26 in Glasgow their respective long-term strategies aimed at net zero GHG emissions/carbon neutrality.
- maximize international investment and finance in support of the transition from carbon-intensive fossil fuel-based energy to green, low-carbon and renewable energy in developing countries
- implement the phasedown of hydrofluorocarbon production and consumption reflected in the Kigali Amendment to the Montreal Protocol

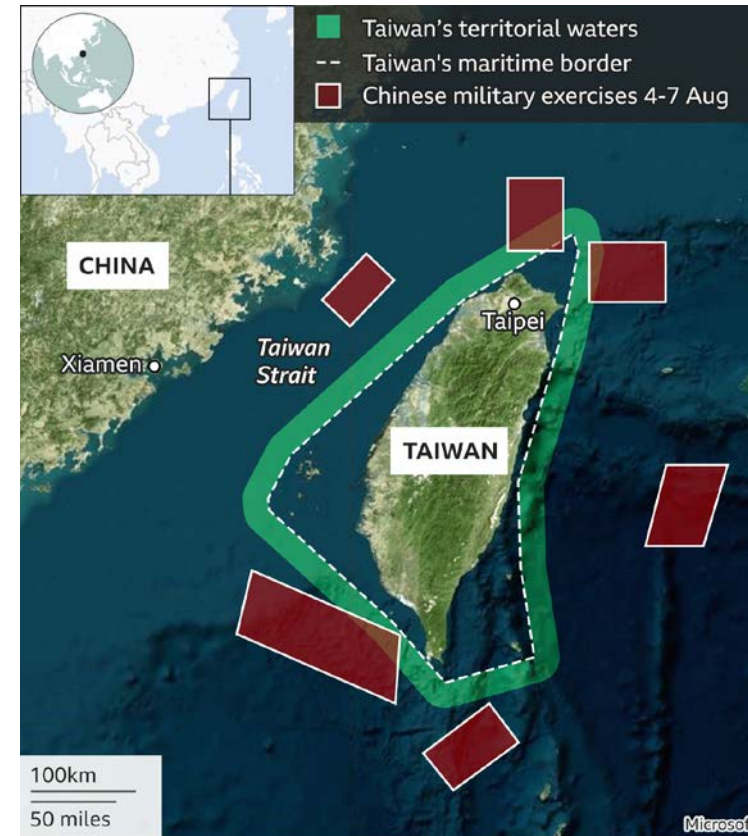
# US-China Joint Statement on Climate Cont.

- Policies, measures, and technologies to decarbonize industry and power, including through circular economy, energy storage and grid reliability, CCUS, and green hydrogen;
- Increased deployment of renewable energy;
- Green and climate resilient agriculture;
- Energy efficient buildings;
- Green, low-carbon transportation;
- Cooperation on addressing emissions of methane and other non-CO2 greenhouse gases;
- Cooperation on addressing emissions from international civil aviation and maritime activities; and
- Other near-term policies and measures, including with respect to reducing emissions from coal, oil, and gas

They will further cooperate to promote a successful COP 15 of the Convention on Biological Diversity in Kunming, noting the importance of the post-2020 Global Biodiversity Framework, including its relevance to climate mitigation and adaptation.



# Pelosi's Visit to Taiwan leads to Chinese cut off of climate talks with US



# Pessimistic View

- Time is running out
- Return to coal in Europe because of Russian war on Ukraine
- Return of coal in China – reaction to drought
- Souring of willingness to cooperate with China
- Climate negotiations in Sharm el-Sheikh, Egypt in November 2022 will be very challenging

# Optimistic View

- Rapid and deep speed-up of energy transition in Europe away from fossil fuels
- Deepening of European cooperation (and appreciation of EU)
- US just passed biggest ever climate bill
- China has set ambitious targets and is building out renewables at record pace
- US-China-EU will compete on climate technologies and drive down prices
- Climate change is becoming too visible to ignore meaning further action is likely