

The new geopolitics of energy

Jean-Pierre Favennec
WDCOOPERATION

jpfavennec@yahoo.fr

The new geopolitics of energy – Agenda 1

- The need for energy transition
 - Increased demand for energy
 - Need to reduce CO2 emissions
- Fossil fuels (Oil, Gas, Coal) represent more than 80 % of energy supply
- Production of renewable energies (excluding hydro) has been multiplied by 4 in 10 years but just cover 7 % of energy requirements
- Hydroelectricity stable : 6 % of energy requirements

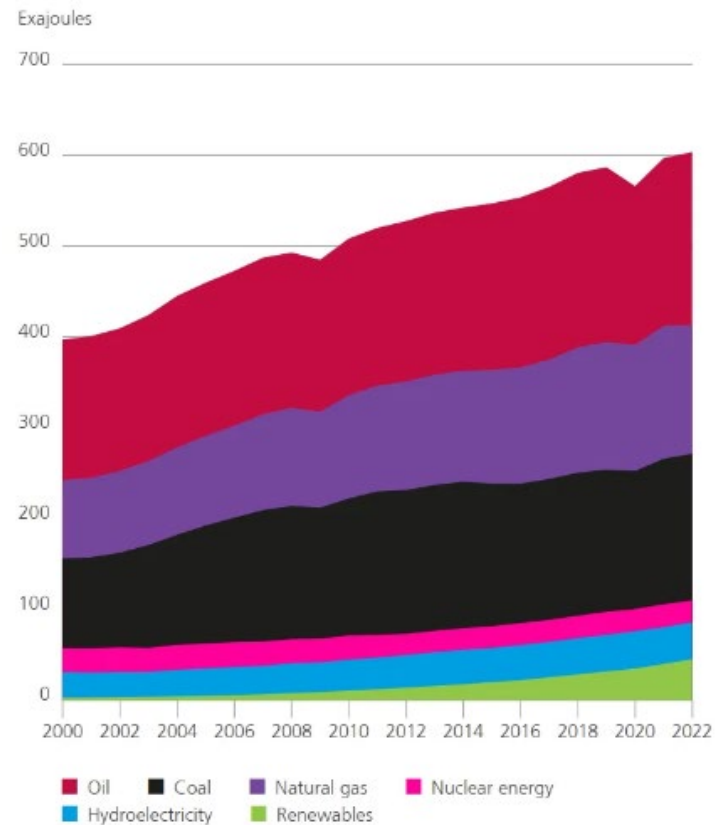
The new geopolitics of energy – Agenda 2

- Geopolitics : increase of US oil production . End of the « Quincy » agreement
- Geopolitics : stronger links between China and Gulf countries. Better relationships between Saudi Arabia and Iran ?
- Increased demand for « critical raw materials » and rare earth : which consequences ?

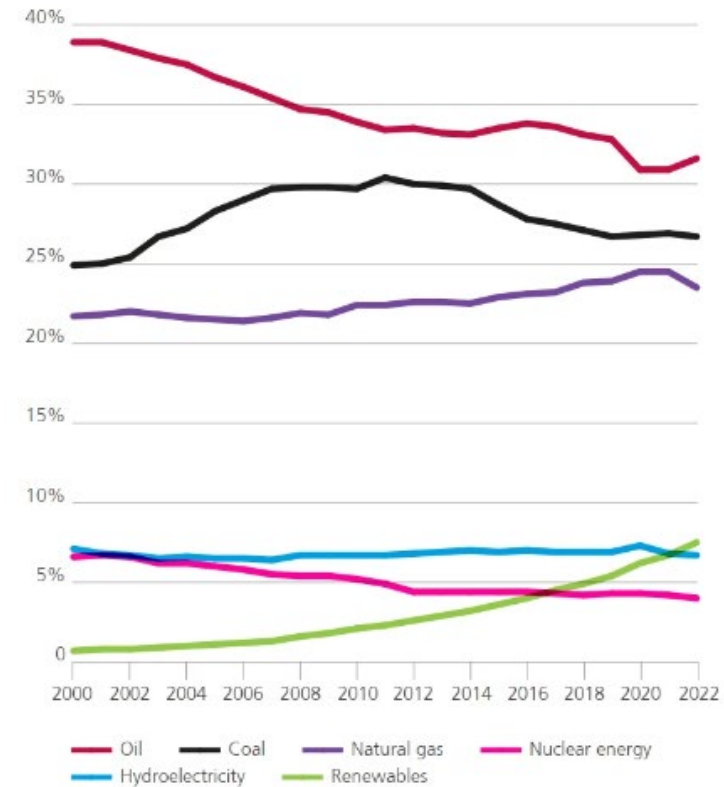
World Energy Consumption

Source EI Statistical Review

World consumption



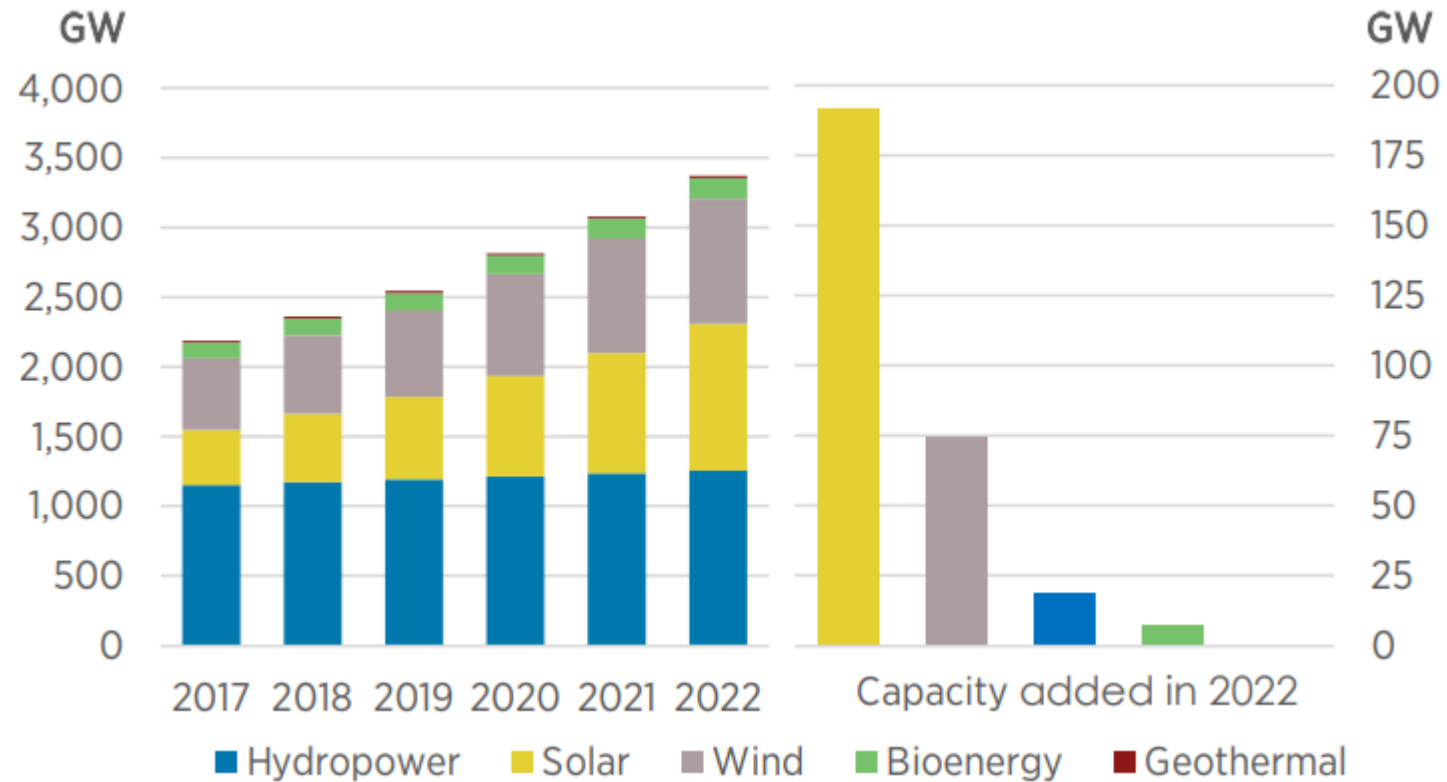
Share of global primary energy



Renewable power capacity growth

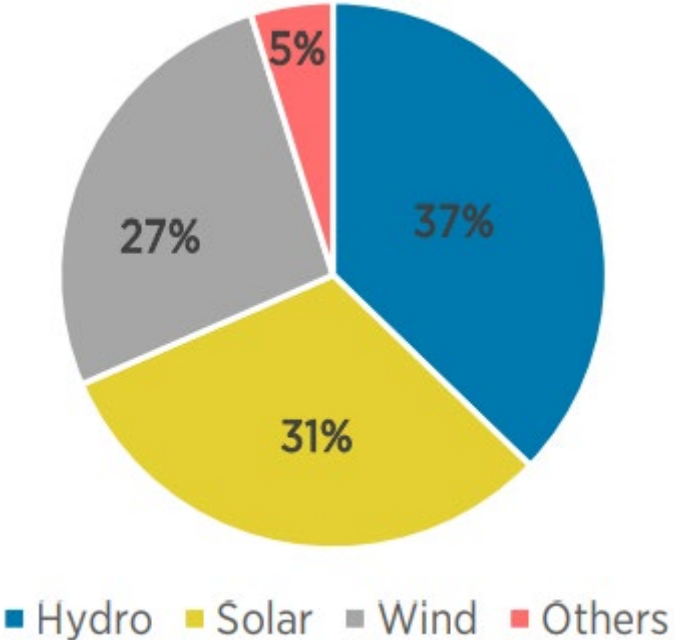
Source IRENA

Renewable power capacity growth



Renewable generation capacity by energy source

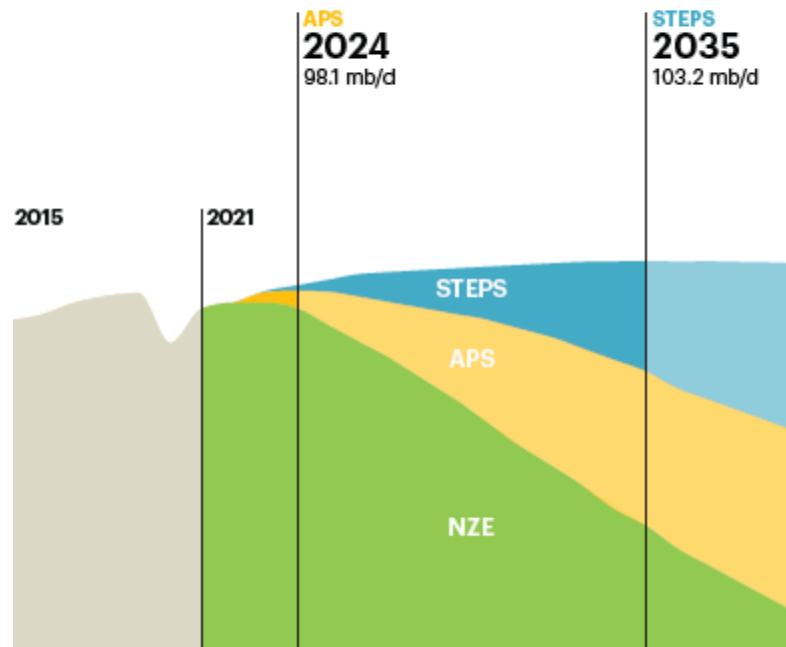
Source IRENA



Evolution of oil demand

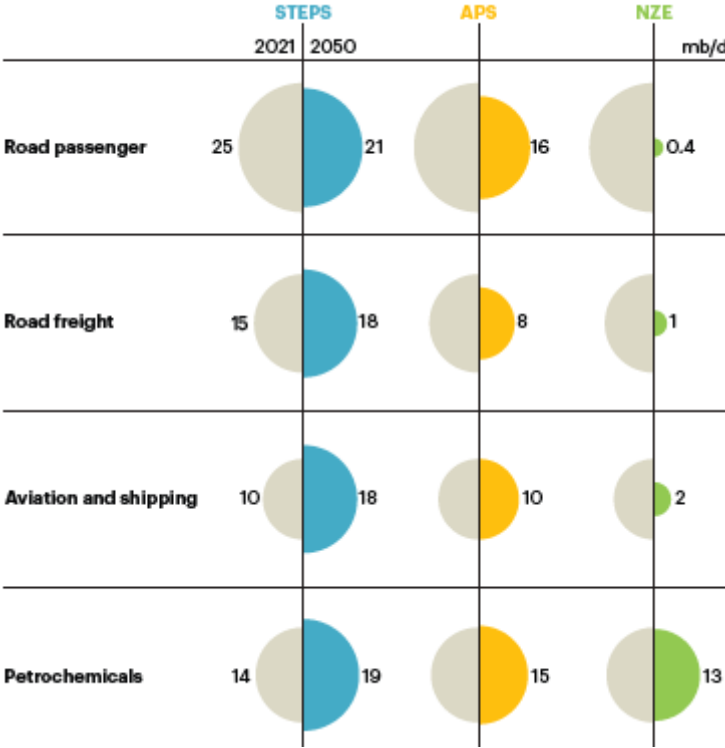
Source IEA

When does oil demand peak...



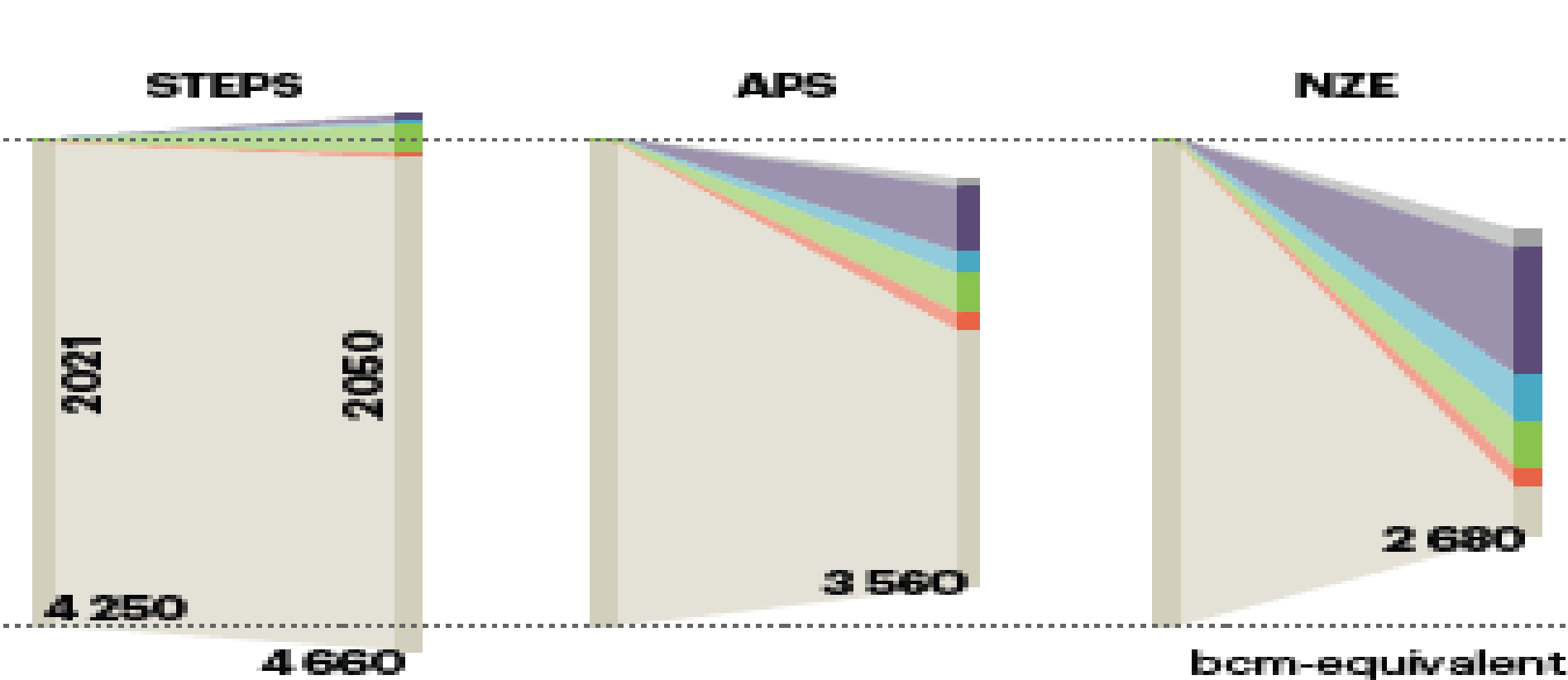
	Net Zero Emissions by 2050 Scenario	Announced Pledges Scenario	Stated Policies Scenario
Definitions	<p>A scenario which sets out a pathway for the global energy sector to achieve net zero CO2 emissions by 2050. It doesn't rely on emissions reductions from outside the energy sector to achieve its goals. Universal access to electricity and clean cooking are achieved by 2030.</p>	<p>A scenario which assumes that all climate commitments made by governments around the world, including Nationally Determined Contributions (NDCs) and longer-term net zero targets, as well as targets for access to electricity and clean cooking, will be met in full and on time.</p>	<p>A scenario which reflects current policy settings based on a sector-by-sector and country by country assessment of the specific policies that are in place, as well as those that have been announced by governments around the world.</p>
Objectives	<p>To show what is needed across the main sectors by various actors, and by when, for the world to achieve net zero energy related and industrial process CO2 emissions by 2050 while meeting other energy-related sustainable development goals such as universal energy access.</p>	<p>To show how close do current pledges get the world towards the target of limiting global warming to 1.5 °C, it highlights the "ambition gap" that needs to be closed to achieve the goals agreed at Paris in 2015. It also shows the gap between current targets and achieving universal energy access.</p>	<p>To provide a benchmark to assess the potential achievements (and limitations) of recent developments in energy and climate policy.</p>

Peaks in oil demand rest on changes in transport



Future gas demand

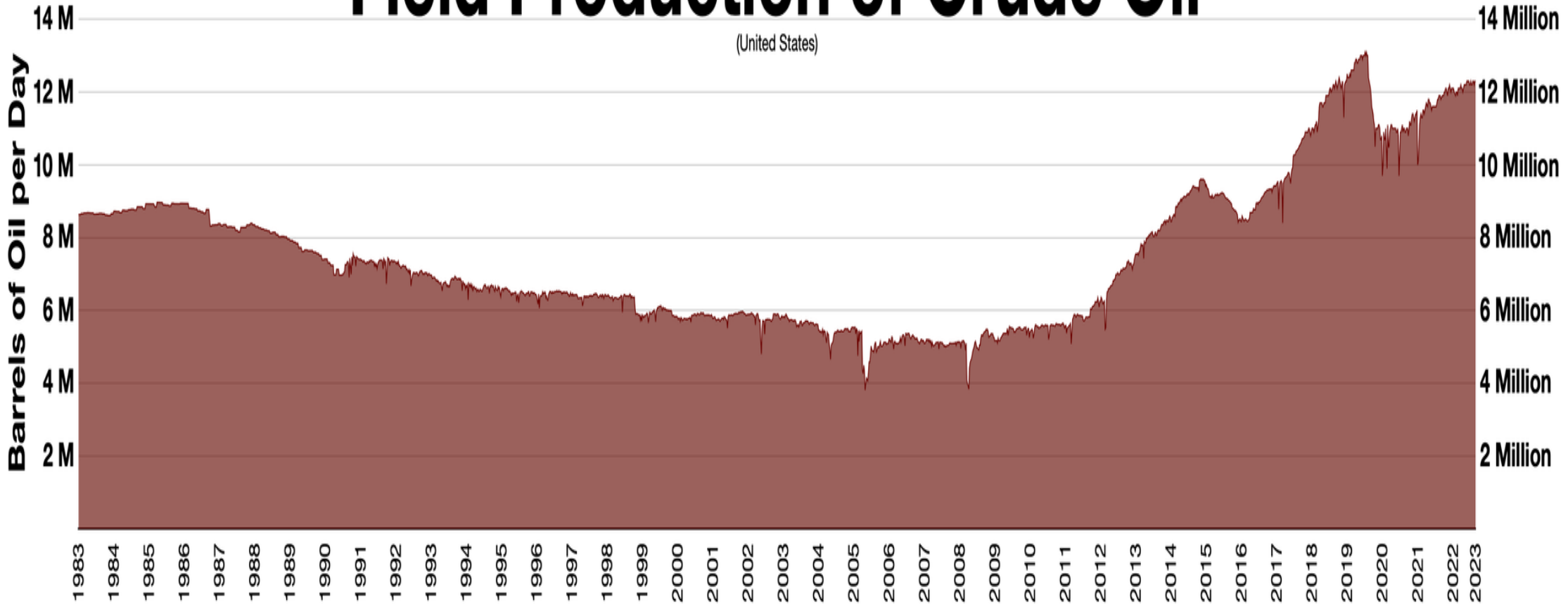
Source IEA



Oil Production in the US (does not include NGL)

Source EIA and Wikipedia

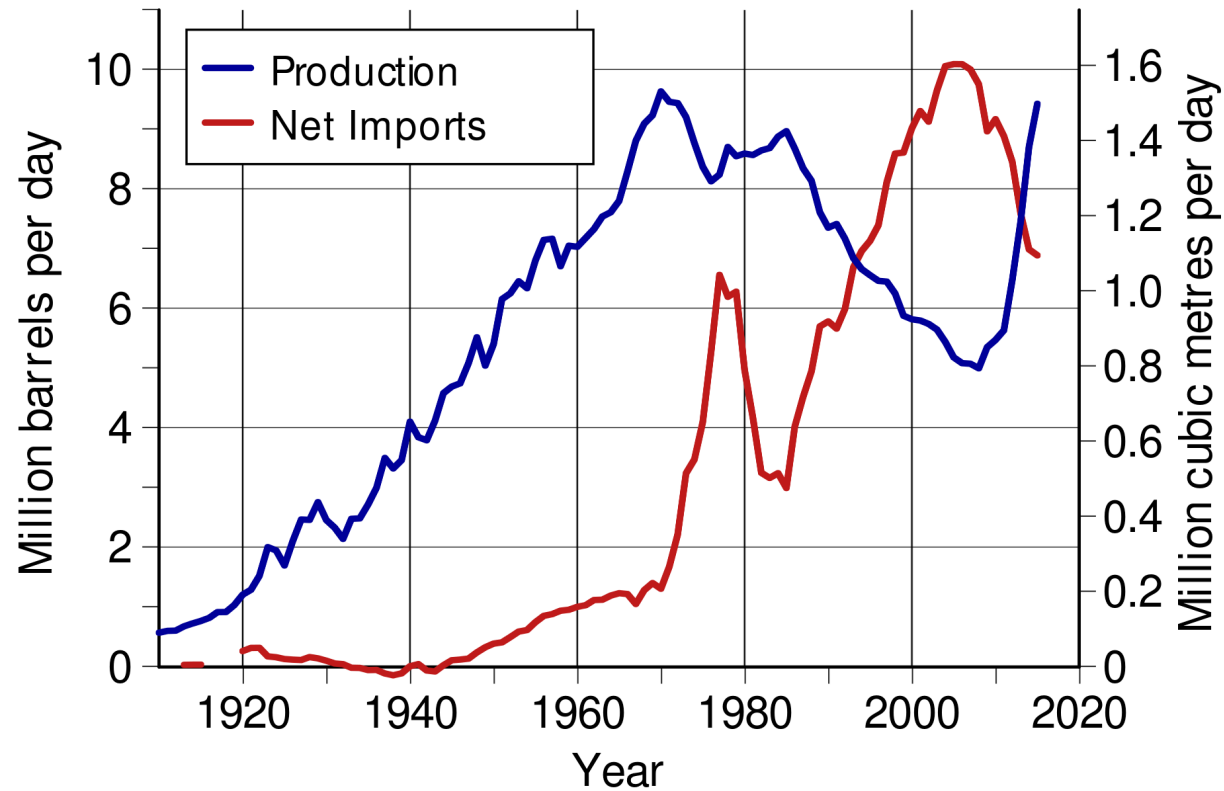
Field Production of Crude Oil



US Crude Oil Production and Imports

Source EIA Wikipedia

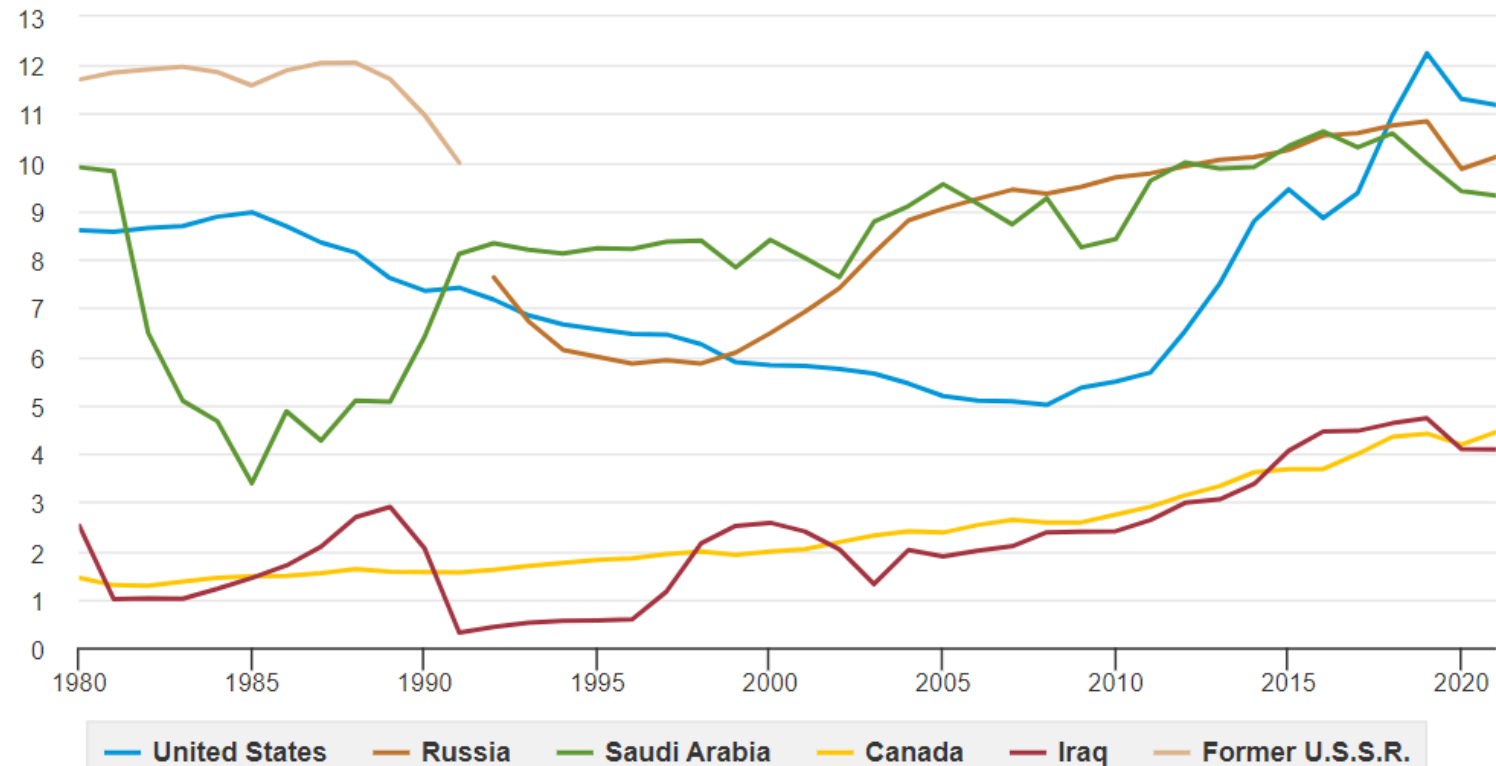
U.S. Crude Oil Production and Imports



Top five crude oil producing countries, 1980-2021

Top five crude oil producing countries, 1980-2021

million barrels per day



Data source: U.S. Energy Information Administration, International Energy Statistics, as of June 1, 2022

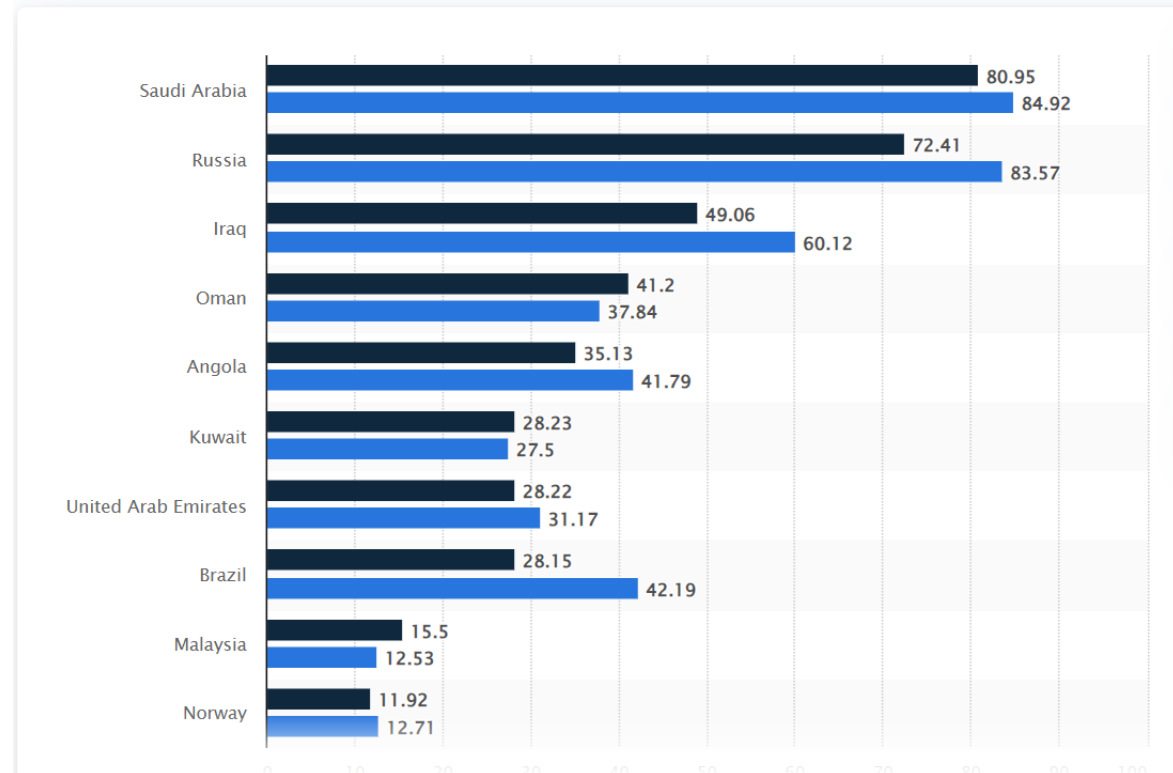
Note: Includes crude oil and lease condensate. Ranking based on production in 2021.

Main suppliers of crude oil to China

Source Statista

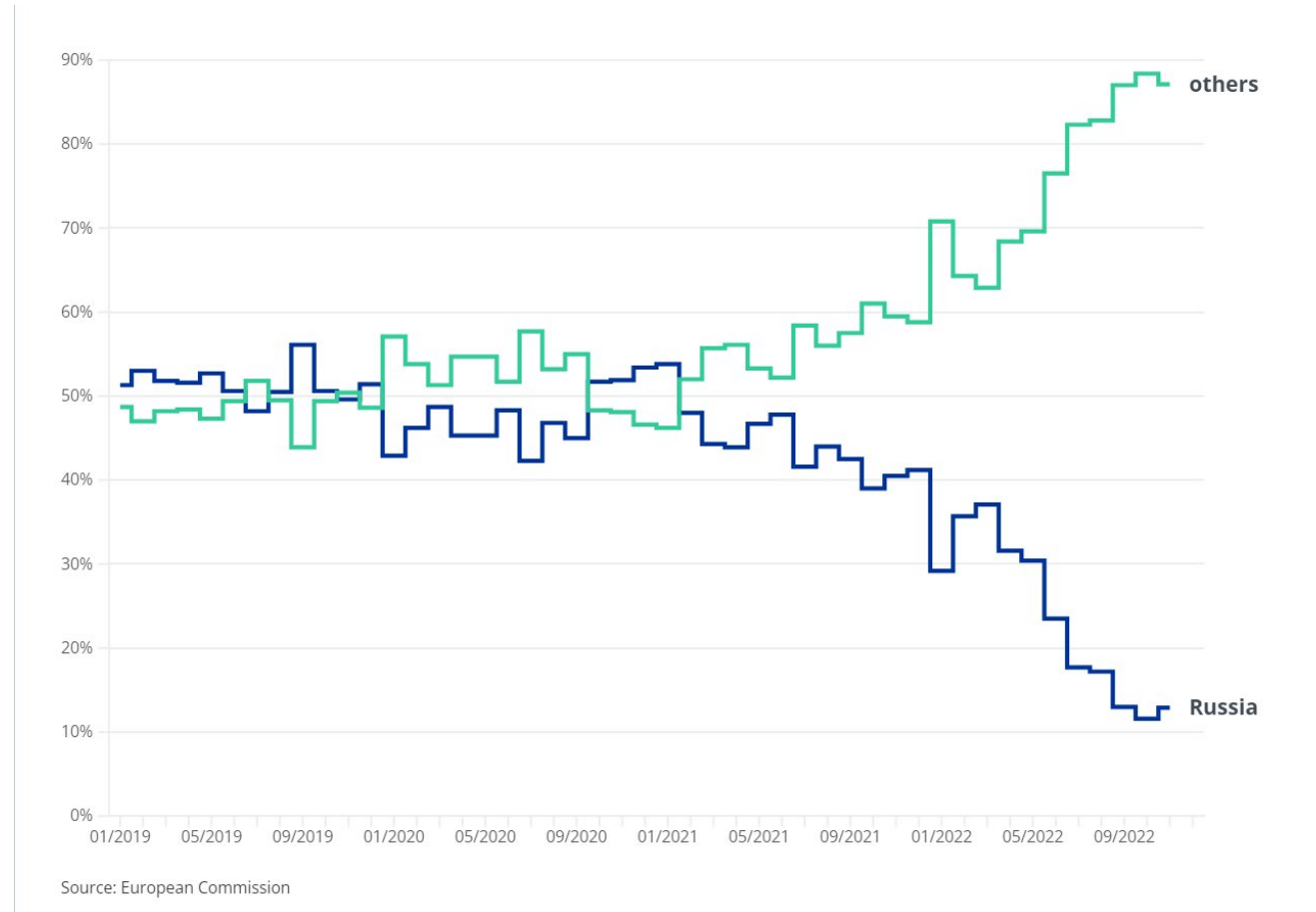
Main suppliers of crude oil to China in 2020 and 2021

(in million metric tons)

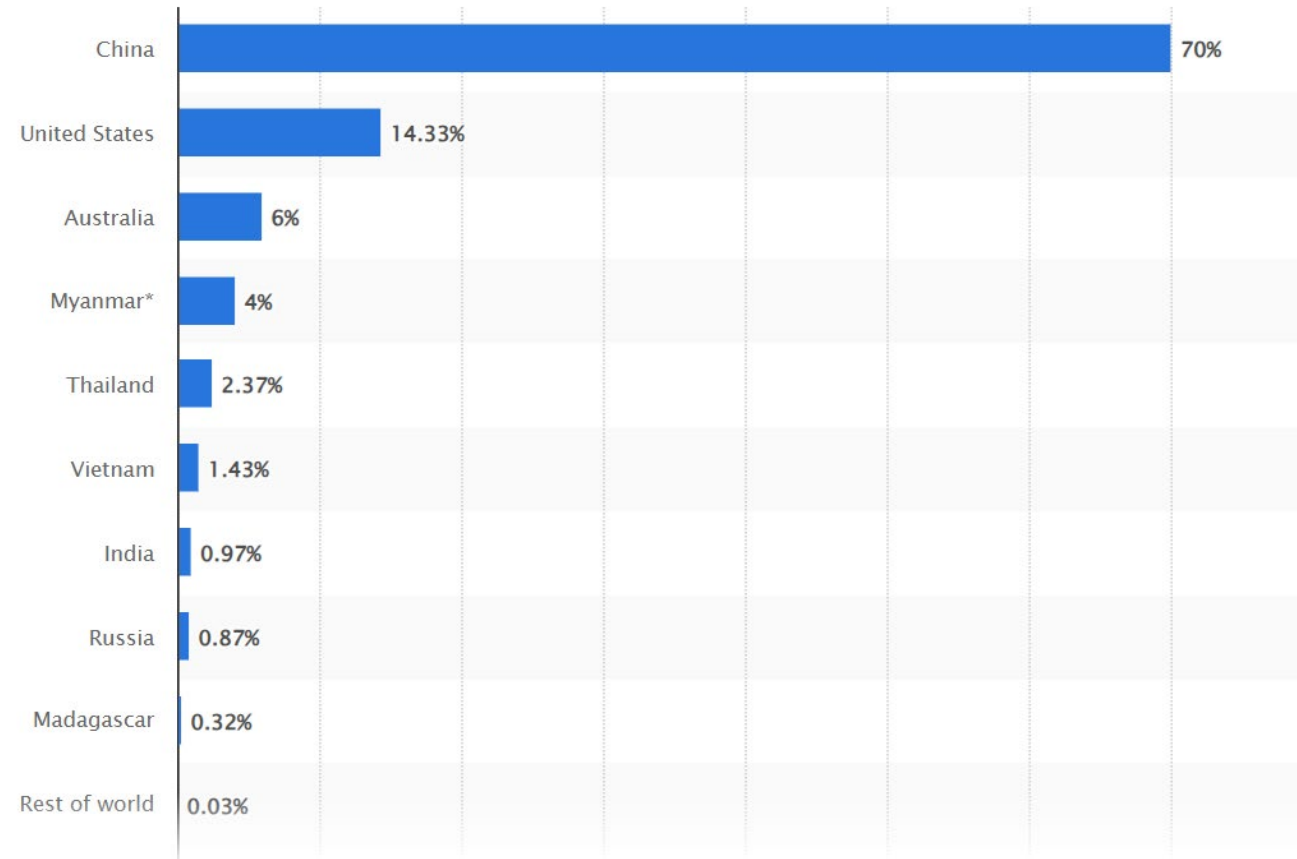


The EU Diversification from Russian gas

Source : European Commission



Distribution of rare earths production worldwide as of 2022, by country



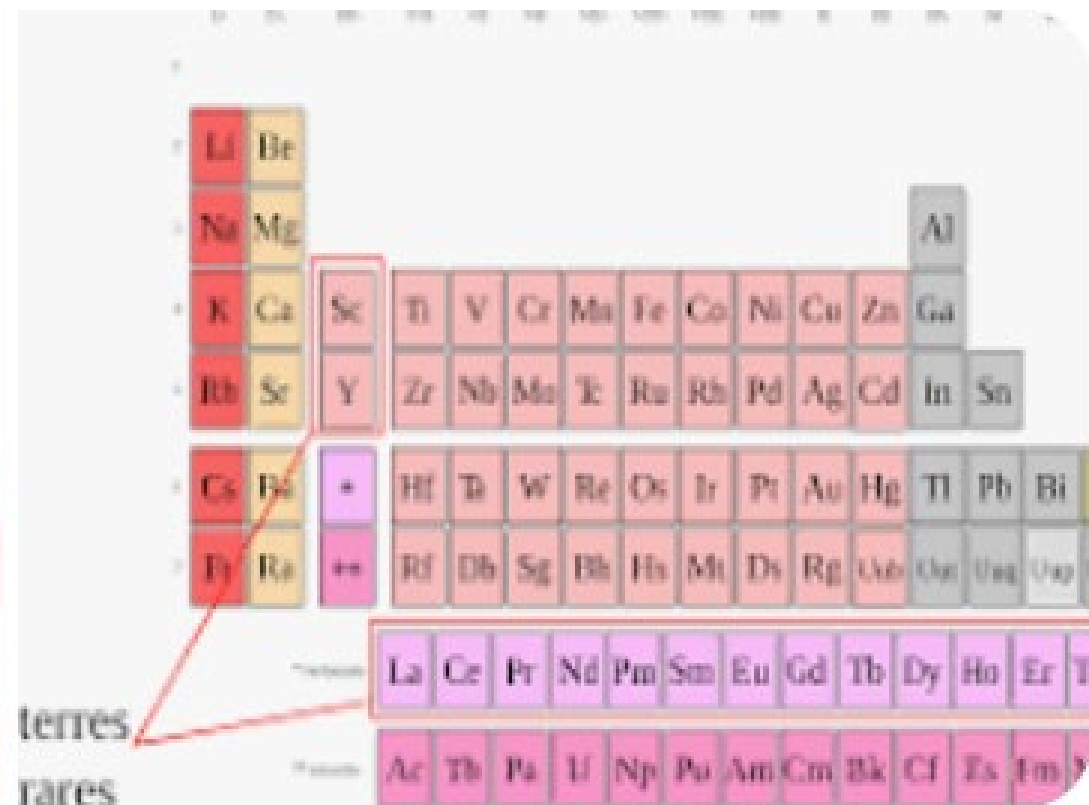
Definition of critical materials

- Critical materials are the resources needed to produce numerous key technologies for the energy transition, including wind turbines, solar panels, batteries for EVs and electrolysers. Deep decarbonisation of energy systems requires significant amounts of critical minerals including e.g. lithium, nickel, cobalt, copper and rare earth elements (REEs) for renewable energy installations and storage solutions. It is crucial to ensure their availability and affordability for a successful transition.

Geopolitics of critical materials

- Main producers of lithium : Australia, Chile, China, Argentina
- Main producer of cobalt : DRC (Congo)
- Main producer of nickel : Indonesia, Philippines, New Caledonia, Russia, and Australia
- Main producers of copper : Chile, Peru, the Democratic Republic of the Congo, China, the United States, Russia, Indonesia, Australia, Zambia, and Mexico
- Main producer of rare earth : China

ANNEXES



Rare Earth

scandium, yttrium, and fifteen else - lanthanides (lanthane, cérium, praséodyme, néodyme, prométhium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium ou encore lutécium)

Crude oil price evolution

Crude oil prices 1862-2022

