



ENERGIA ÉS KLÍMA



BATTHYÁNY LAJOS  
ALAPÍTVÁNY



EST.

1991



*Batthyány Lajos*  
**ALAPÍTVÁNY**

**SAMUEL FURFARI**

Budapest 28/11/2024

ULB

ESCP  
EUROPE



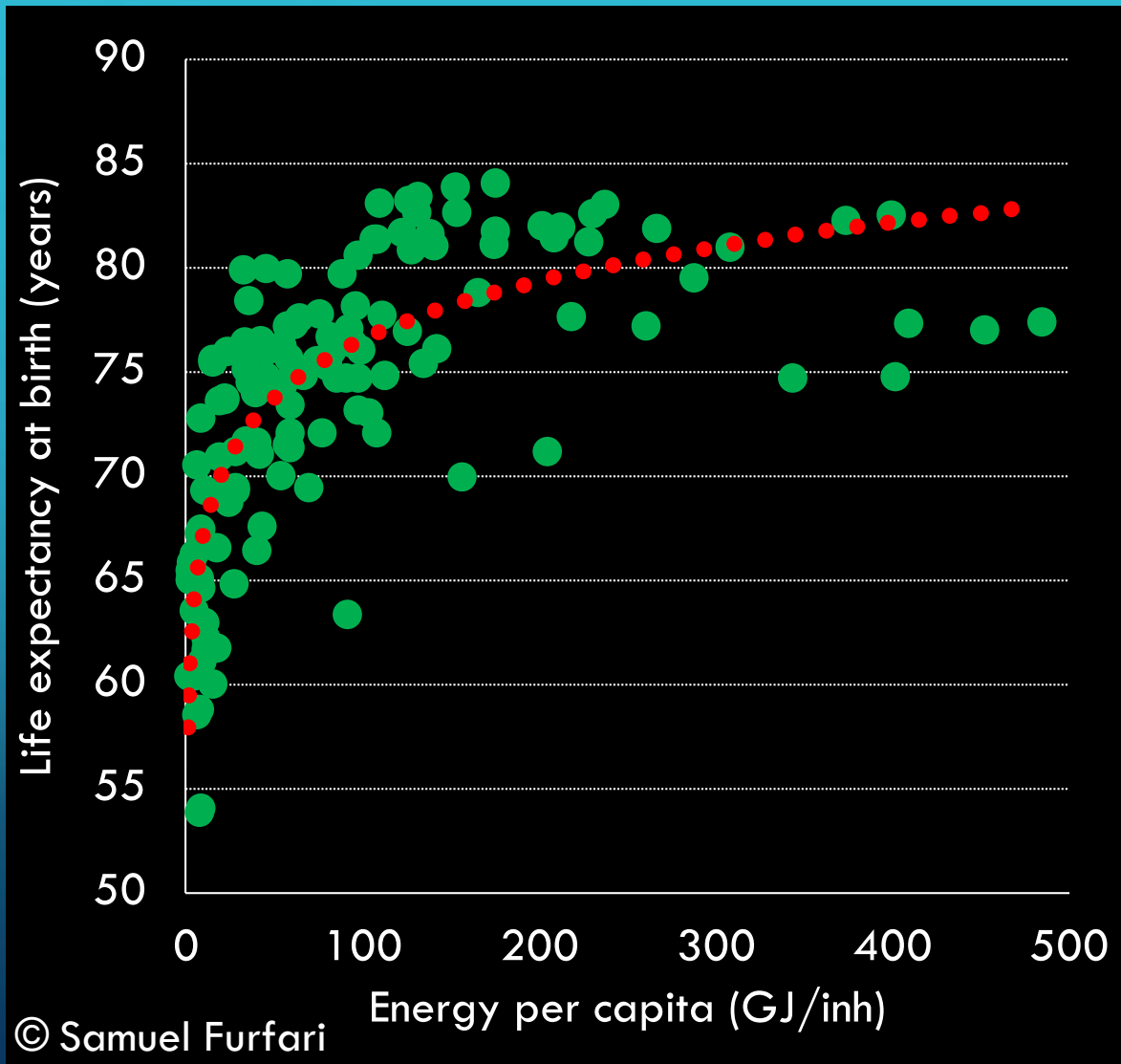
# Disclaimer

This presentation is the exclusive property of Samuel Furfari and may not be published, copied or distributed, in whole or in part, without his prior written consent.

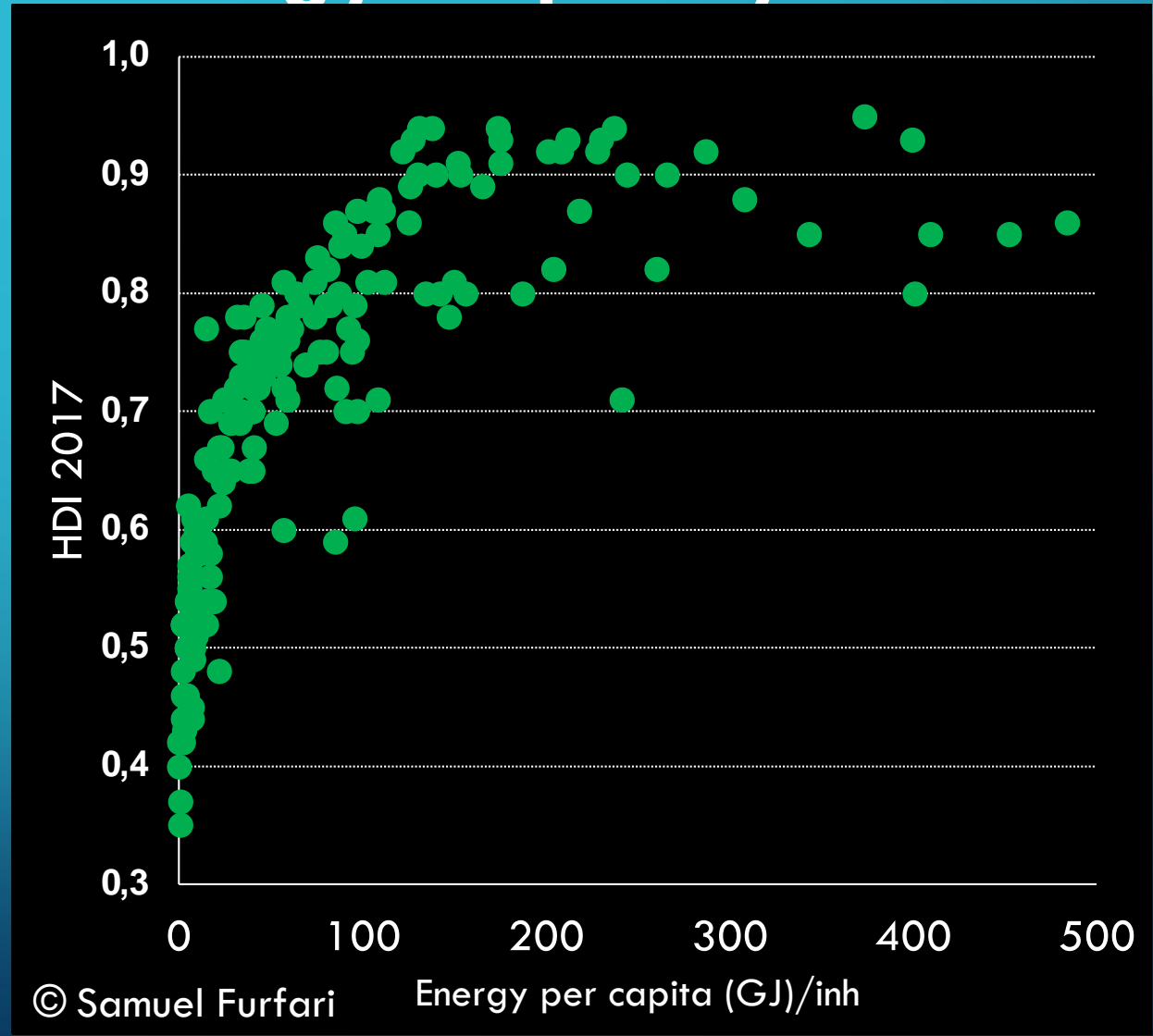
# Mention légale

Cette présentation est la propriété exclusive de Samuel Furfari et ne peut être publiée, copiée ou diffusée, en tout ou en partie, sans son accord écrit préalable.

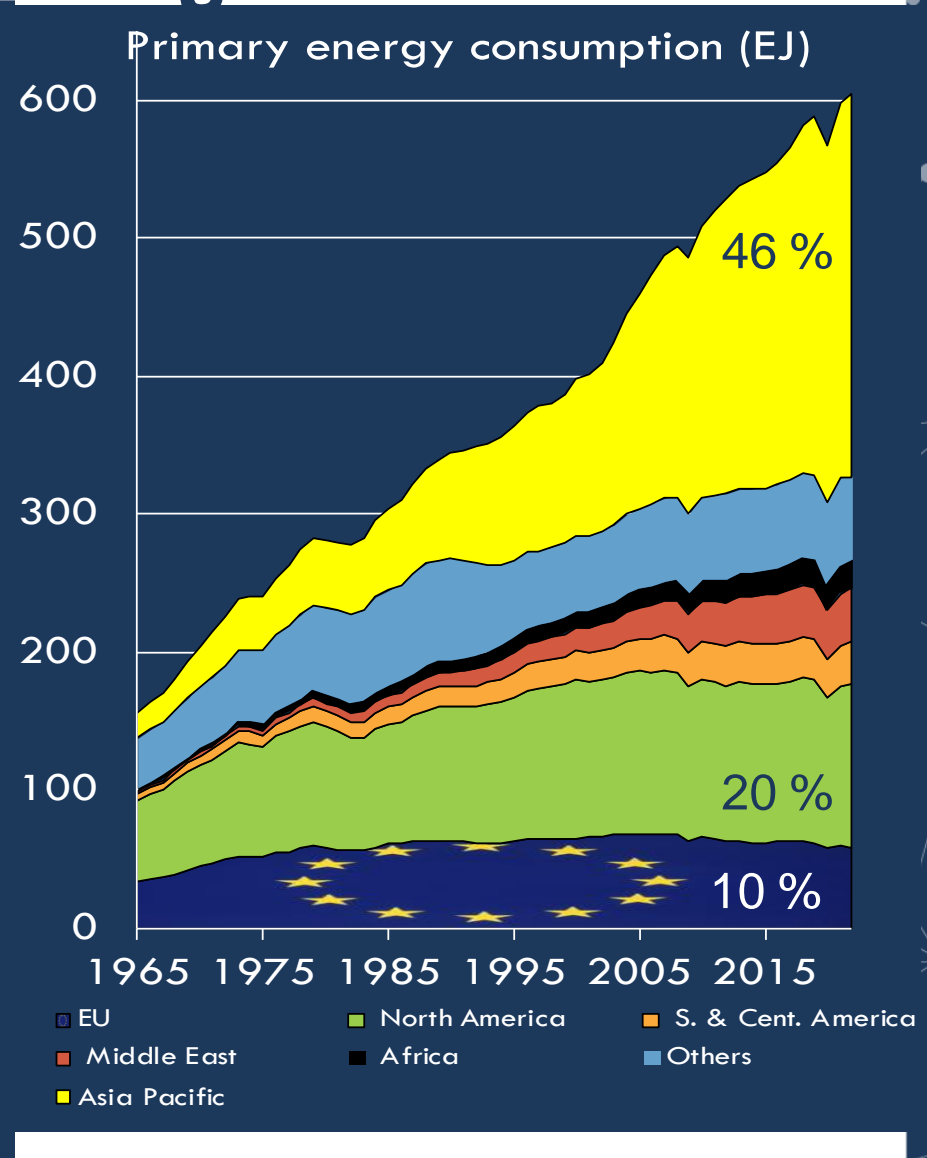
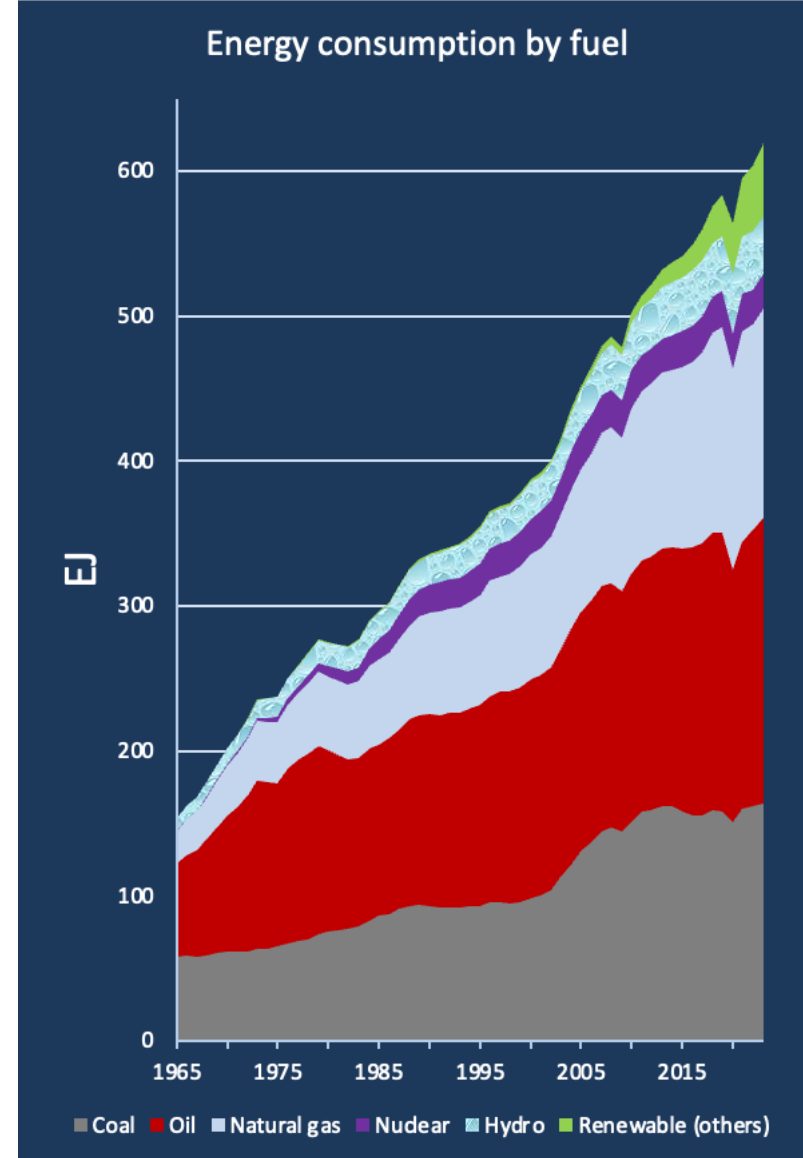
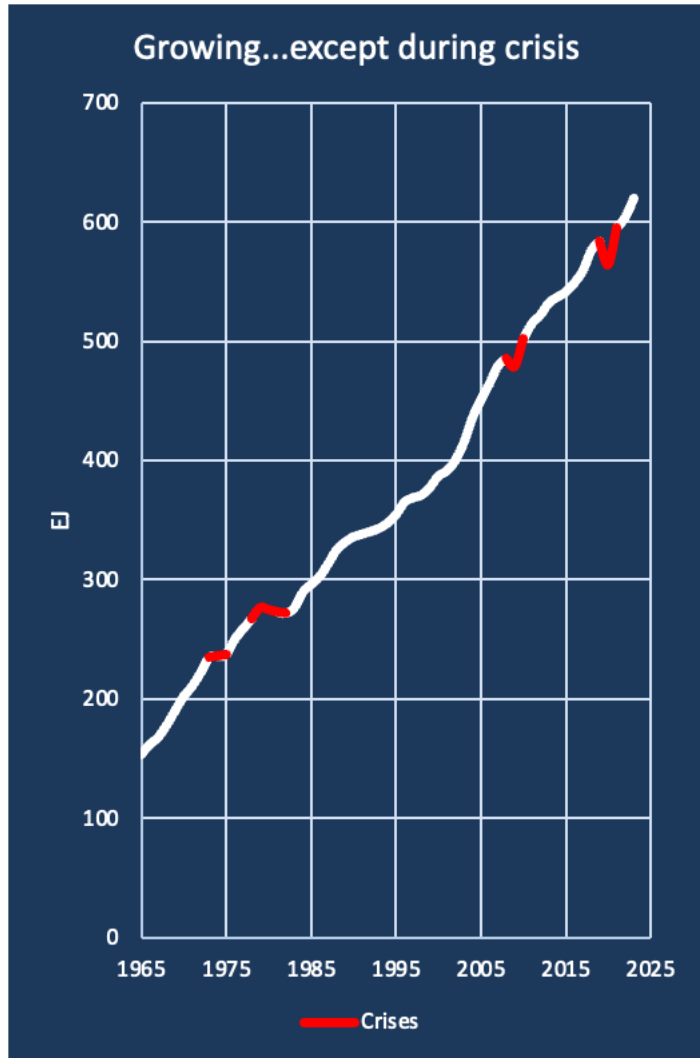
# Energy is work and therefore life



# Energy is quality of life



# Continued growth in demand for all energies



# Messina Conference 1 & 2 June 1955

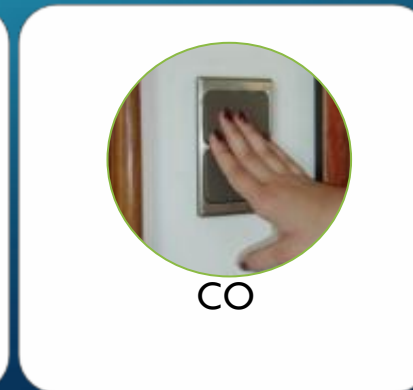
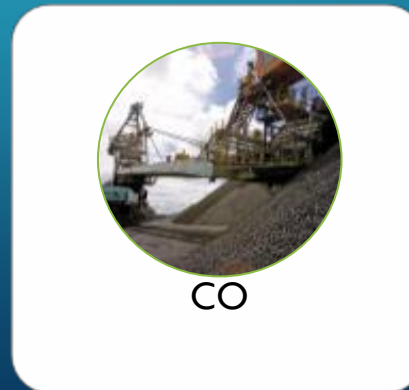
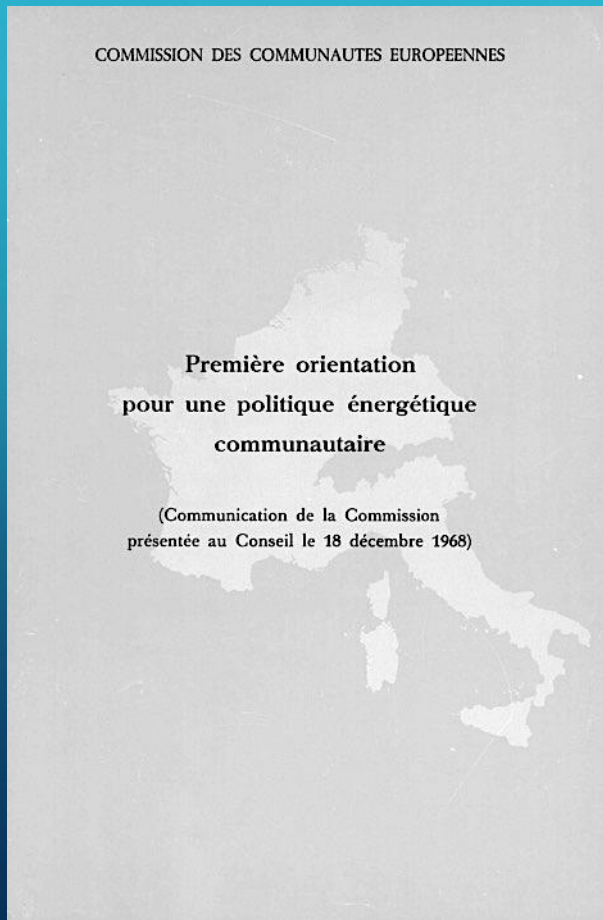
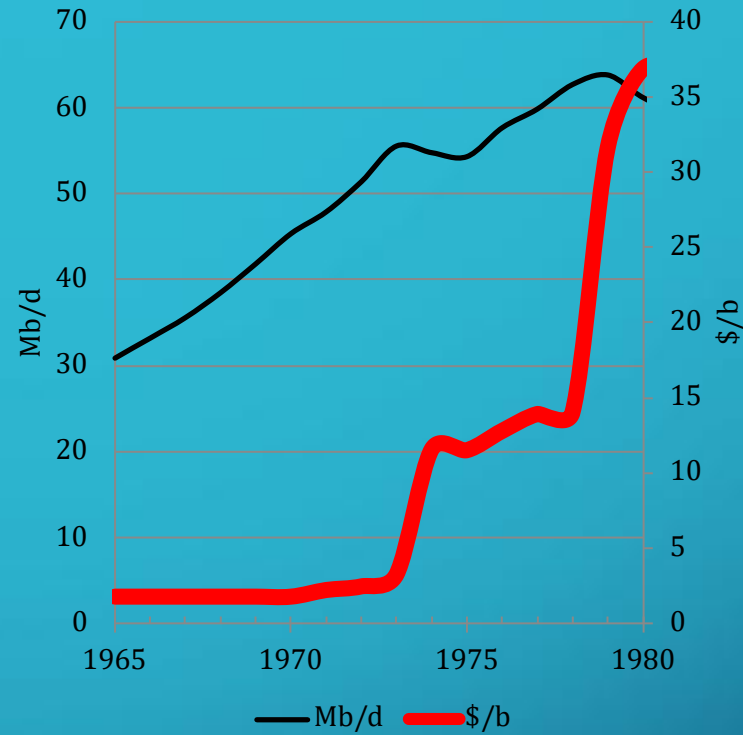


REUNION DES MINISTRES  
DES AFFAIRES ETRANGERES

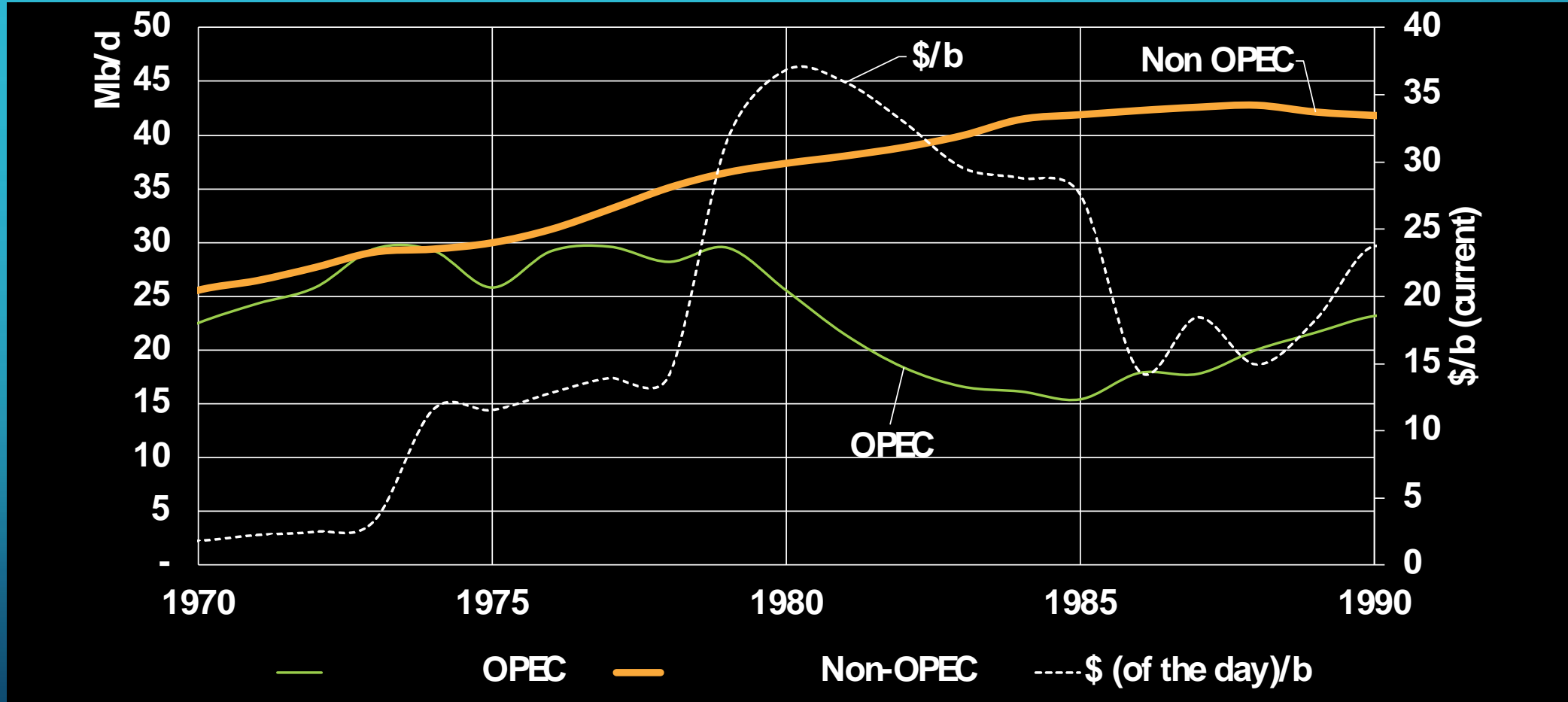
RESOLUTION  
adoptée par les  
Ministres des Affaires étrangères  
des Etats membres de la C.E.C.A.,  
réunis à Messine les 1er et 2 juin 1955

Les Gouvernements de la République fédérale  
d'Allemagne, de Belgique, de France, d'Italie, du  
Luxembourg et des Pays-Bas, croient le moment venu de  
franchir une nouvelle étape dans la voie de la construc-  
tion européenne. Ils sont d'avis que celle-ci doit être  
réalisée tout d'abord dans le domaine économique.

***"There will be no future for the European Community without abundant and cheap energy".***



# The impact of the EU Oil & Gas Demonstration Programme

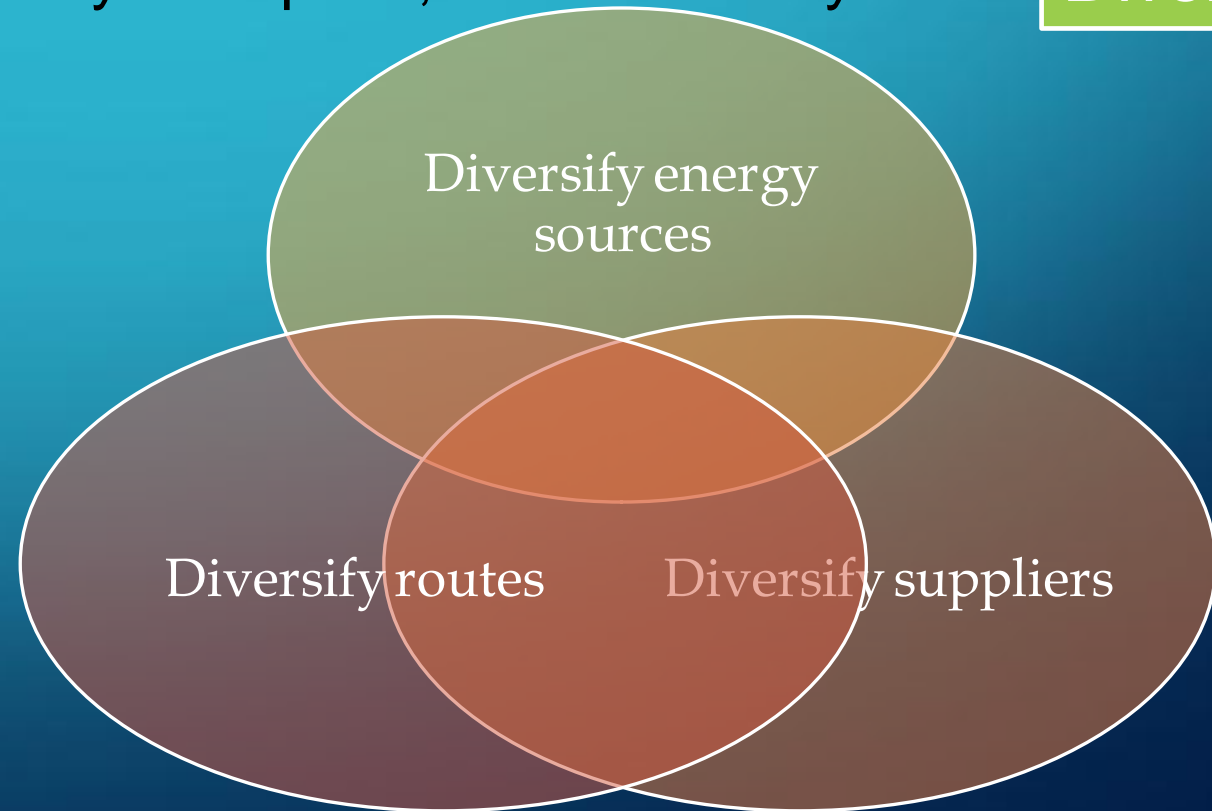


# EU 2000's strategy to improve the Energy

## Security of supply

- No illusions... the EU will not become independent!
- SoS is not dreaming to reduce this dependence but to improve its management.
- To avoid any disruption, it is necessary to:

Diversify...





# The Commission had thought about the security of gas supply





COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 13.12.2004  
COM(2004) 777 final

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE  
EUROPEAN PARLIAMENT

The Energy Dialogue between the European Union and the Russian Federation between  
2000 and 2004

EU-Russia Energy Dialogue

**Joint Report**  
**EU-Russia Energy Dialogue 2000-2010:**  
**Opportunities for our future Energy Partnership**



*Minister Khristenko and Director General Lamoureux, first "sole interlocutors"  
of the EU-Russia Energy Dialogue*

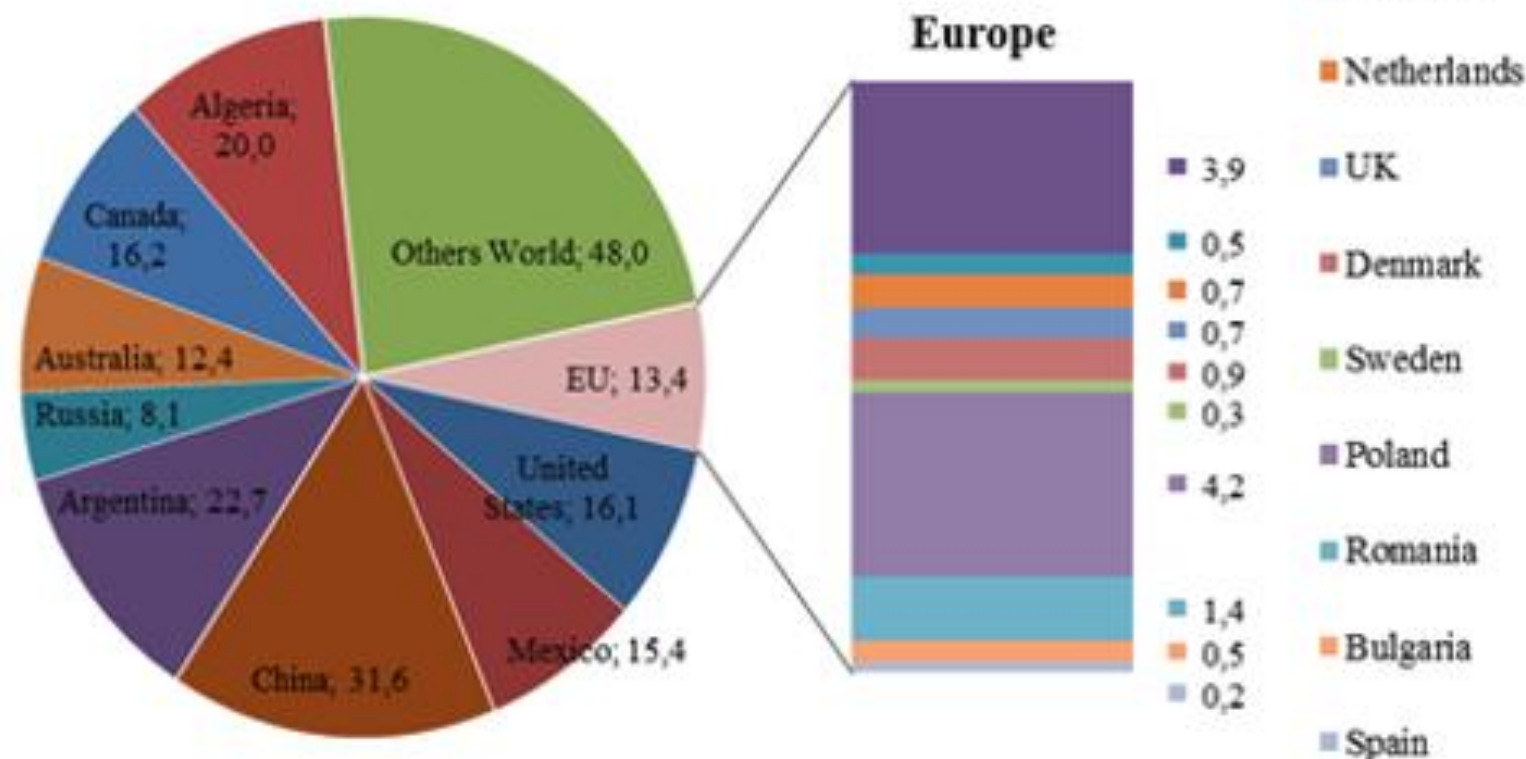
IP/02/1612

Moscow, 5 November 2002

**Vice Prime-Minister Khristenko and Director-General  
Lamoureux open the EU-Russia Technology Centre  
as a platform for the EU-Russia Energy Dialogue**

*Vice-Prime Minister Victor Khristenko and European Commission Director-General for Energy and Transport François Lamoureux, the sole interlocutors for the EU-Russia Energy Dialogue, opened the EU-Russia Technology Centre in Moscow on Tuesday, 5 November 2002. As noted by M. Lamoureux, "Concrete progress has been made in the dialogue so far, paving the way for a future long-term EU-Russia common energy house."*

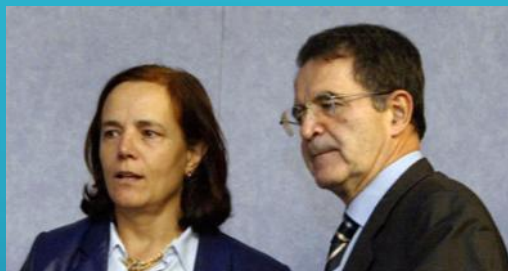
## Trillion cubic meters



Source: Energy Information Administration.

## Unproved shale gas Technically Recoverable Reserves<sup>2</sup>

Tcm	2011	2013
<b>Total EU</b>	<b>15,8</b>	<b>13,3</b>
Of which		
France	5,1	3,9
Germany	0,2	0,5
Netherlands	0,5	0,7
Norway	2,4	0
UK	0,6	0,7
Denmark	0,7	0,9
Sweden	1,2	0,3
Poland	5,3	4,2
Bulgaria	/	0,5
Spain	/	0,2
Romania	/	1,4
<b>Total US</b>	<b>24,4</b>	<b>16,1</b>
Of which		
Marcellus	11,0	5,3
<b>Total World</b>	<b>187,5</b>	<b>203,9</b>



1955  
Abundant and cheap  
energy

2000  
Security of energy supply

2010-2018  
Energy Union

2019  
Decarbonisation

# The EU energy policy in 2022

No mention at all of nuclear energy

Importing from Ukraine | electricity, H<sub>2</sub>

More wind and more solar PV

Energy efficiency | buildings, Heat pumps

Hydrogen

More non-Russian gas

**REPower EU**  
**May 2022**

- €300 billion in financing
  - €72 billion in the form of grants
  - €228 billion in loans

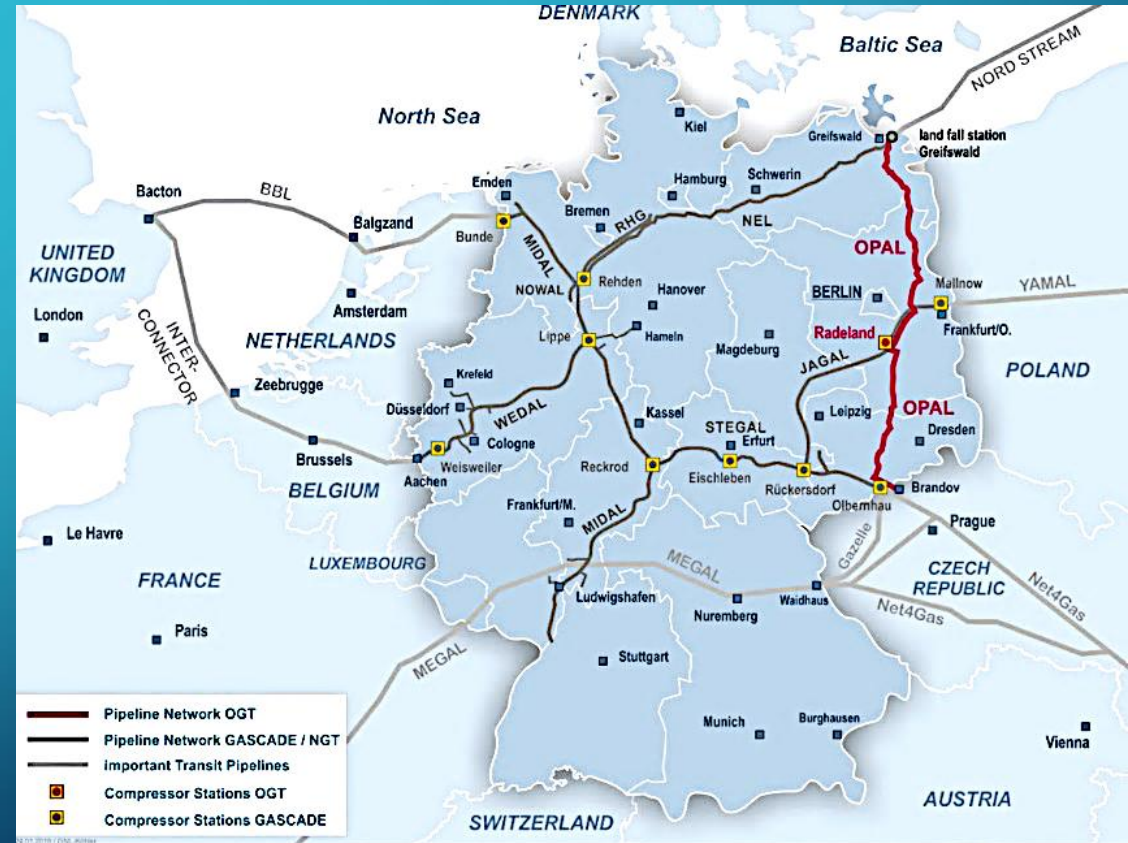
## **TITLE I** **THE TASKS OF THE COMMUNITY**

### *Article 1*

By this Treaty the HIGH CONTRACTING PARTIES establish among themselves a EUROPEAN ATOMIC ENERGY COMMUNITY (EURATOM).

It shall be the task of the Community to contribute to the raising of the standard of living in the Member States and to the development of relations with the other countries by creating the conditions necessary for the speedy establishment and growth of nuclear industries.

# Germany, the gas hub of Northern Europe thanks to the OPAL pipeline ?



Robert Habeck, Qatar, 21 March 2022

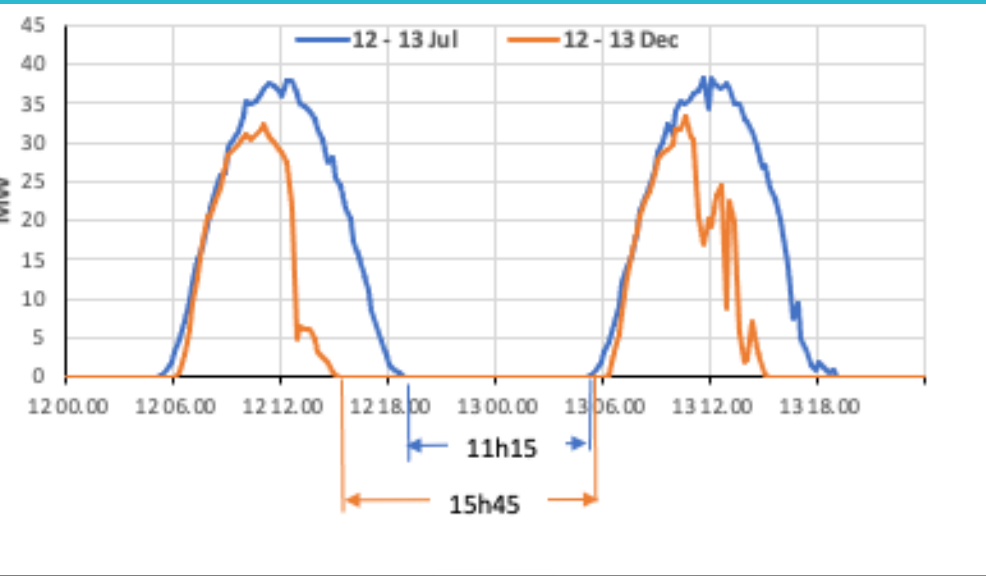


# Qatar, Germany sign energy deal

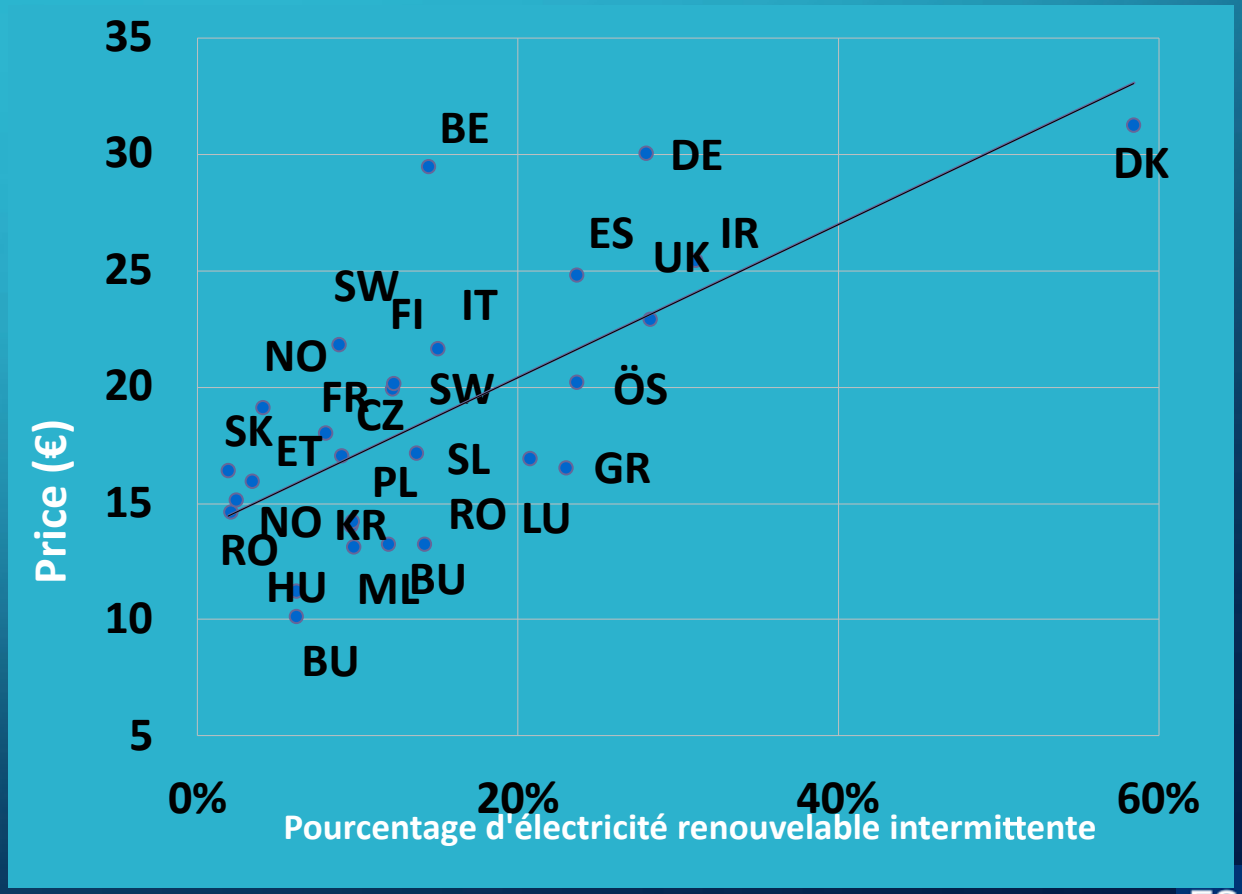
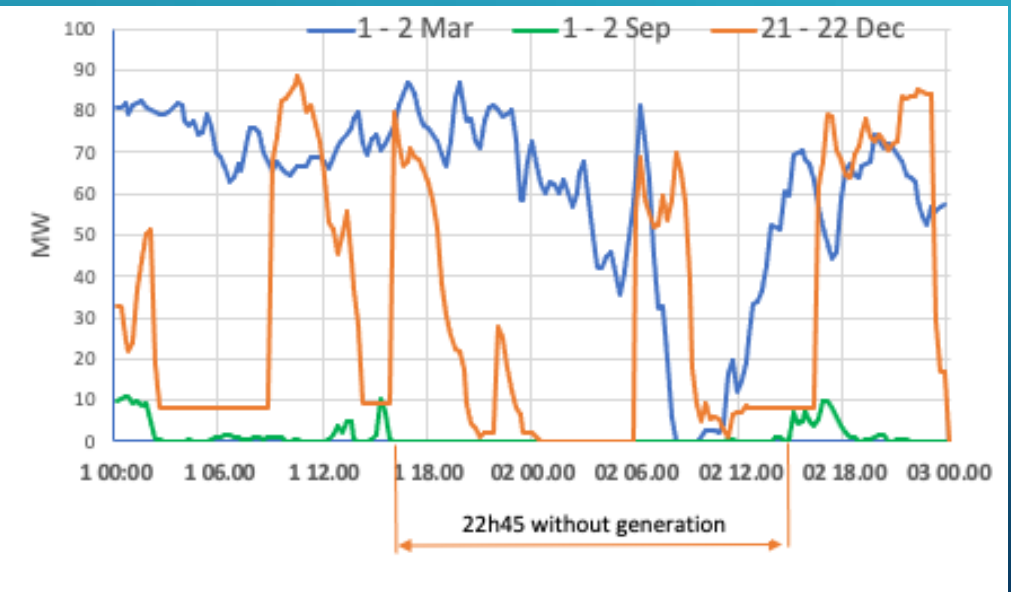
May 21, 2022 at 10:06 am | Published in: Europe & Russia, Germany, Middle East, News, Qatar



# Intermittent and variable electricity production



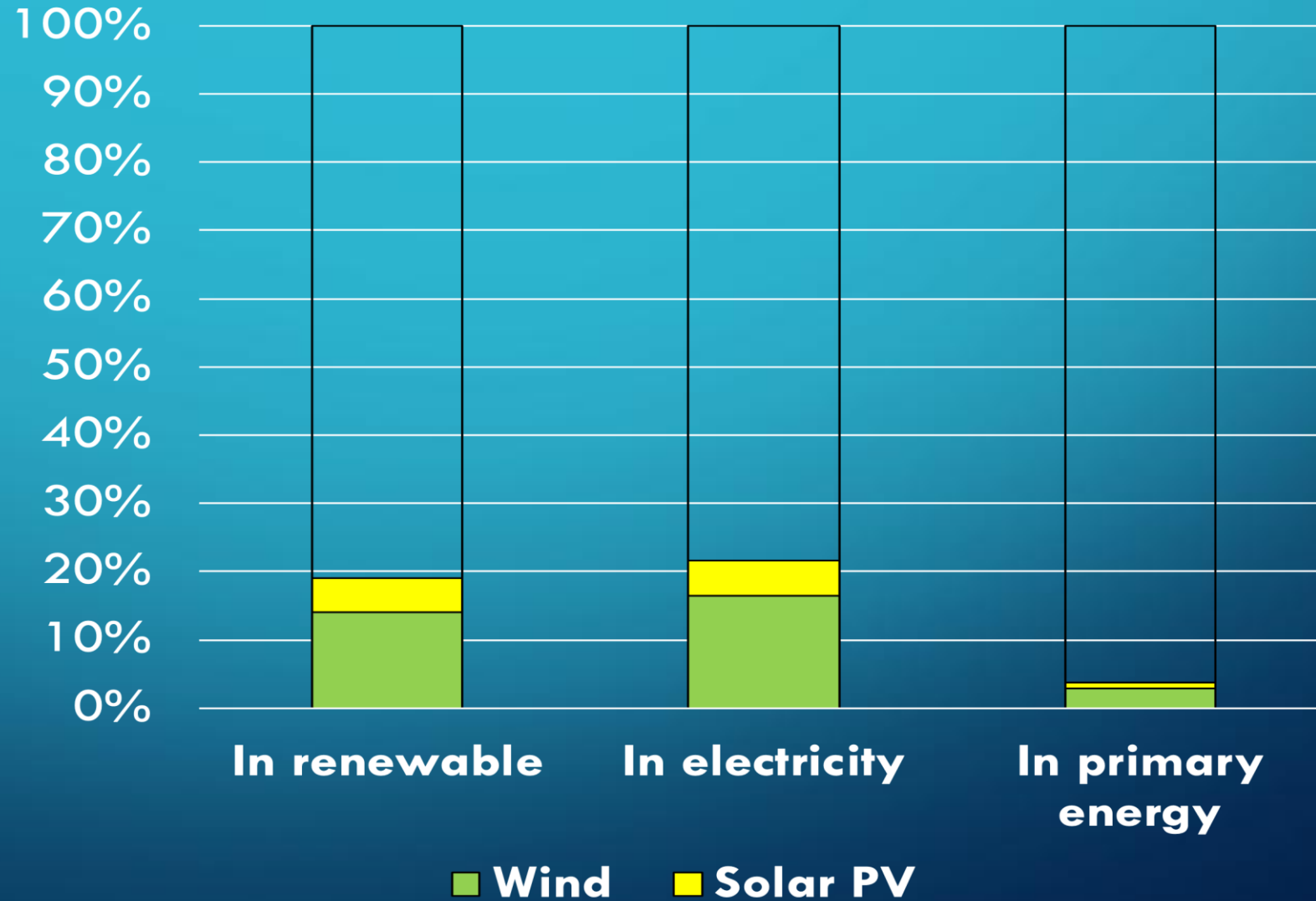
5-year average	Wind	Solar
<b>Load factor in the EU</b>	<b>23 %</b>	<b>11 %</b>





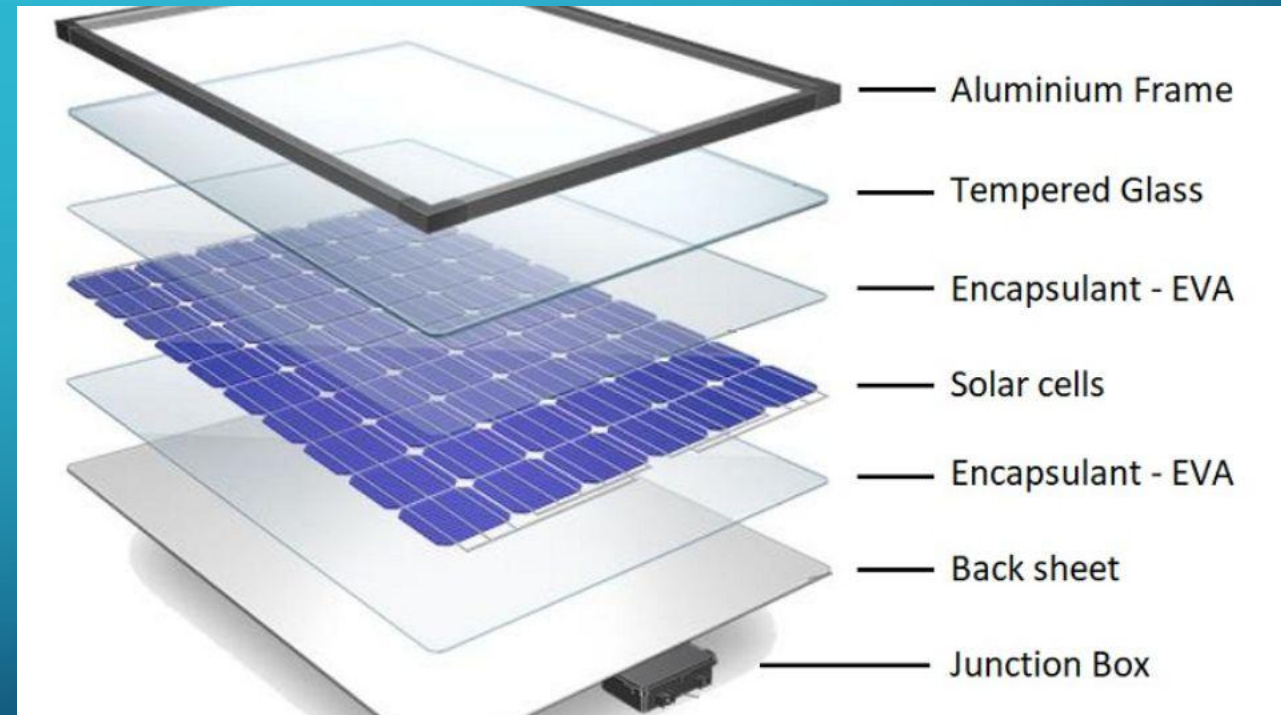
# The reality of wind and solar data in the EU-27

## Share of wind and solar photovoltaic



# If You Want 'Renewable Energy,' Get Ready to Dig

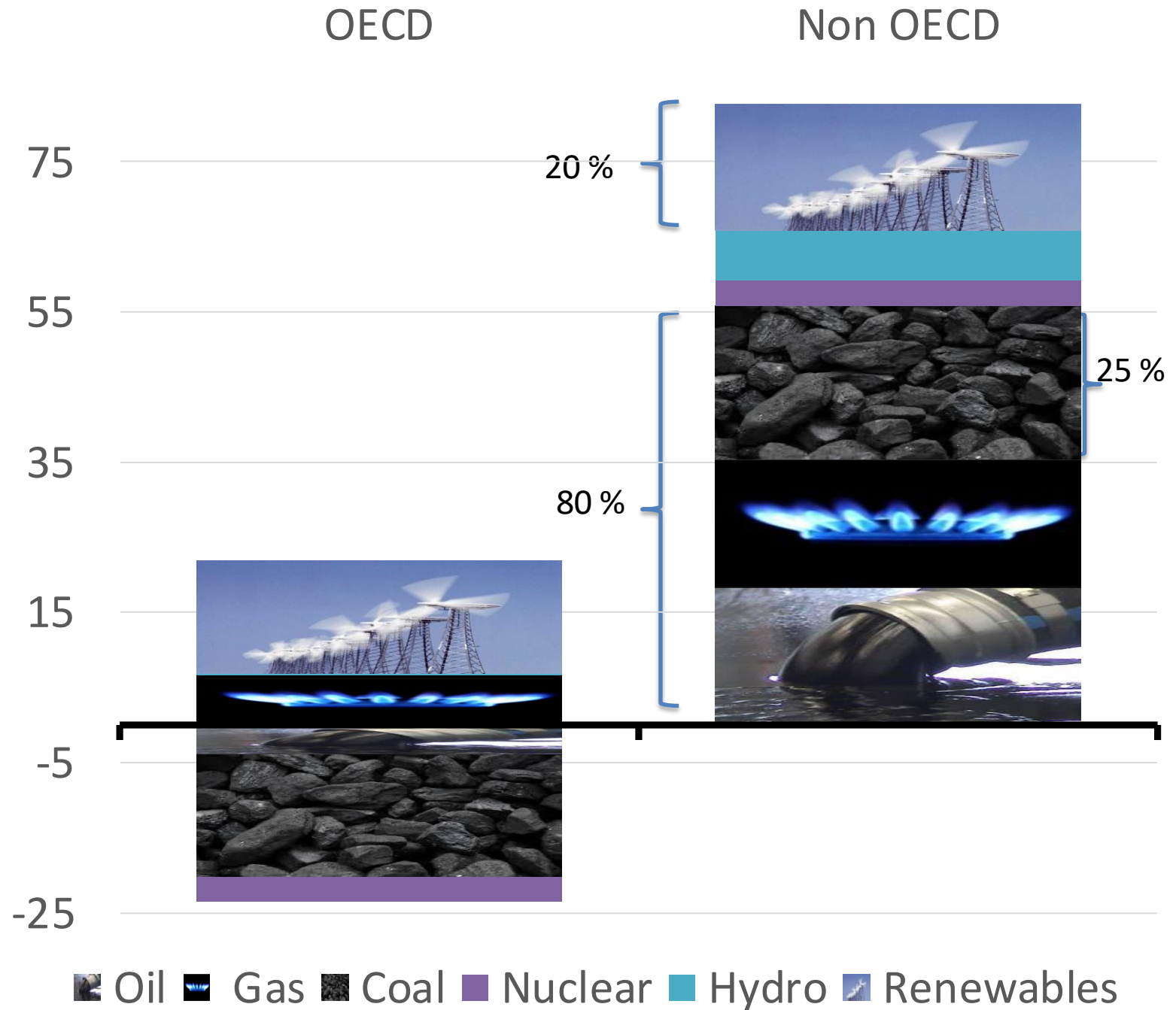
Building one wind turbine requires 900 tons of steel, 2,500 tons of concrete and 45 tons of plastic.



EVA = ethylene vinyl acetate



# Distribution of energy demand growth between 2011 and 2022



EC President Von der Leyen tells Davos countries of future 'don't need oil and gas'



A growth model centred on fossil fuels is simply obsolete

## Ursula Von der Leyen propose à Donald Trump de remplacer le gaz russe par du gaz américain

Par Le Figaro avec AFP

Publié le 8 novembre 2024 à 17h20, mis à jour à 18h38

[Copier le lien](#) [✉](#) [f](#) [🐦](#) [in](#)

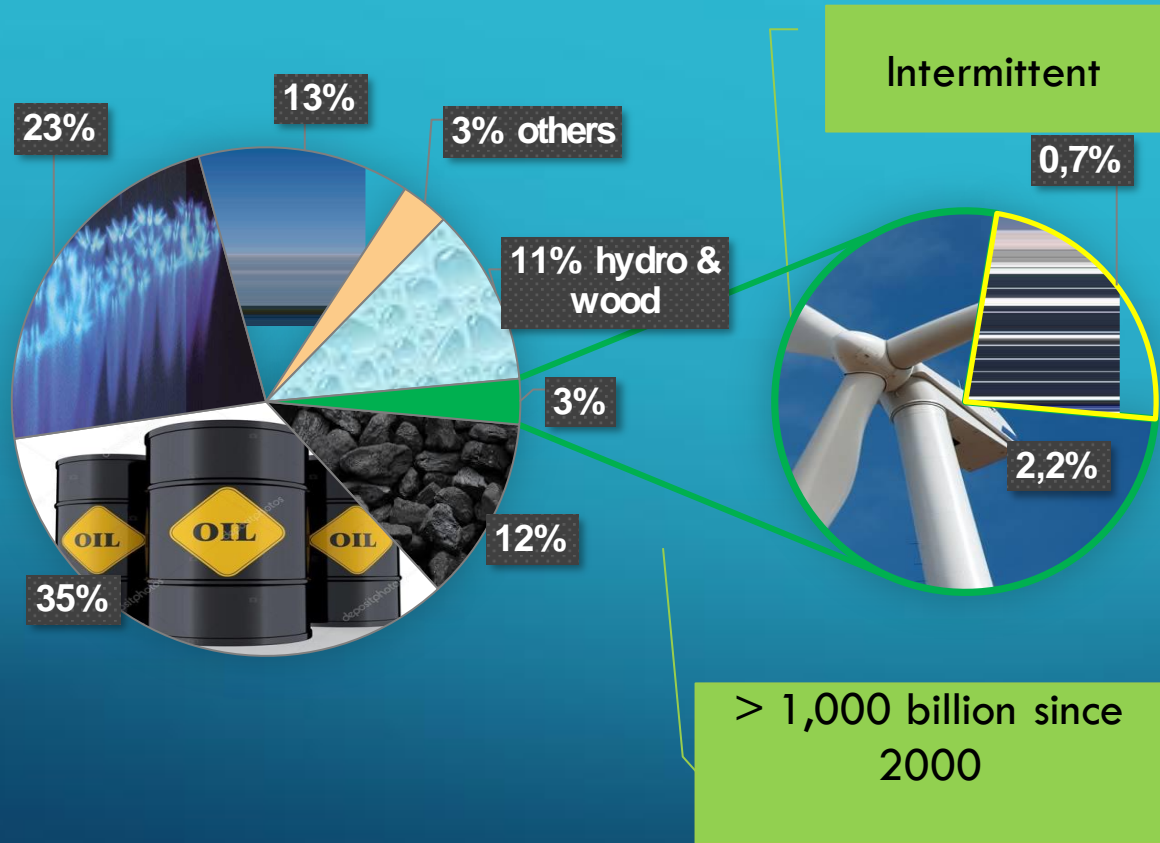
[Écouter cet article](#) 00:00/02:12



15 May 2023,  
EU Parliament, Brussels

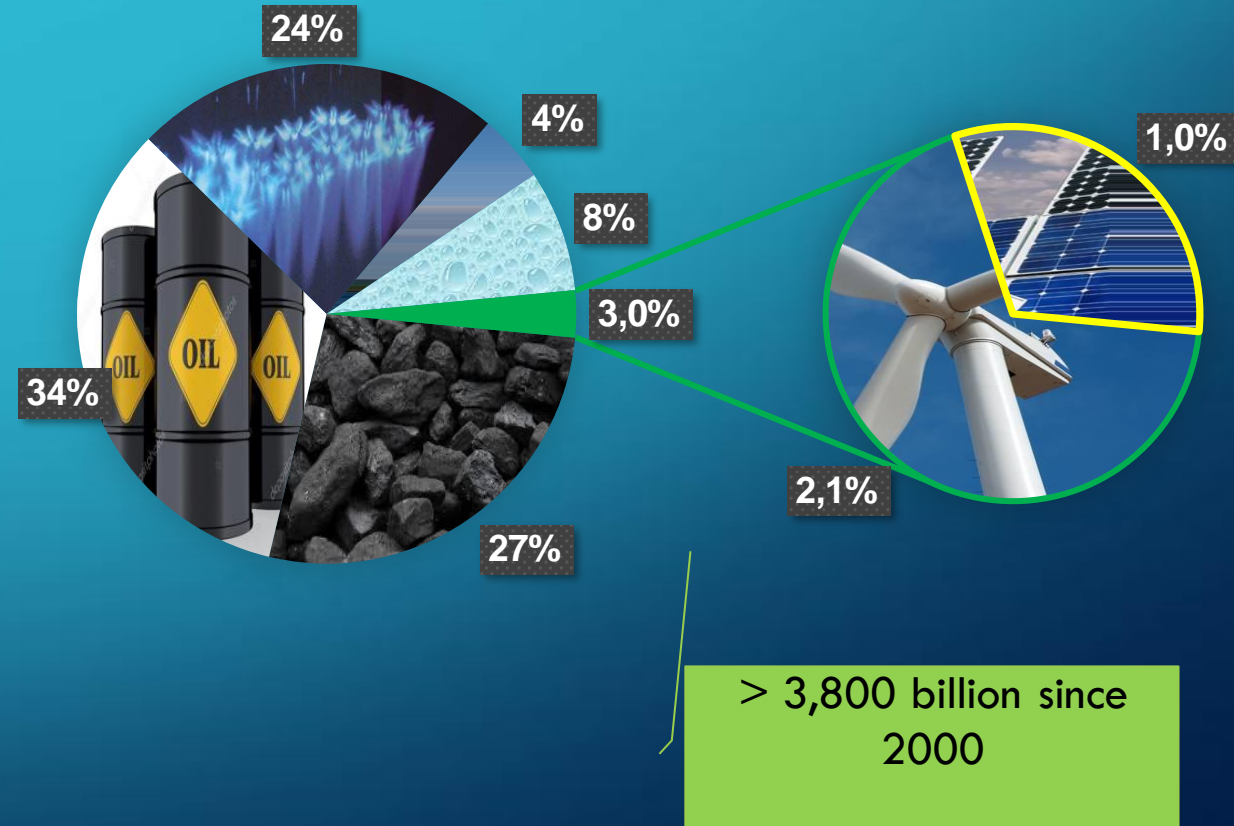
# Primary energy consumption in the EU and the world

## EU



Data: Eurostat, 2021 for 2019

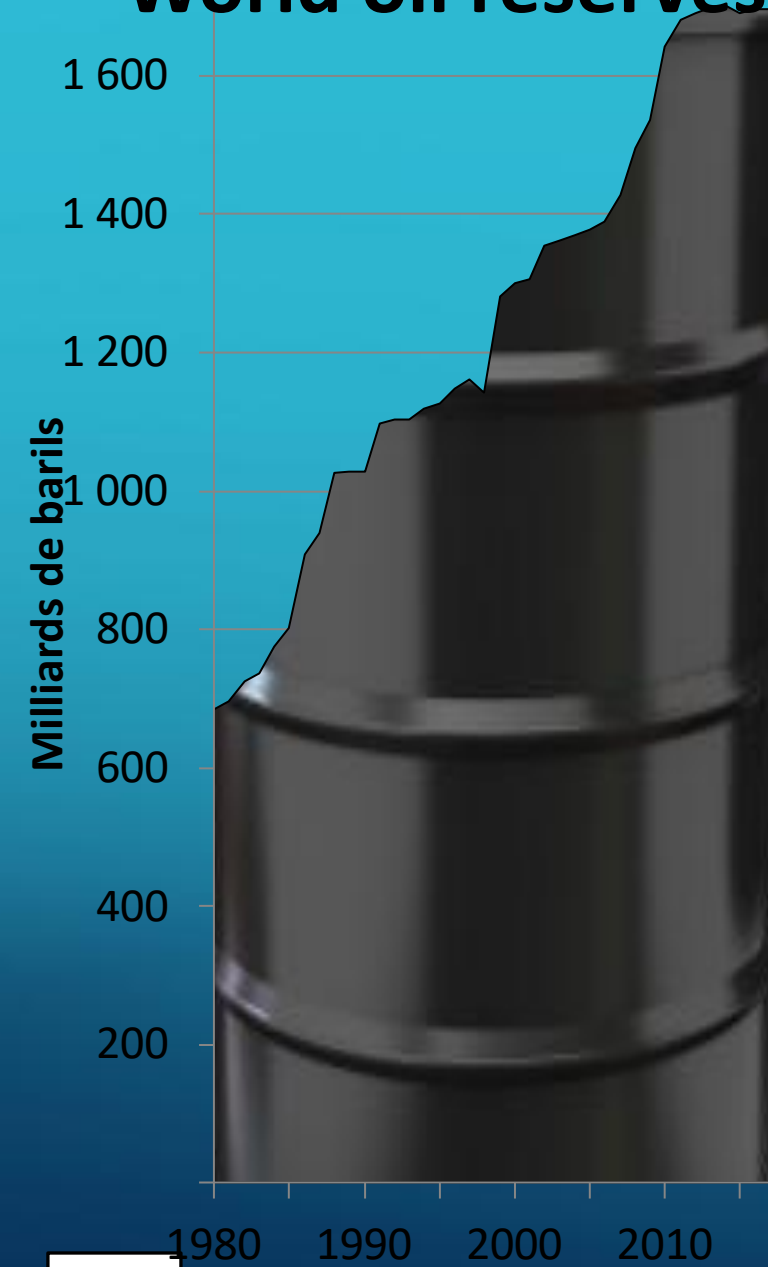
## World



Data: BP, 2022 by 2021

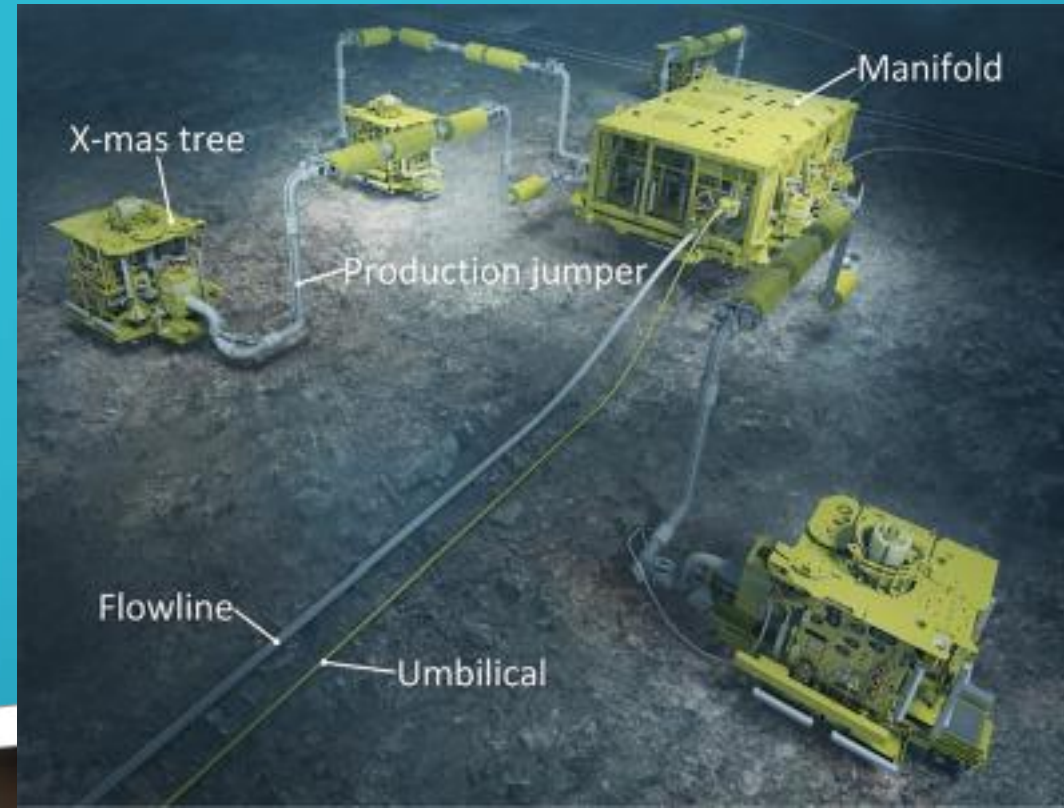


# World oil reserves



BP data

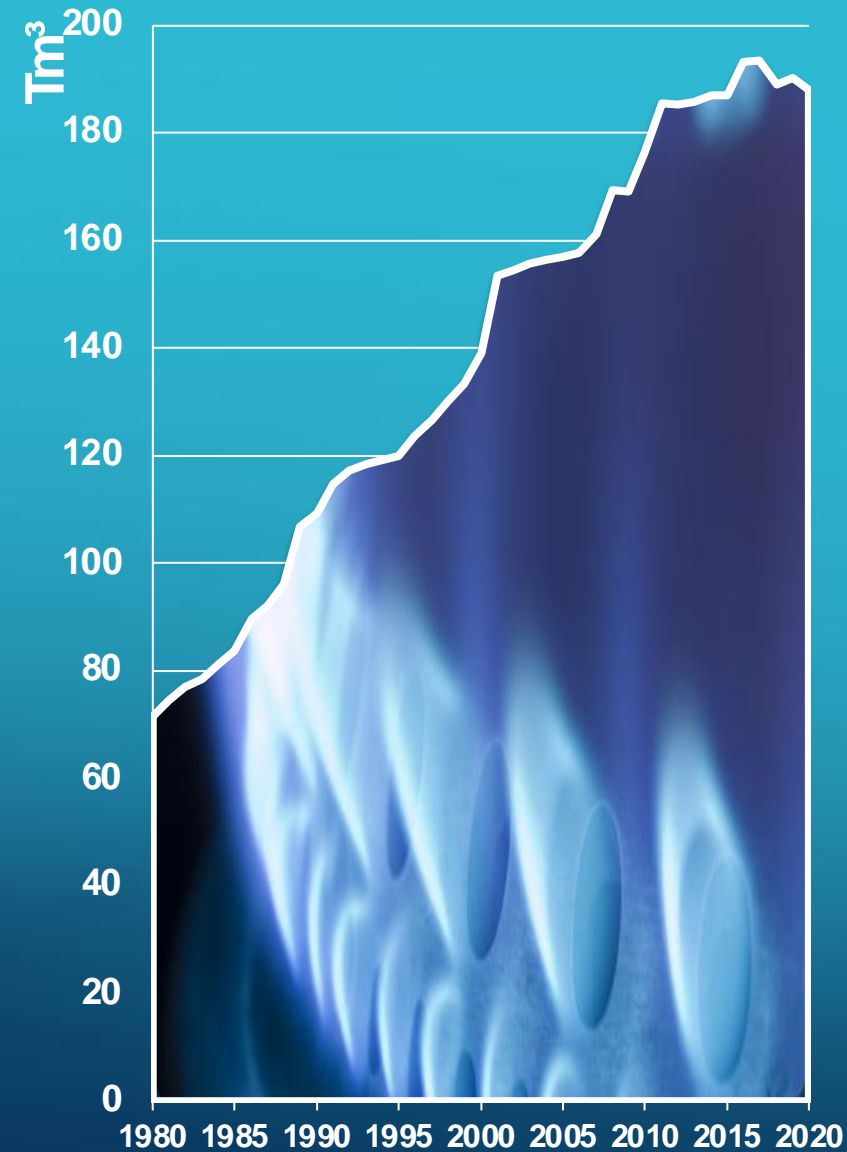
SAMUEL FURFARI - ESCP



ESCP  
EUROPE



# Natural gas, the surprise of energy



- Abundant
- Available
- Clean
- Affordable
- All-purpose
- No monopoly

# The future of European competitiveness



## Energy insecurity

The organised destruction of the EU's competitiveness

Samuel Furfari



# EU difficulties

- EU faces severe competitiveness challenges
- Industrial production decline 10-15% since 2021
- Direct impact on EU competitiveness

*“EU companies still face electricity prices 2 to 3 times higher than in the United States and natural gas prices 4 to 5 times higher.”*

*“For the first time since the Cold War, we genuinely have to worry about our survival”*

*Draghi*

*If Europe cannot become more productive, we will be forced to choose. We will not be able to become a leader in new technologies, a beacon of climate responsibility and an independent player on the world stage at the same time. We will not be able to finance our social model. We will have to scale back some, if not all, of our ambitions. [...]*

*We have reached the point where, if we do not act, we will have to compromise our well-being, our environment or our freedom.*



# Draghi's Admission...



Despite acknowledging these issues, the report remains committed to the enforced green transition without addressing the root causes.

...but let's continue

# Overlooking Oil's Importance

## Minimal Mention of Oil

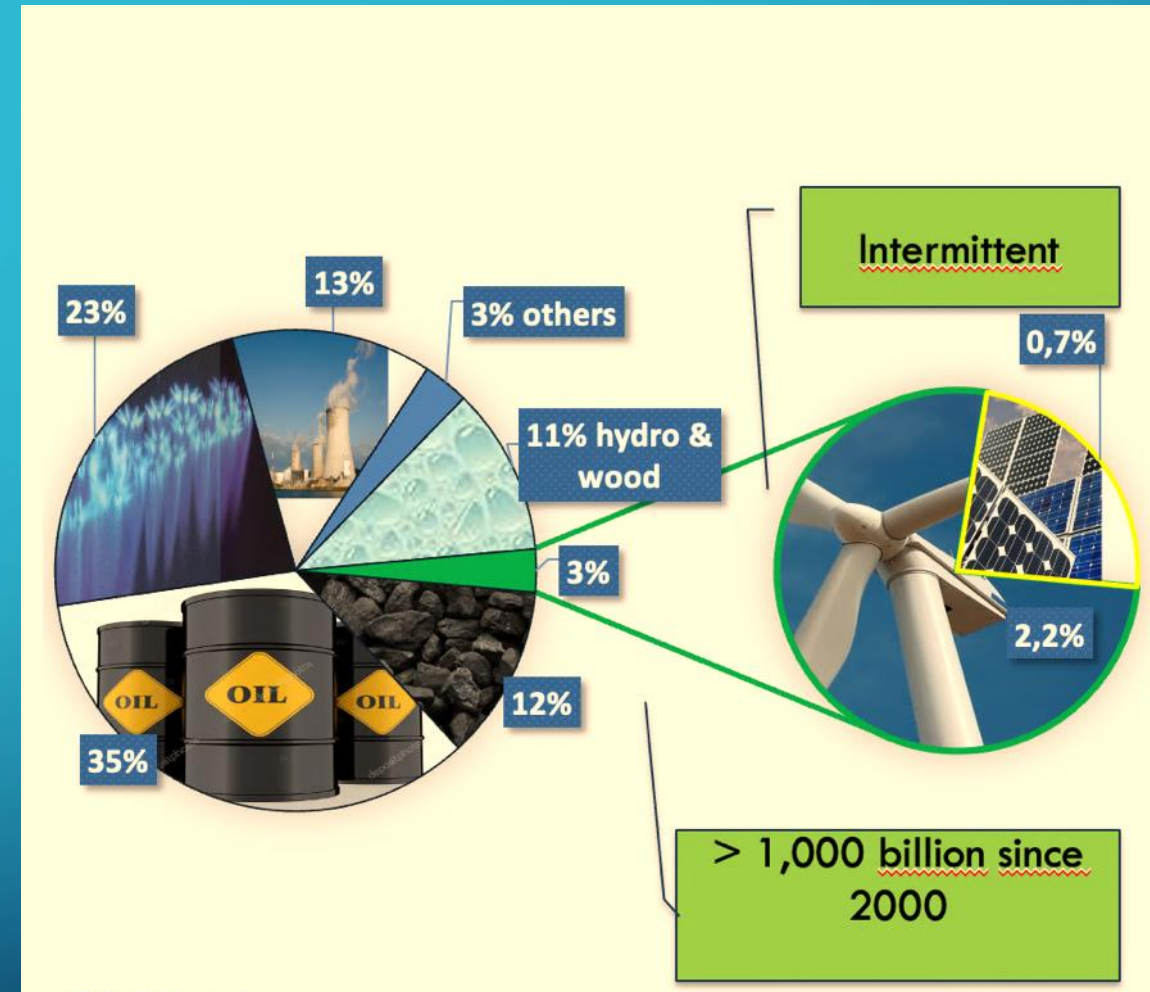
- Only referenced once in the entire report.

## Reality of oil dependence

- Accounts for one-third of final energy consumption in the EU and globally.
- Crucial for transportation, industrial processes, and petrochemicals.

## Geopolitical Implications:

- Ignoring oil neglects supply security and international relations.
- Dependence on imports affects energy sovereignty.



# Underestimating Natural Gas

Gas prices 4-5x higher than US

Strategic Significance

- Essential for heating, industry, and as a.
- Transportation
- Industrial processes
- Petrochemicals/feedstock for chemicals
- Transition fuel toward lower emissions.

LNG Imports

- Record high imports in 2023, especially from the US.

Need for a Coherent Strategy

- Secure affordable and reliable gas supplies.
- Diversify sources and invest in infrastructure.



# Climate policy and competitiveness

## Aggressive Decarbonization Issues

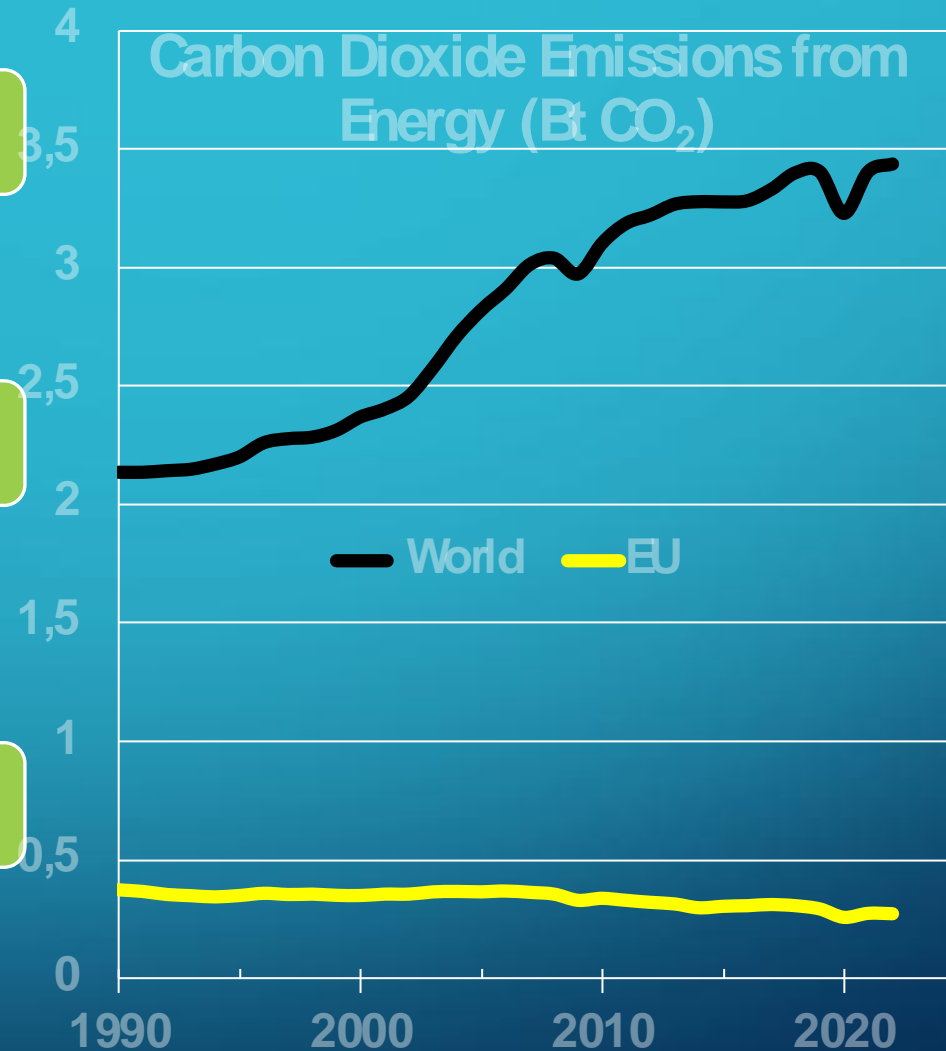
- Increased energy costs for industry and consumers.
- Risk of deindustrialization and job losses.

## Global Emissions Context

- EU contributes only 7% of global CO<sub>2</sub> emissions.
- BRICS nations and others continue to increase emissions.

## Policy Contradictions

- Pursuing stringent targets while competitors do not.
- EU industries face higher costs and regulatory burdens.



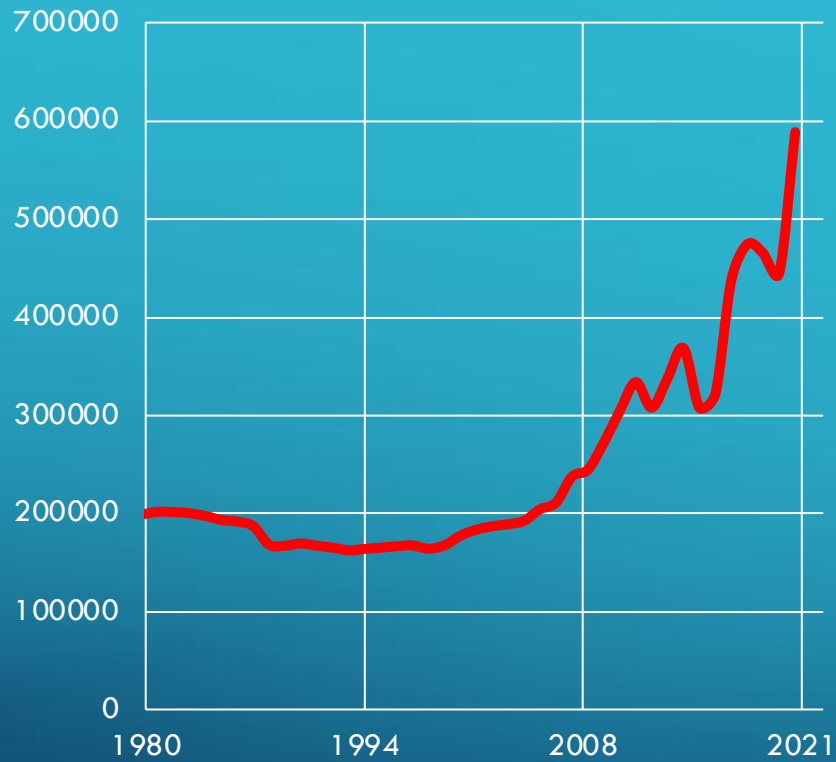
Party to the UNFCCC	% increase since adoption of the UNFCCC
World	+64
Latin America	+87
Africa	+100
Non-OECD	+149
Turkey	+186
Pakistan	+189
Indonesia	+347
India	+319
China	+339
Bangladesh	+803
Vietnam	+1557
EU	-29
USA	-7

# 'AS PRESIDENT, I'LL NOT BAN FRACKING IN U.S'

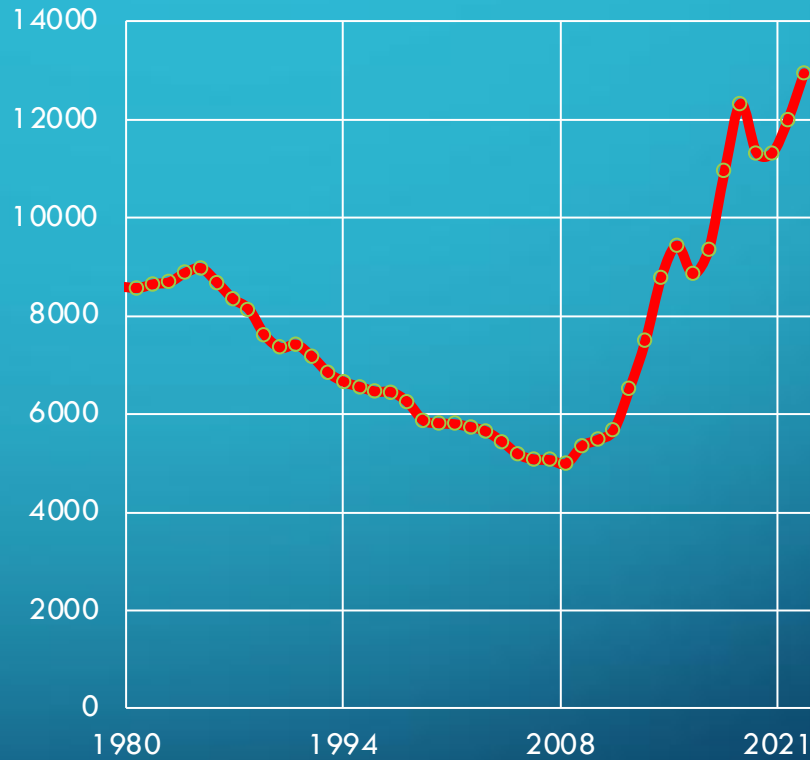


# Not thanks to ...

USA gas production (BCF)



USA oil production (kb/d)



Georges Mitchell

Nick Steinsberger



Chris Wright



# QatarGas invests \$ 10 billion in Texas shale gas

QatarEnergy (70%)  
ExxonMobil (30%).

Golden Pass LNG

15.6 Mt LNG/a

24 Gm<sup>3</sup> /a

should be operational by  
2024



Main Cryogenic Heat Exchanger delivery and placement

de Golden Pass LNG

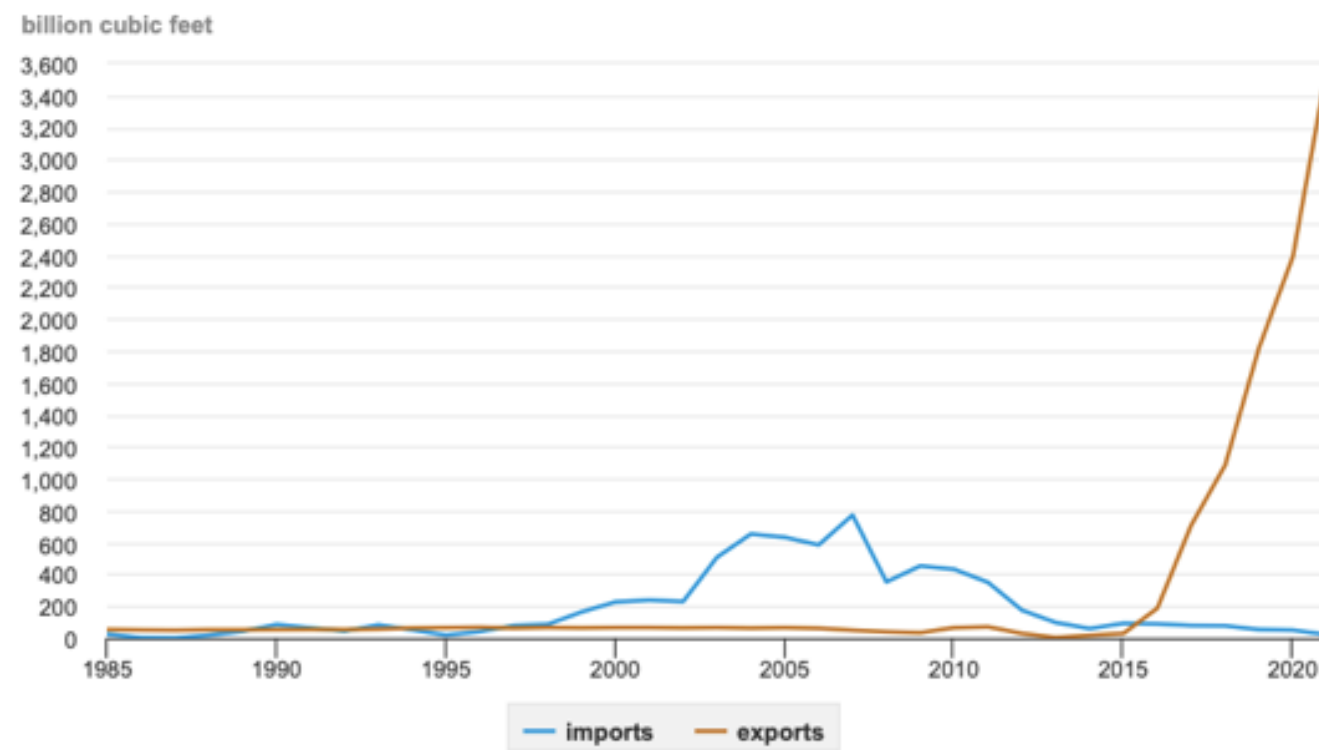
Project Progress: Quarter 3 - 2021  
de Golden Pass LNG



Becoming  
the **PREMIER**  
LNG exporter in North America

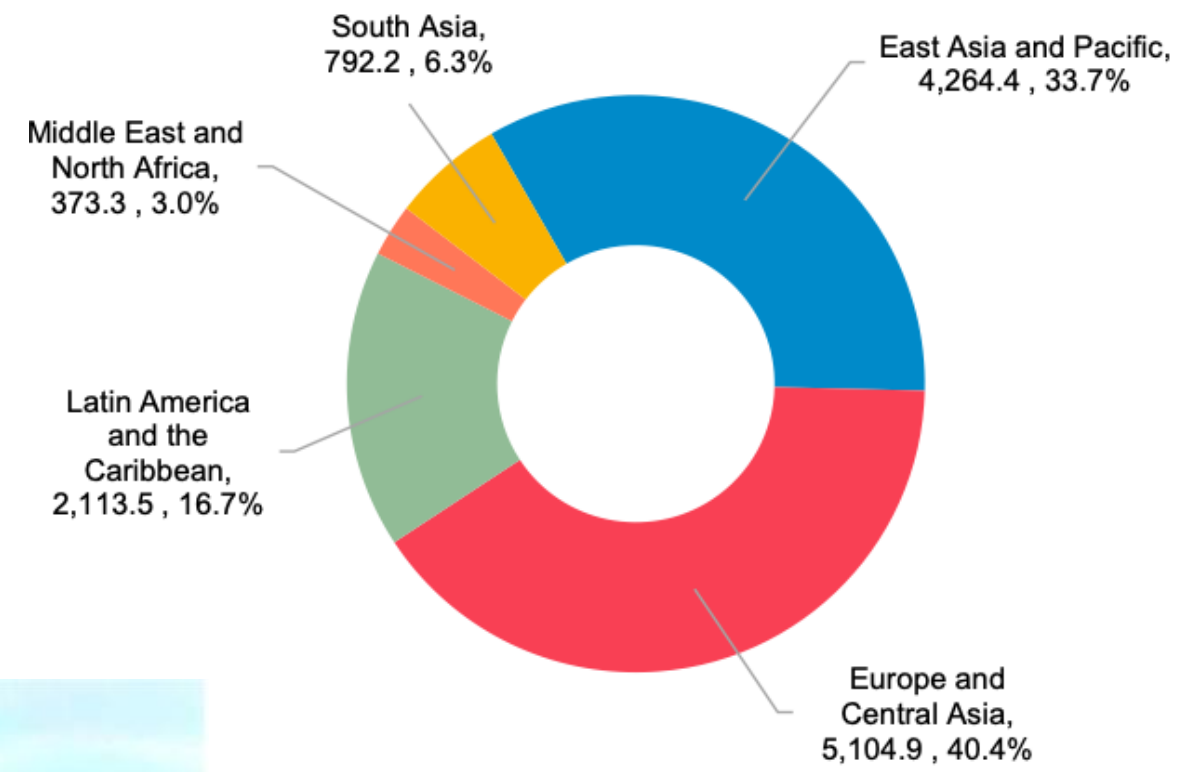


# U.S. LNG imports and exports, 1985-2021



eia Data source: U.S. Energy Information Administration, *Natural Gas Monthly*, March 2021; data for 2021 are preliminary

# 1d. Domestically-Produced LNG Exported by Region (Cumulative from February 2016 through September 2022) (Bcf, %)



[https://www.energy.gov/sites/default/files/2022-11/LNG%20Monthly%20September%202022\\_1.pdf](https://www.energy.gov/sites/default/files/2022-11/LNG%20Monthly%20September%202022_1.pdf)

Oil and gas  
are a 'gift  
of God'



Drill Ilham,  
drill



de Rechtspraak

There is currently insufficient  
consensus in climate science on a  
specific reduction percentage to  
which an individual company like  
Shell should adhere



Voorzitter



News

## After 10 years' work, China puts finishing touch to world's longest pipeline

David Rogers  
21.11.24

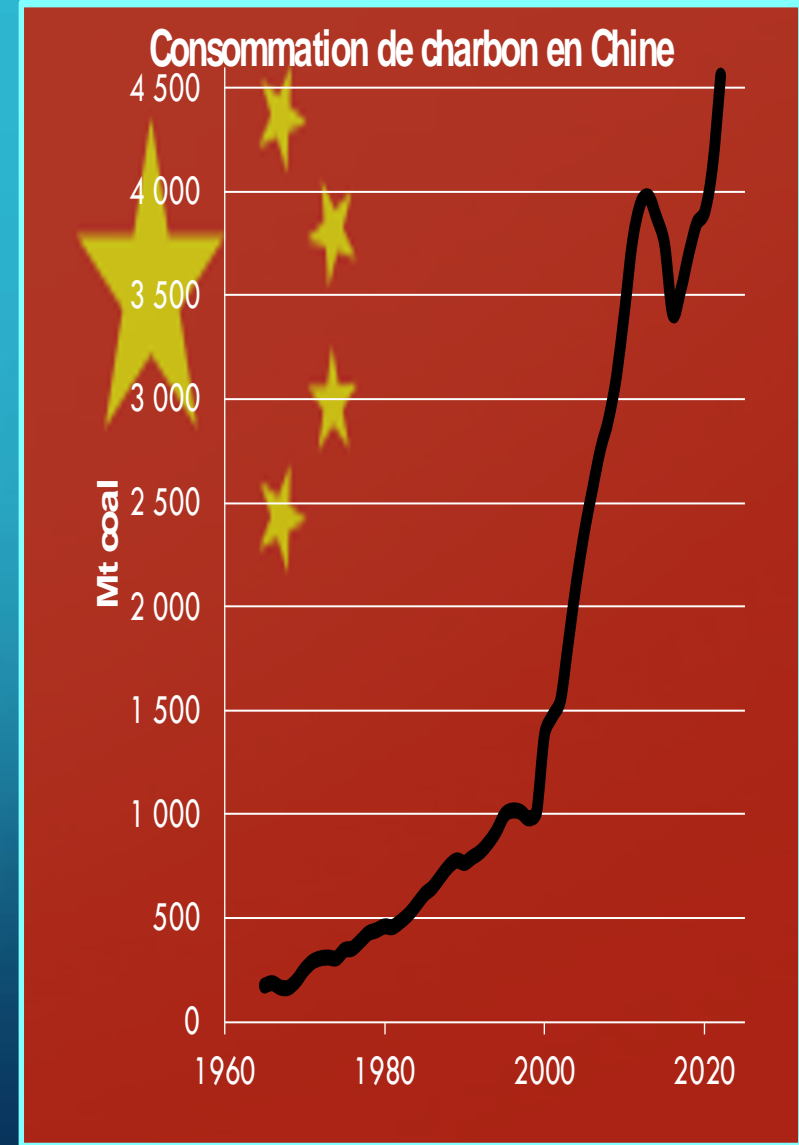
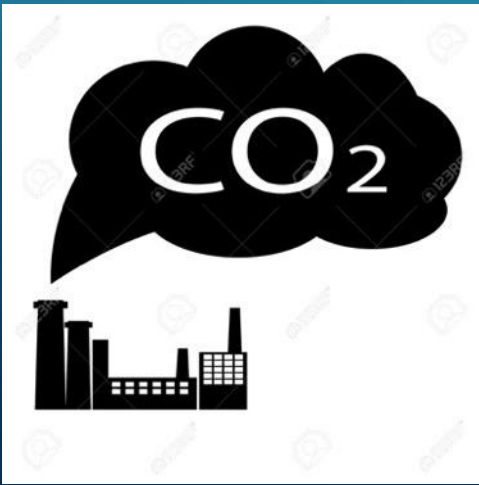
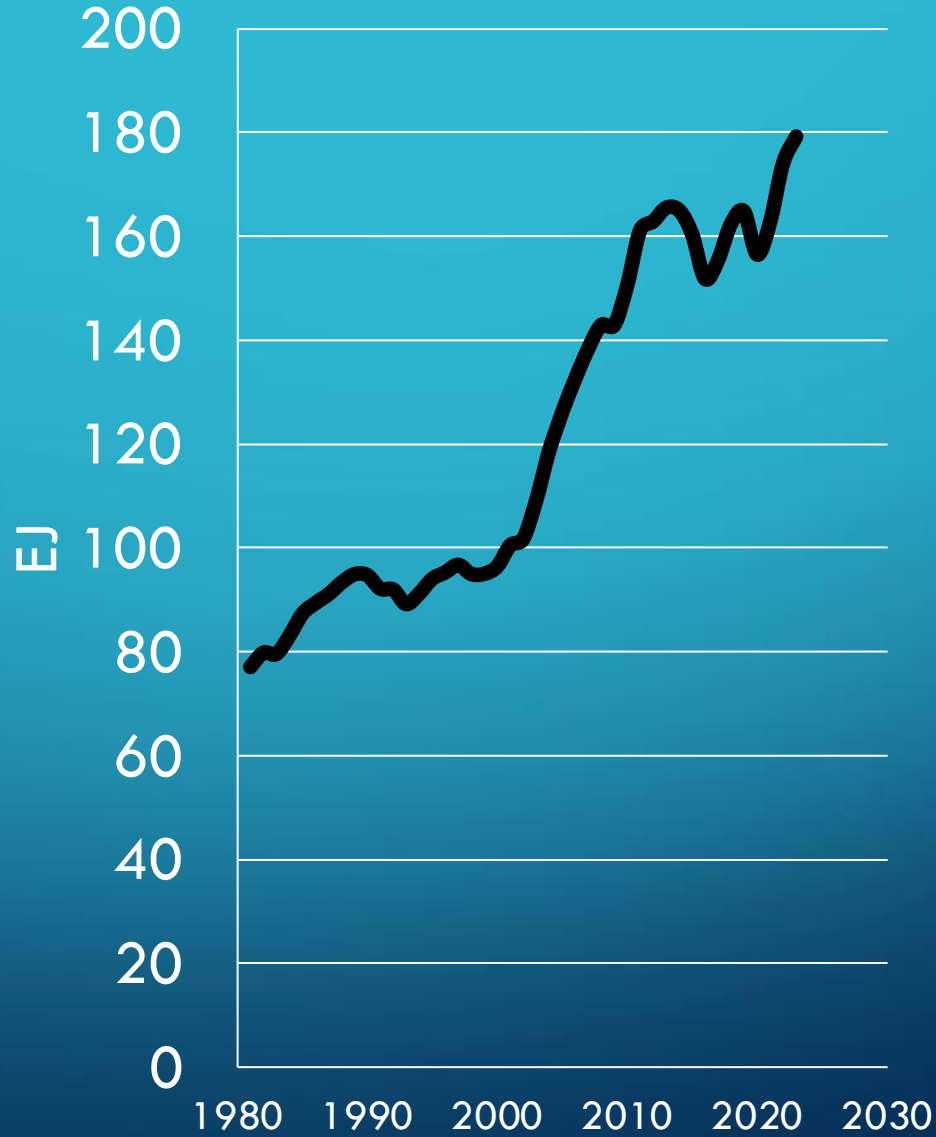
China has completed its East-route natural gas pipeline, which runs for 5,111km from the Russian border to Shanghai, seven months ahead of schedule.

The completed pipeline would be able to supply 38 billion cubic metres of natural gas every year



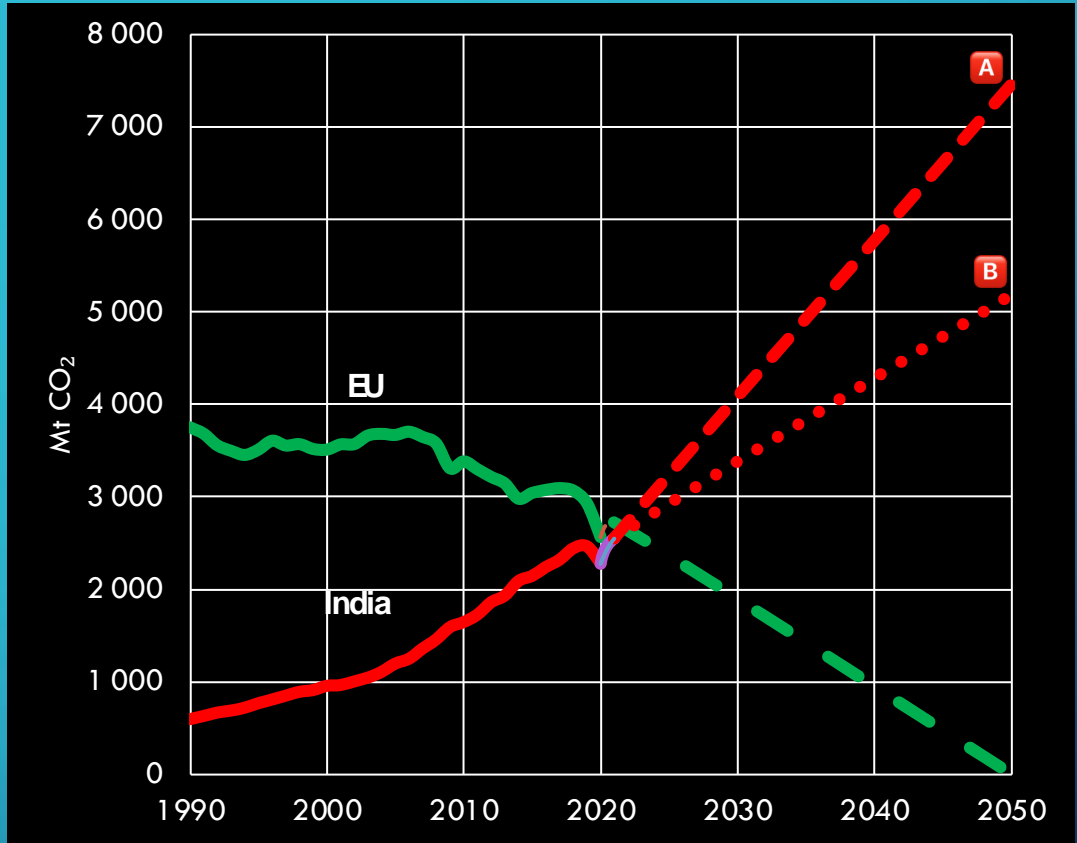


# Coal World production





Atmanirbharta Atmanirbhar Bharat, qui se traduit par "Inde autonome", est une expression que le Premier ministre indien Narendra Modi et son gouvernement ont utilisée et popularisée en relation avec les plans de développement économique du pays. Il s'agit d'un concept général pour les plans du gouvernement Modi visant à ce que l'Inde joue un rôle plus important dans l'économie mondiale et qu'elle devienne plus efficace, plus compétitive et plus résiliente.



# Ignoring Global Energy Dynamics

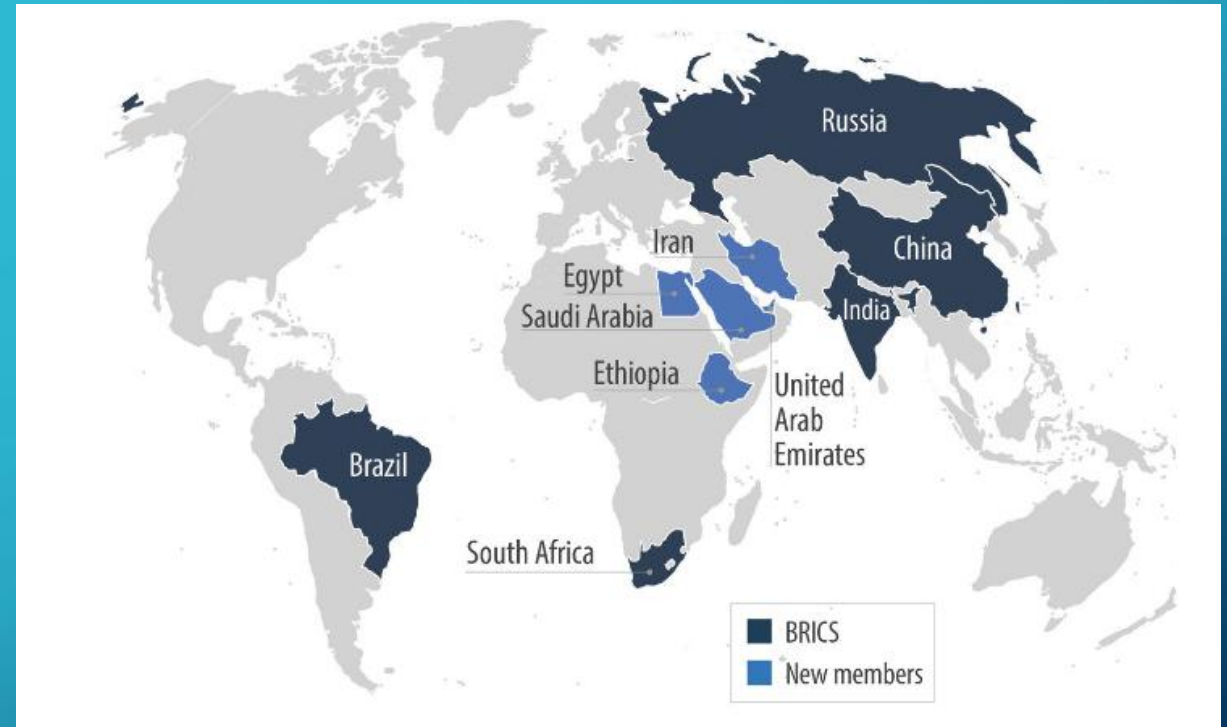
## BRICS Challenge

- Omission of BRICS:

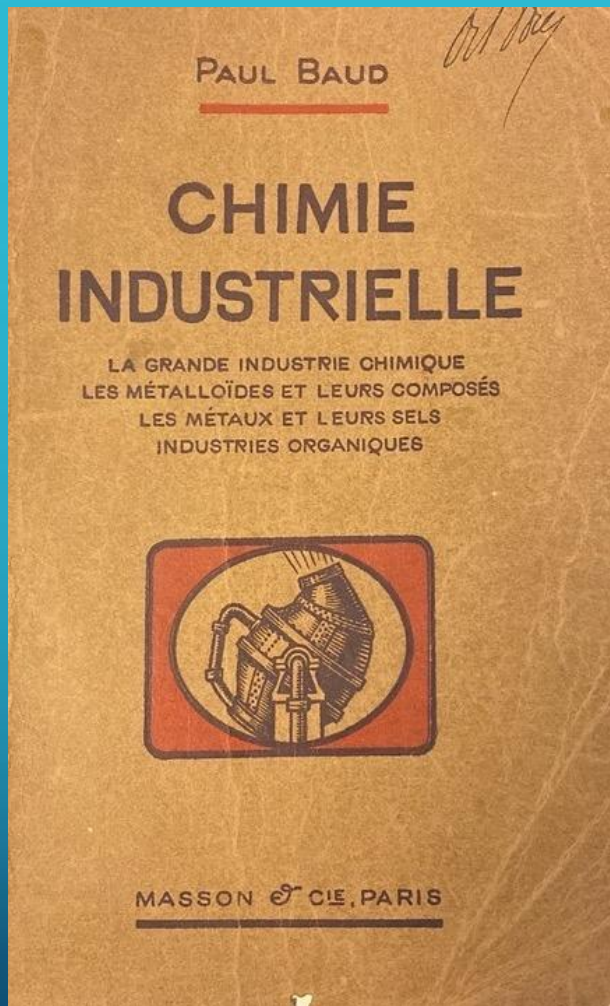
- 40% world's oil reserves
- 50% world's gas reserves
- 40% world's coal reserves
- 50.3% global CO<sub>2</sub> emissions

- Strategic Implications:

- Growing economic influence
- Different development priorities
- Competition for resources



1922



L'HYDROGÈNE, L'HÉLIUM ET LES HALOGÈNES

179

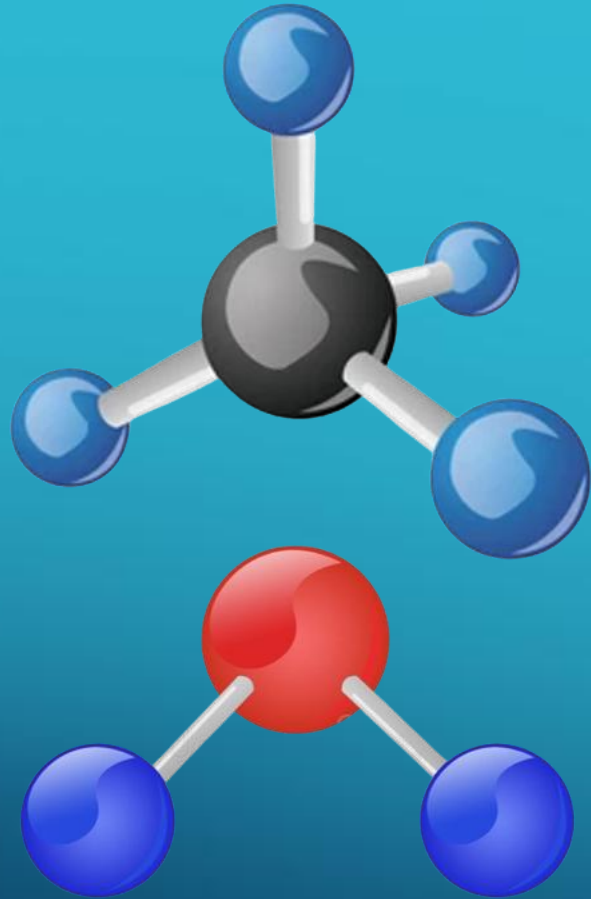
Ce procédé ne peut, pour des usages industriels, présenter le même intérêt que les méthodes qui emploient le silicium ou ses alliages.

Comparaison des divers procédés de préparation. — En prenant les chiffres de Leptius qui remontent à l'année 1912, on peut dresser un tableau donnant le prix de revient, à cette époque, du mètre cube d'hydrogène, d'après la méthode employée :

	Fr.
<i>Electrolyse de l'eau</i> .....	de 0,55 à 0,95
<i>Décomposition de l'eau par le fer</i> .....	0,12 à 0,15
<i>Extraction du gaz à l'eau :</i>	
a) en liquéfiant CO .....	0,15 à 0,19
b) en séparant par H <sup>2</sup> O et CaO .....	0,10 à 0,125
<i>Décomposition d'un alcali par le silicium, le métal valant alors</i> 0,65 le kg. ....	0,60



# Pourquoi les 130 millions de tonnes de H<sub>2</sub> produites presque exclusivement à partir de la conversion du méthane ?



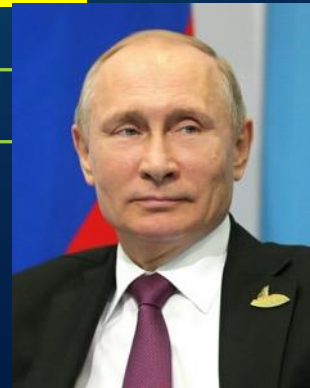
$$\frac{4 \times 285.8}{164.7} = 6.9$$

Rôle clé de la Russie grâce à son prix du gaz très bas

Leader en H<sub>2</sub>

Leader de l'ammoniac

Leader dans le domaine des engrais



Samuel Furfari



**Burning hydrogen is like  
burning a Louis Vuitton  
handbag to heat up the room**

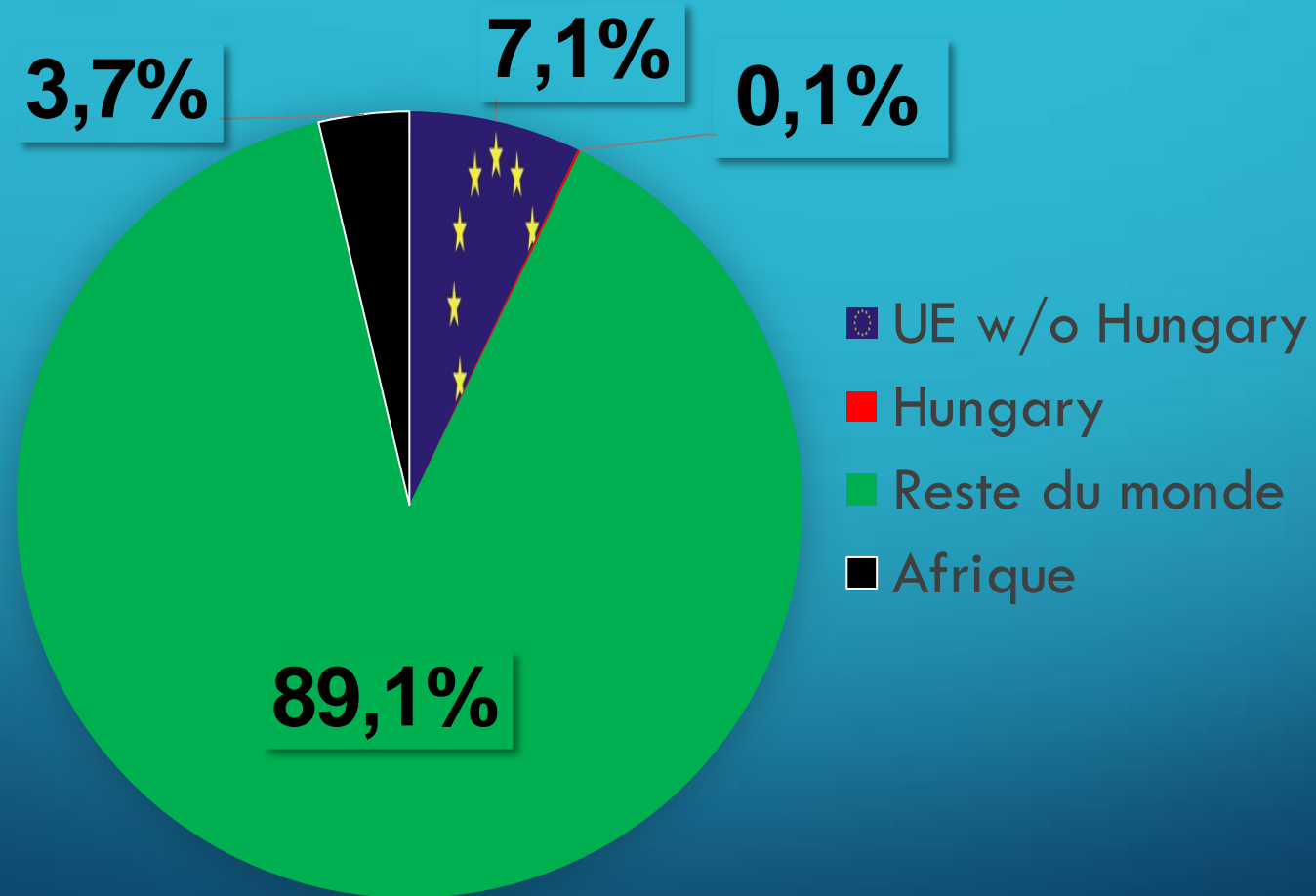


COP29

Baku  
Azerbaijan

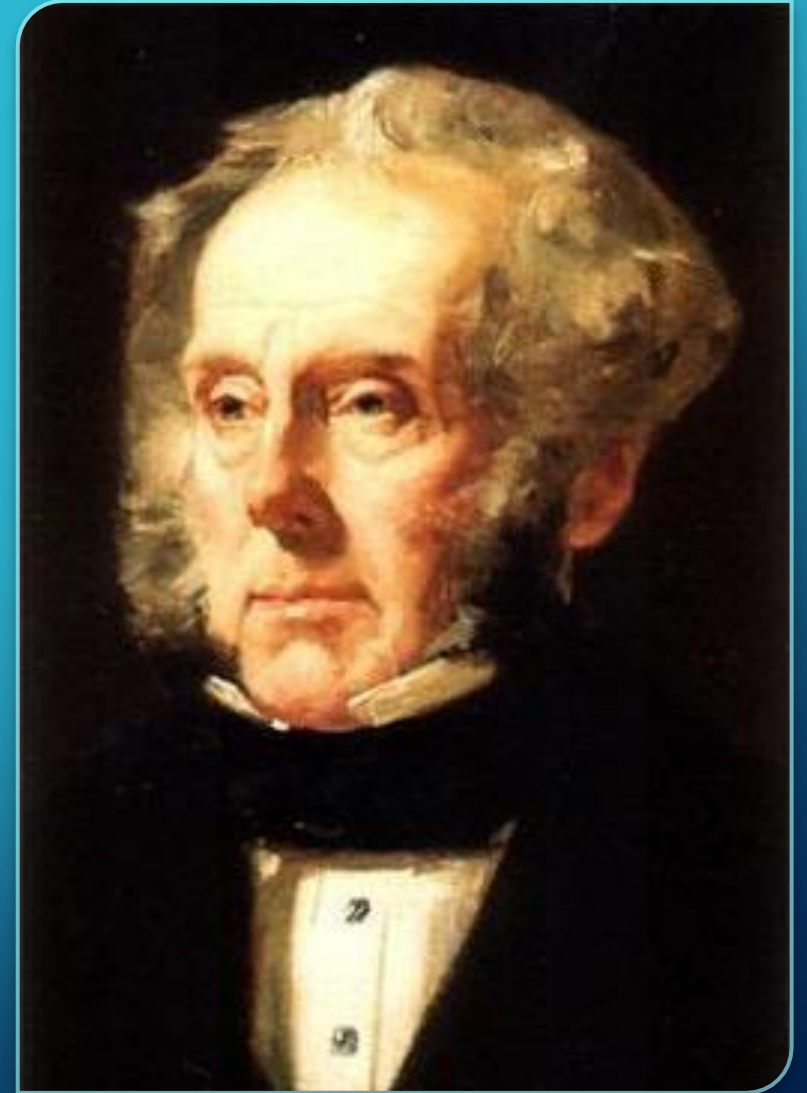
UN CLIMATE CHANGE CONFERENCE

# CO<sub>2</sub> emissions in 2023

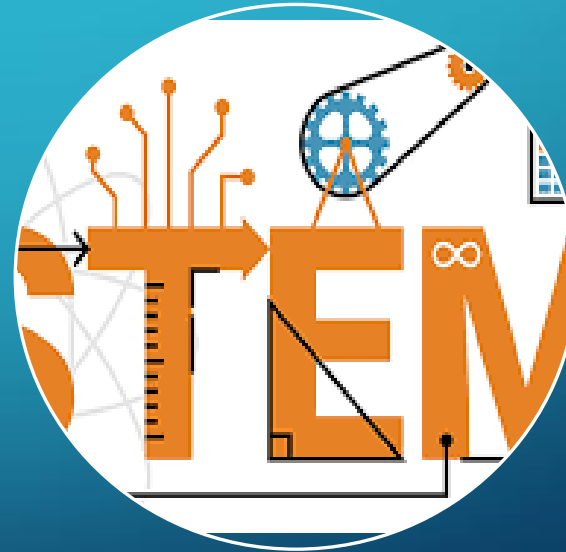


*We have no eternal allies, and we have no perpetual enemies. Our interests are eternal and perpetual, and it is our duty to follow those interests.*

**Lord Palmerston**, Foreign Secretary of Great Britain and then Prime Minister (1784-1839)



Where there is energy and freedom, there is quality of life and health.



Thank you for the attention

[sfurfari@escp.eu](mailto:sfurfari@escp.eu)

