



Rossi-Doria

Centro Ricerche Economiche e Sociali
Centro di Eccellenza - Università Roma Tre



Mercoledì 24 Novembre 2021, ore 15:00

Lezione Rossi-Doria 2021

Valeria Termini

Università Roma Tre, United Nations High Level Energy Dialogue 2021 – COP 26 - WG5

*La trasformazione energetica.
Una svolta economica, geopolitica, sociale*

Saluti istituzionali

Luca Pietromarchi, Rettore dell'Università Roma Tre

Guido Fabiani, Presidente del Centro Rossi-Doria

Apertura di discussione

**Ignazio Musu, Professore Emerito Università Cà Foscari di Venezia, Accademico dei
Lincei**

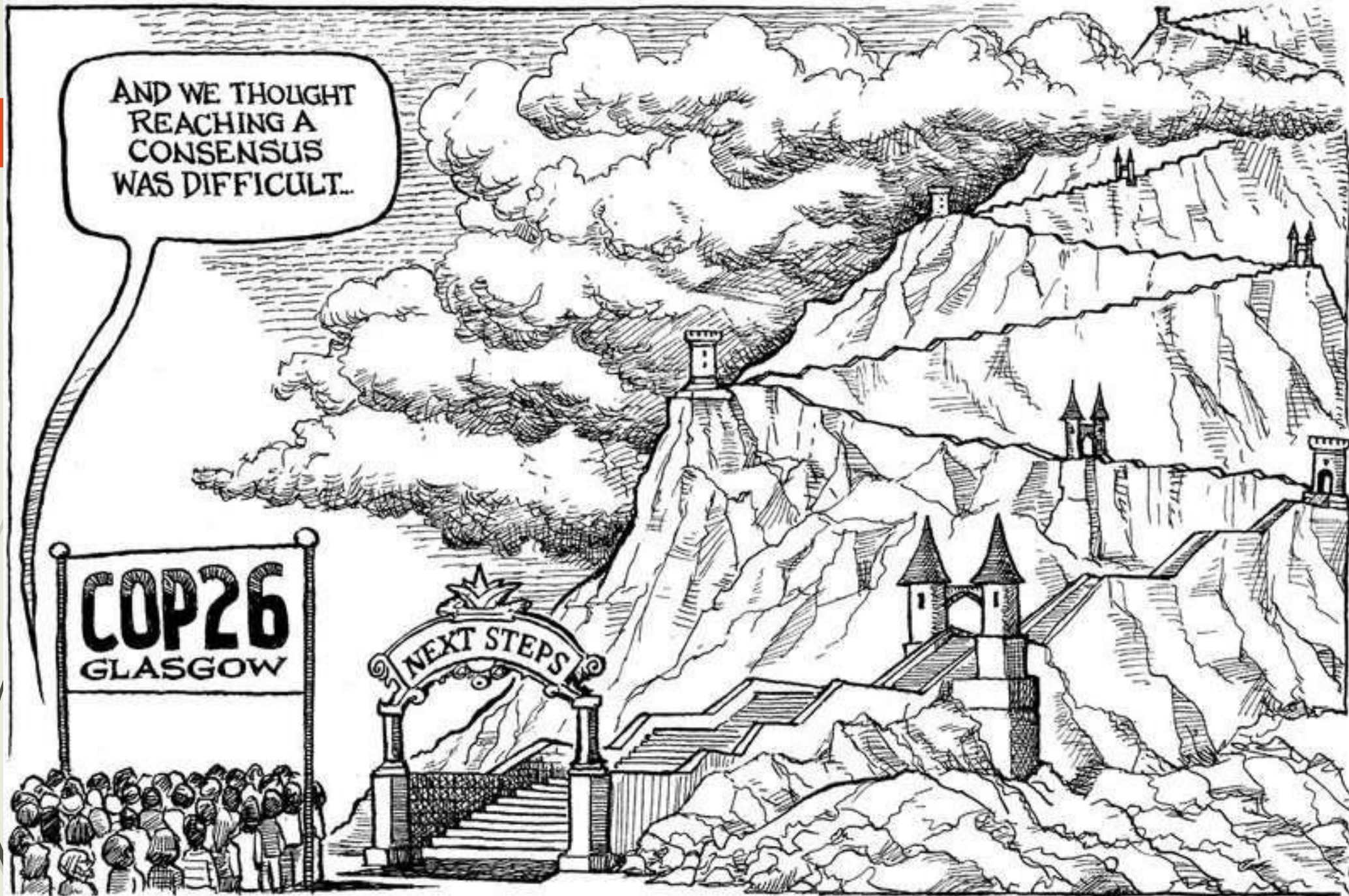
Coordina

Luca Salvatici, Dipartimento di Economia e Centro Rossi-Doria, Università Roma Tre

AND WE THOUGHT
REACHING A
CONSENSUS
WAS DIFFICULT...

COP26
GLASGOW

NEXT STEPS





La trasformazione energetica Una svolta economica, geopolitica, sociale

Valeria Termini

Università di Roma3

UN High Level Dialogue on Energy 2021–Cop 26

Technical WG 5 –Investment and Finance

ROMA TRE 24 NOVEMBRE 2021



La trasformazione energetica

Una svolta economica, geopolitica, sociale

1. - L'IMPATTO ECONOMICO - LA TRANSIZIONE

1. Una difficile congiuntura: innovazioni radicali -per le imprese- .
2. La macroeconomia. Verso un nuovo paradigma -per i Governi-

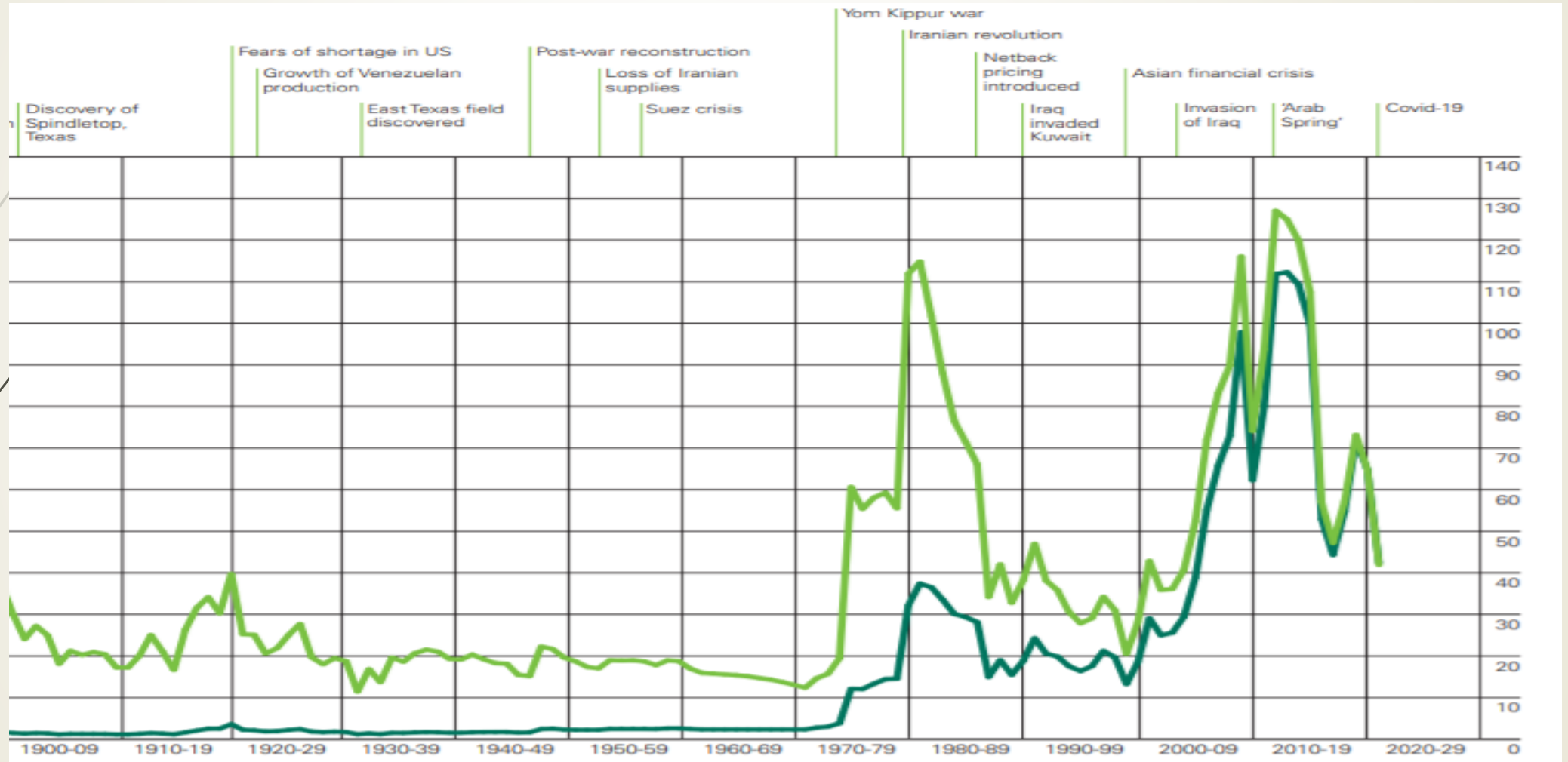
2. COSA PROMETTE LA TRASFORMAZIONE ENERGETICA? -L'IMPATTO SOCIALE-

1. Spunti di democrazia: l'accesso all'energia
2. Le comunità energetiche locali: cittadini responsabili e partecipi....
3.ma anche : forze che resistono al cambiamento

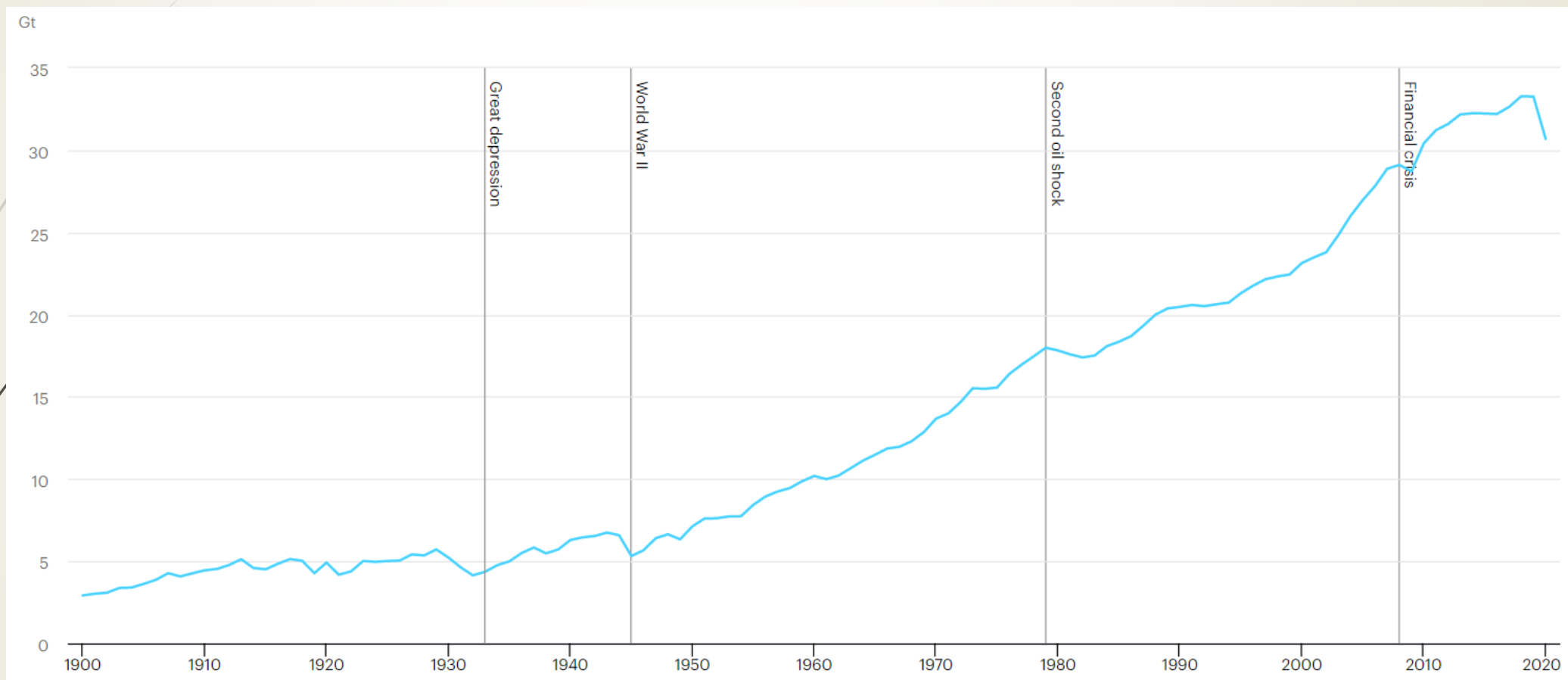
3. L'IMPATTO GEOPOLITICO

1. Vincitori e perdenti: profonde tensioni e opportunità di convergenza per l'ambiente, il bene pubblico globale che unisce Oriente e Occidente. La contaminazione di culture è lo sbocco necessario e vincente.
2. Gli strumenti di intervento: politiche globali per il clima -il GCP

Crude oil prices 1900-2020 - US dollars per barrel - World events



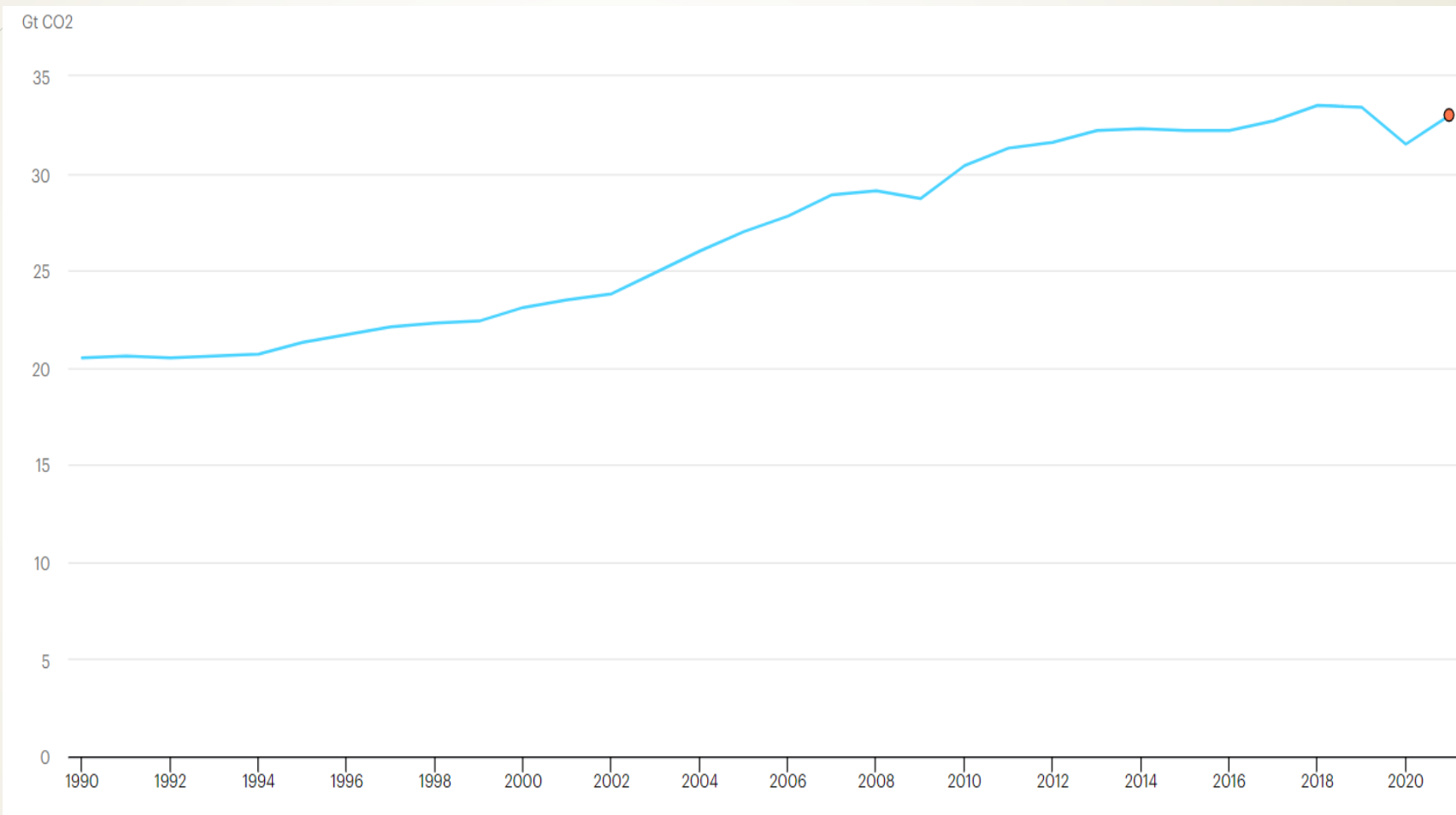
Global energy-related CO₂ emissions, 1900-2020



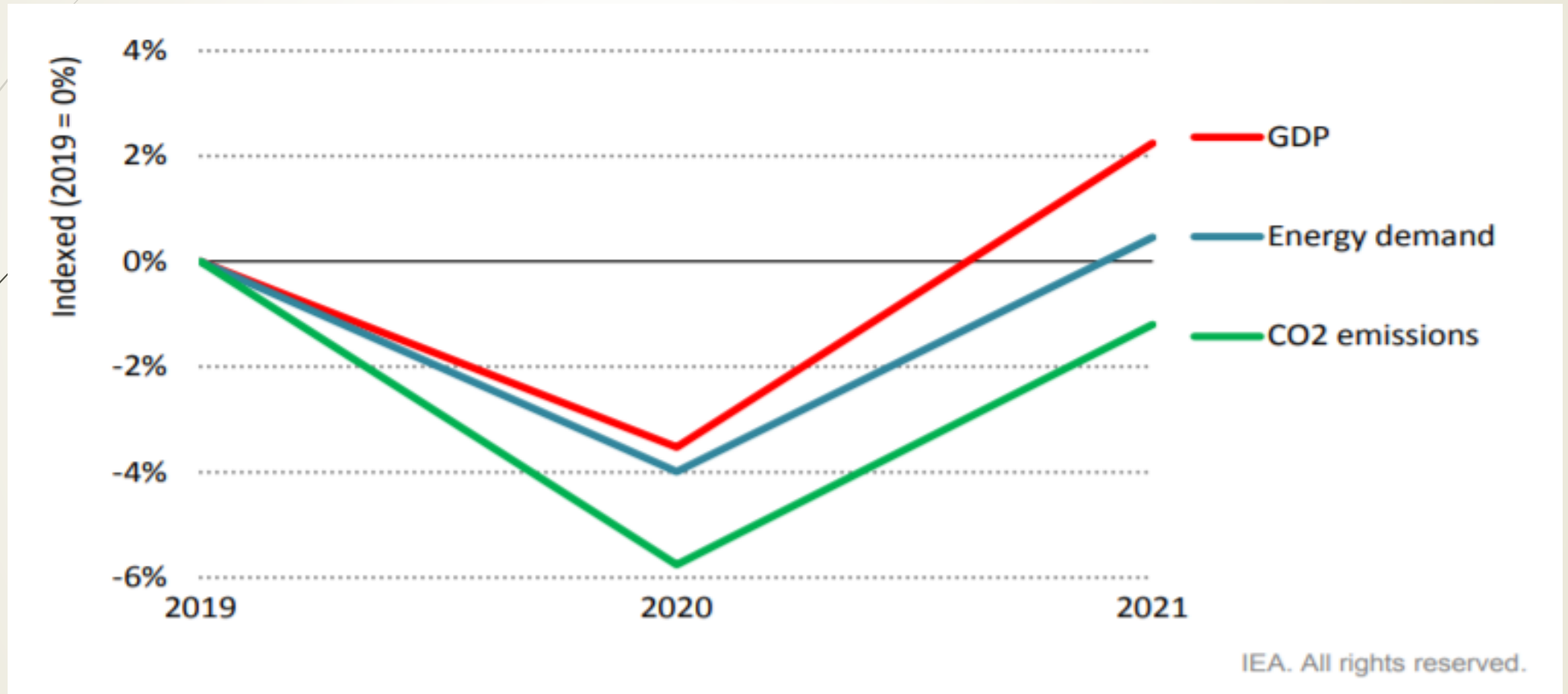
<https://www.iea.org/reports/global-energy-review-2020/global-energy-and-co2-emissions-in-2020>

Valeria Termini 24 novembre 2021

Global energy-related CO₂ emissions, 1990-2021

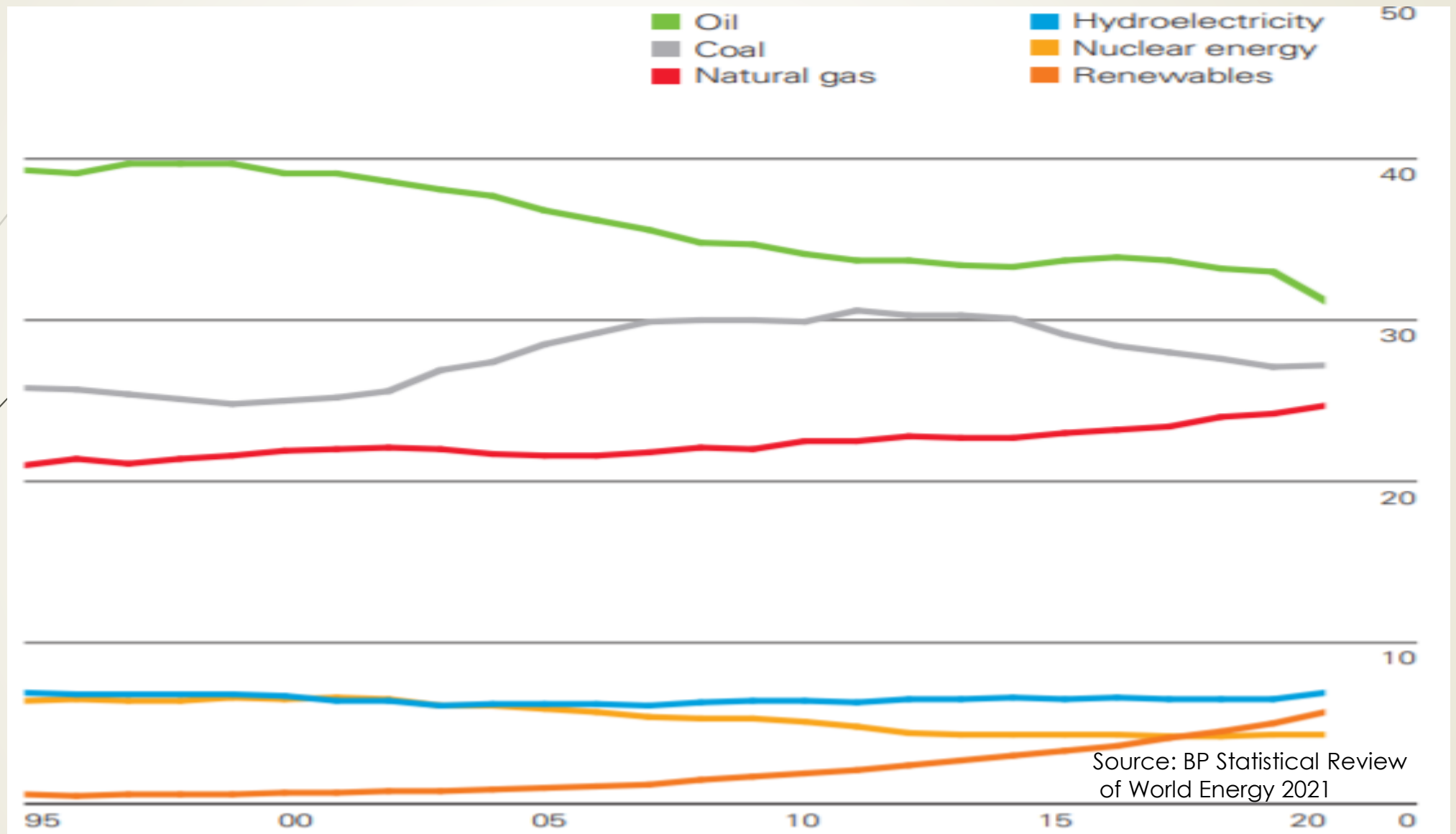


Dopo la pandemia trend PIL globale, trend domanda tot di energia e emissioni di CO2 da energia



Shares of global primary energy - %

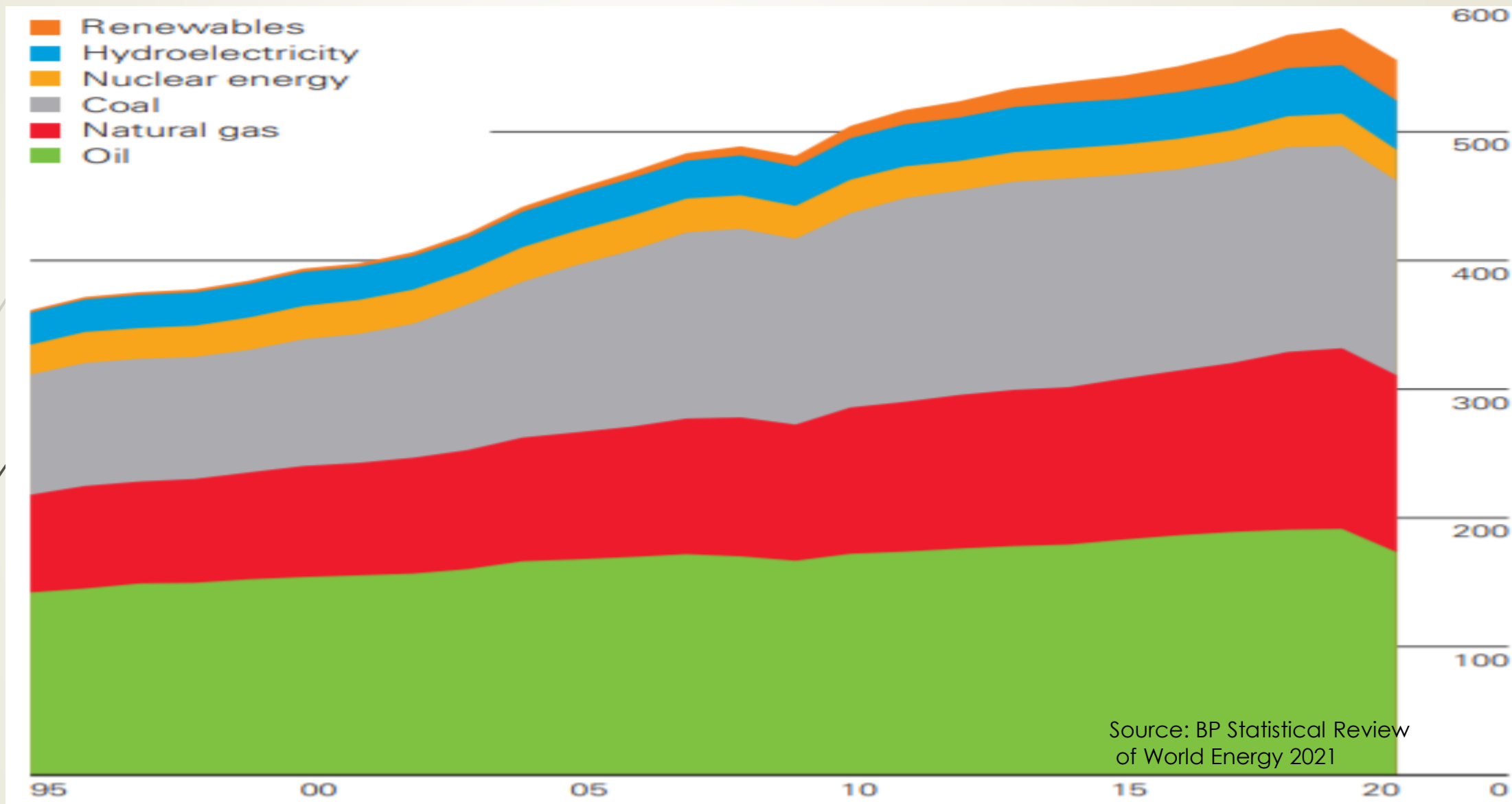
9



Source: BP Statistical Review
of World Energy 2021

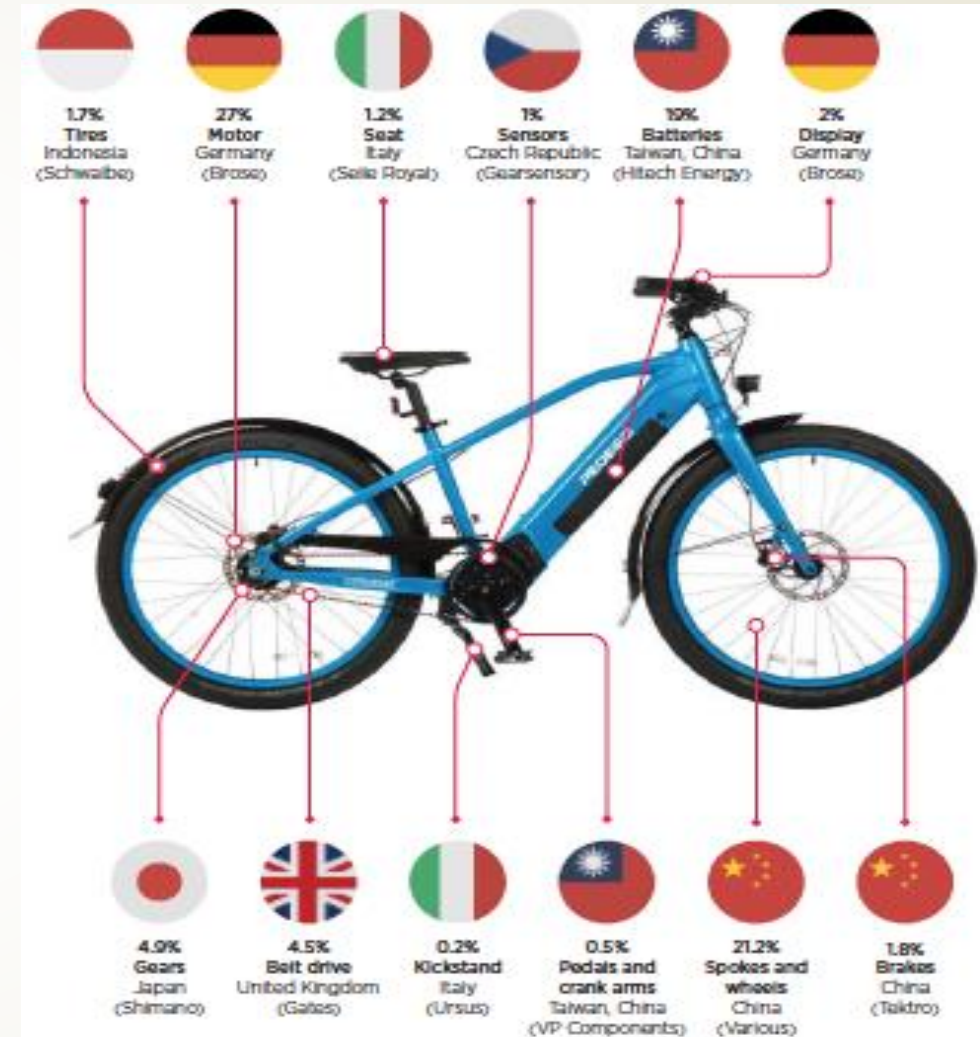
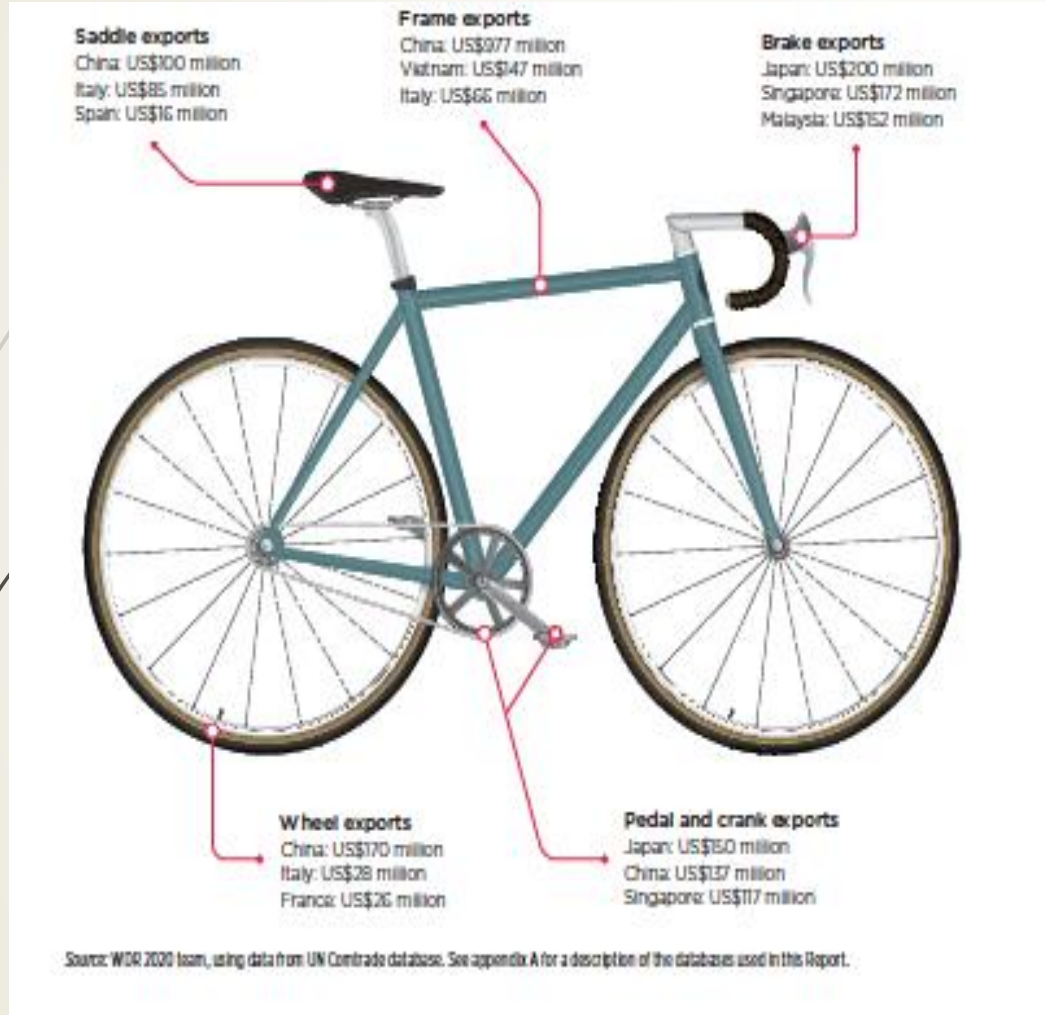
World consumption - Exajoules

10



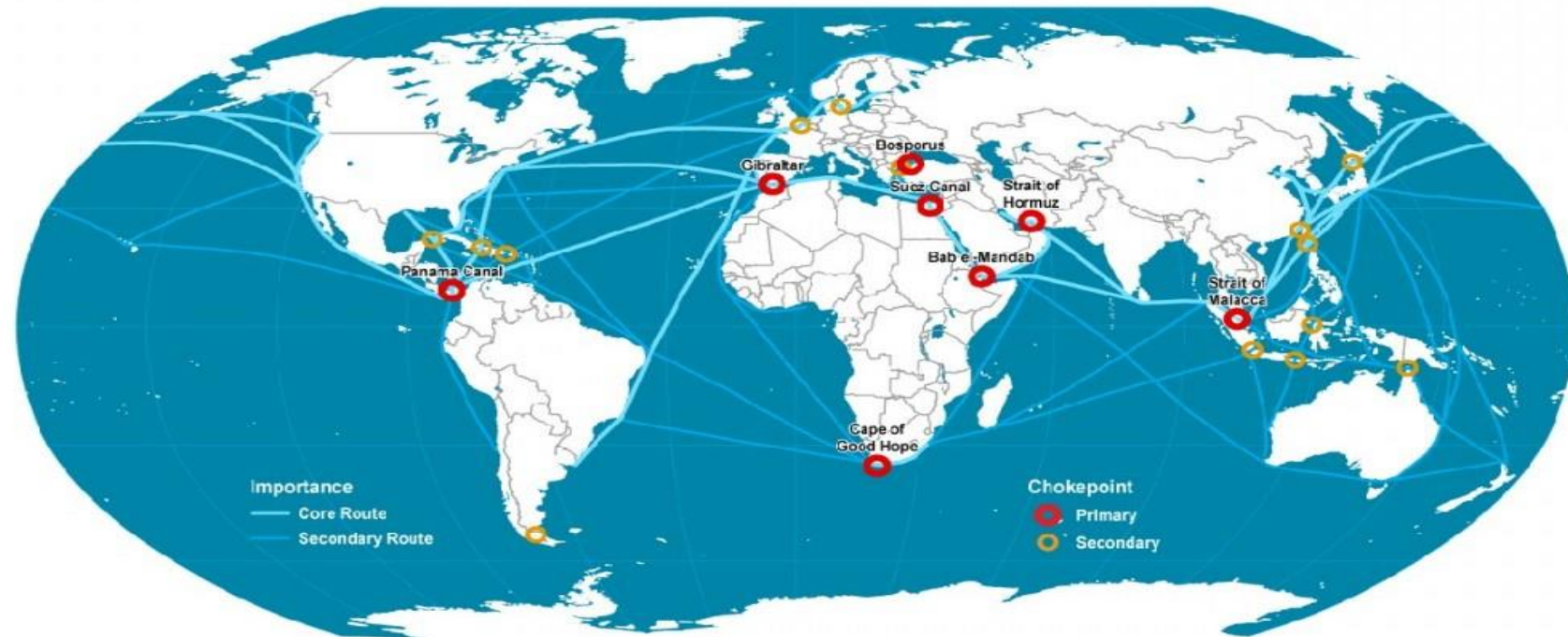
L'interscambio si accresce

11



Trasporto marittimo : colli di bottiglia

12



11.7 M
TEU
PANAMA

17.1 M
TEU
GIBRALTAR

22.2 M
TEU
ORESUND

15.6 M
TEU
SUEZ

30.2 M
TEU
HORMUZ

59.4 M
TEU
MALACCA

FONTE: DR. JEAN-PAUL RODRIGUE, DEPT. OF GLOBAL STUDIES & GEOGRAPHY, HOFSTRA UNIVERSITY

Northern Sea Route (NSR) versus the Suez Canal route (2/2)

13



Source: "Economic Possibilities of Shipping through Northern Sea Route", Lee and Song, 2014

Economist.com

Northern Sea Route (NSR) versus the Suez Canal route (1/2)

China's New Shipping Frontier

How the new Northern Sea route compares to the traditional Suez Canal route

NORTHERN SEA ROUTE

Travel time

35 days

Dangers

Icebergs

Travel window

July to November

Container-carrying vessels

One this year

SUEZ CANAL ROUTE

Travel time

48 days

Dangers

Access to Suez Canal under question with upheaval in Egypt

Travel window

Year-round

Container-carrying vessels

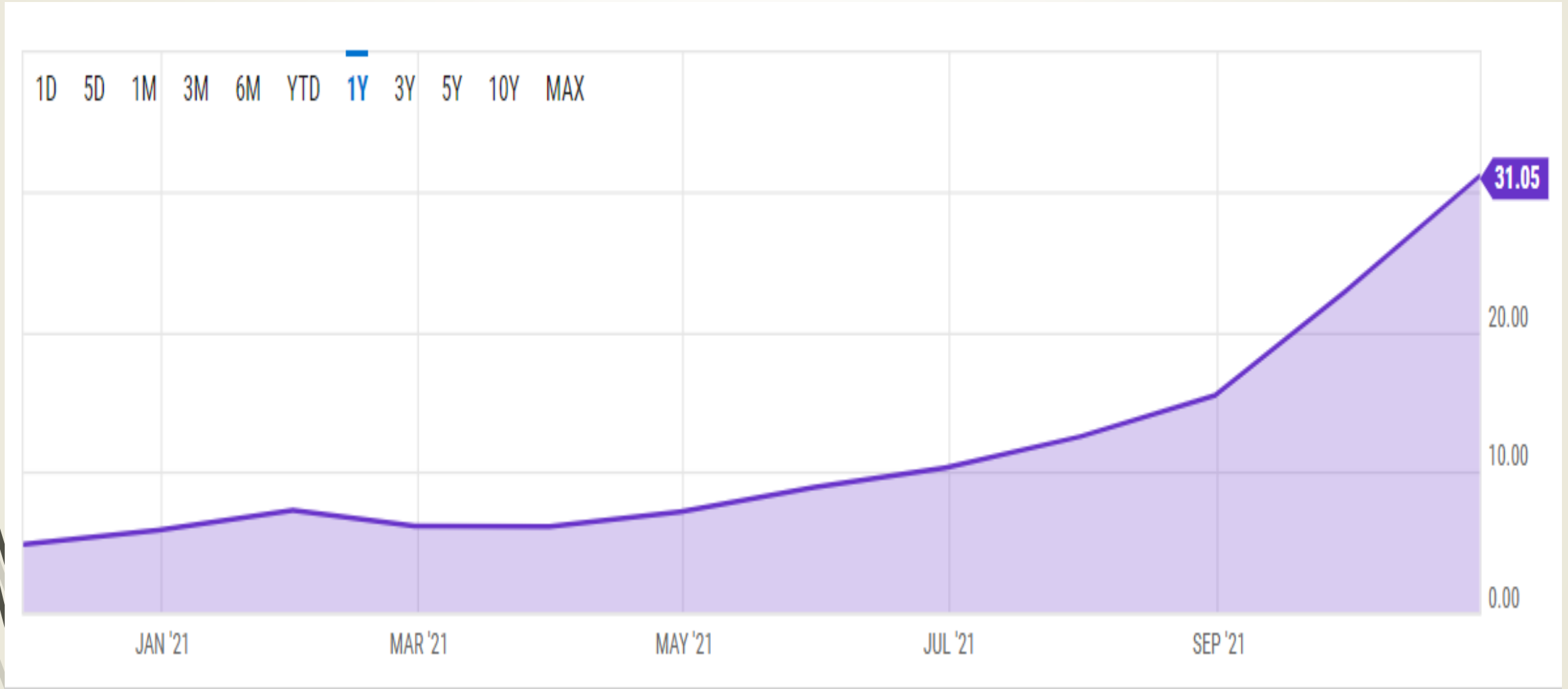
17,000 last year



Colonial pipeline- L'hacker Dark side la blocca 8-13 Maggio 2021 (2/2...)

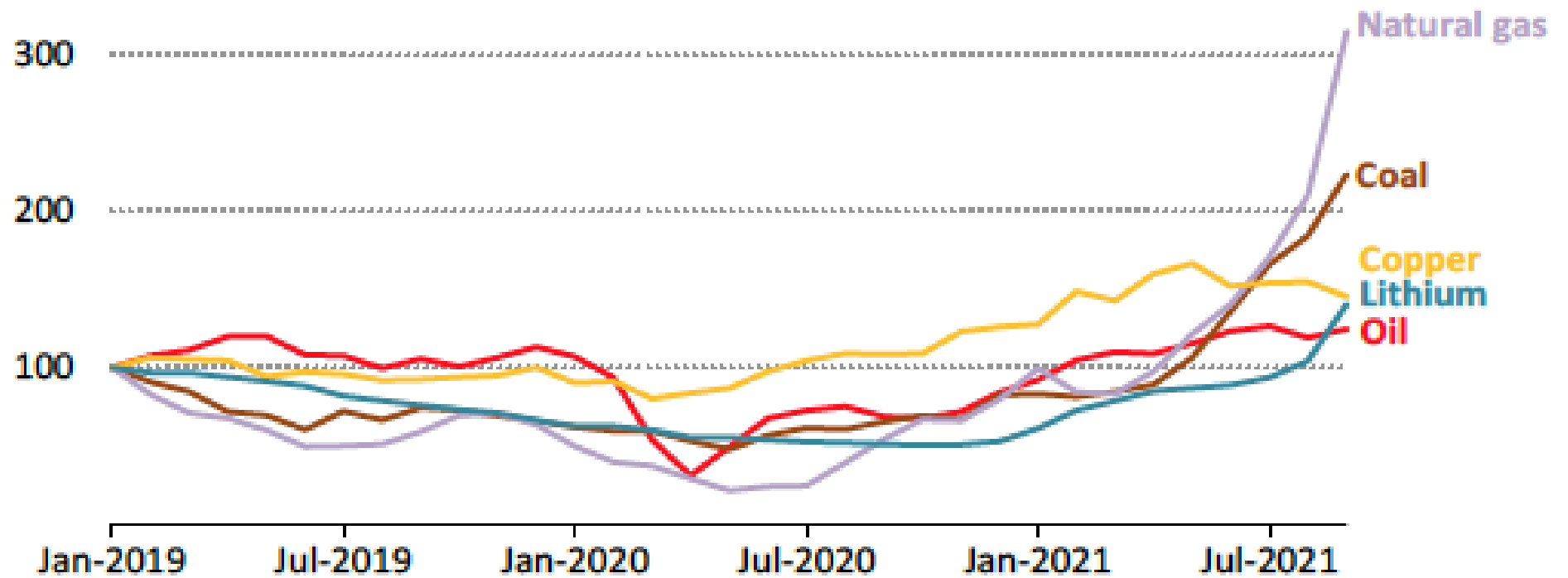


Prezzo del gas maggio-novembre 2021 (\$/mmBTU)



Source: https://ycharts.com/indicators/europe_natural_gas_price

Index (100 = January 2019)



IEA. All rights reserved.

Most global commodity prices rallied in 2021 as economic activity picked up, but this does not necessarily mean a prolonged upswing in price levels

Note: Natural gas = Netherlands TTF natural gas forward one month; oil = Europe Brent spot price FOB; coal = Northwest Europe (ARA) CIF; copper = LME-Copper grade A; lithium = lithium carbonate global average.

Sources: IEA analysis based on Bloomberg (2021), IHS Markit (2021) and S&P Capital IQ (2021).

Quasi 800 milioni di persone nel mondo senza accesso all'elettricità, di cui 580 milioni in Africa

	Proportion of the population with access to electricity							Population without access (million)
	National					Urban	Rural	
	2000	2005	2010	2015	2019	2019	2019	
WORLD	73%	77%	80%	85%	90%	96%	85%	771
Africa	36%	40%	44%	49%	56%	81%	37%	579
North Africa	91%	97%	>99%	>99%	>99%	>99%	>99%	<1
Sub-Saharan Africa	24%	28%	33%	40%	48%	76%	29%	578
Developing Asia	67%	74%	79%	87%	96%	99%	94%	155
China	99%	>99%	>99%	>99%	>99%	>99%	>99%	<1
India	43%	58%	68%	79%	>99%	>99%	>99%	6
Indonesia	53%	56%	67%	88%	>99%	>99%	99%	2
Other Southeast Asia	65%	75%	79%	85%	91%	98%	85%	36
Other Developing Asia	38%	46%	58%	73%	79%	88%	74%	112
Central and South America	87%	91%	94%	96%	97%	99%	87%	16
Middle East	91%	90%	91%	92%	92%	98%	77%	19

Fonte: IEA, World Energy Outlook-2020

19



Per I villaggi l'energia da fonti rinnovabili è possibilità di sviluppo indipendente



Quasi 800 milioni di persone nel mondo non hanno accesso all'elettricità, 580 milioni in Africa



Valeria Termini 2 novembre 2021



Il kit solare delle Nazioni Unite Energia per lo sviluppo sociale delle donne:



Oltre 2 miliardi di persone nel mondo dipendono dalle biomasse, di cui 853 milioni in Africa

	Proportion of the population with access to clean cooking					Population without access	Population relying on traditional use of biomass (million)
	2000	2005	2010	2015	2018	2018	2018
WORLD	52%	55%	58%	63%	65%	2651	2374
Developing Countries	37%	41%	45%	53%	56%	2651	2374
Africa	23%	25%	26%	28%	29%	910	853
North Africa	87%	93%	96%	98%	98%	4	4
Sub-Saharan Africa	10%	11%	13%	15%	17%	905	848
Developing Asia	33%	37%	43%	53%	57%	1674	1460
China	47%	51%	55%	67%	72%	399	242
India	22%	28%	34%	44%	49%	688	681
Indonesia	12%	18%	40%	68%	68%	85	55
Other Southeast Asia	36%	42%	48%	54%	58%	164	163
Other Developing Asia	22%	26%	27%	33%	35%	337	318
Central and South America	78%	82%	85%	88%	89%	57	53
Middle East	84%	91%	95%	96%	96%	10	9

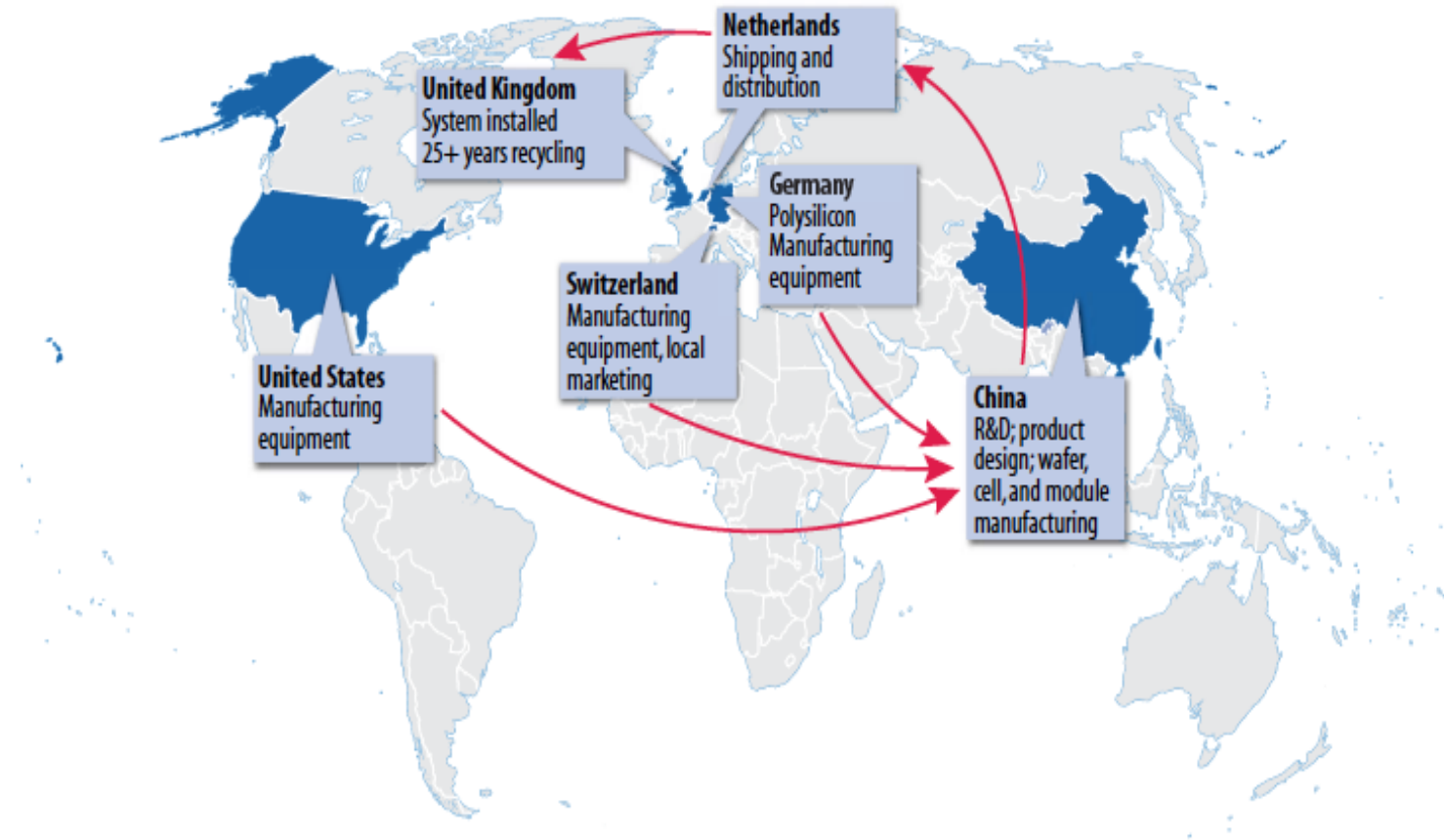
Valeria Termini 24 novembre 2021

Fonte: IEA, World Energy Outlook-2019, based on WHO Household Energy Database and IEA World Energy Balances 2019

La catena globale del valore di un pannello fotovoltaico

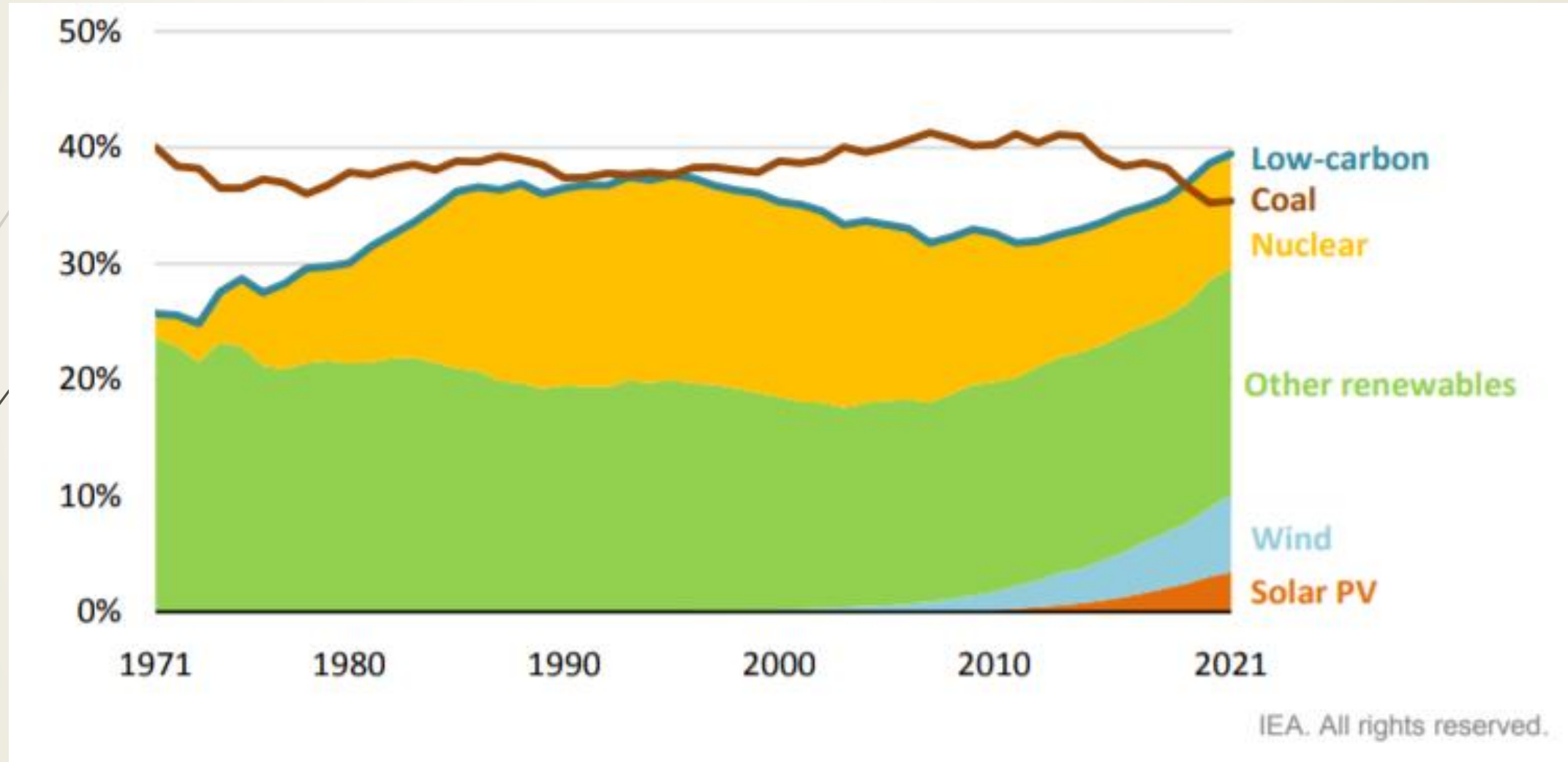
23

Map 5.1 Supply chain of a solar photovoltaic company



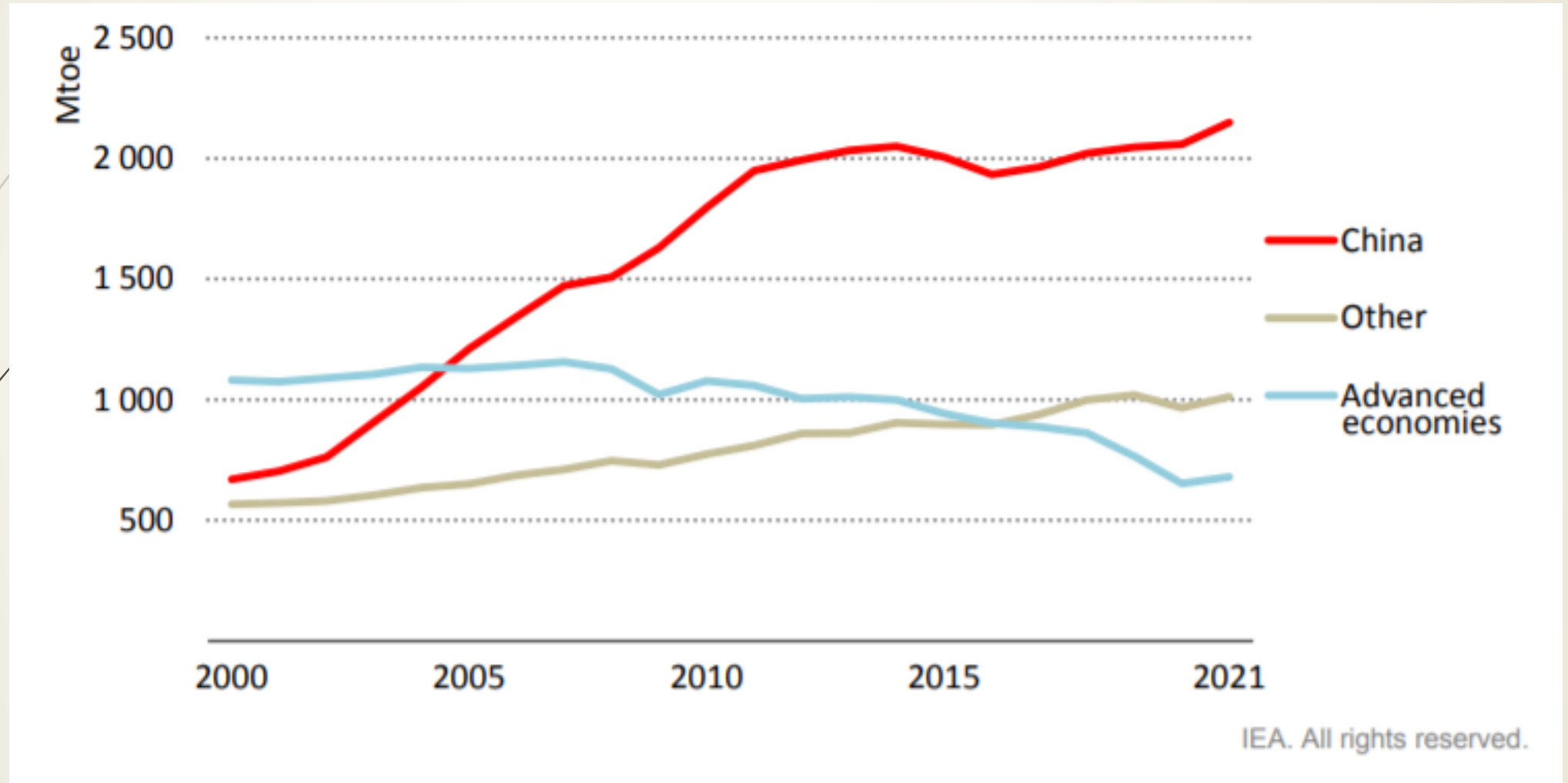
IBRD 44662 | SEPTEMBER 2019

Share of low-carbon sources and coal in world electricity generation, 1971-2021



Coal consumption by region, 2000 to 2021

25



AVERAGE CARBON PRICING AND CARBON INTENSITY OF GDP (2018)

26

- Countries with higher overall carbon pricing lead in decarbonizing their economies
- The level of the average carbon price differs among countries
- Even countries with higher average carbon prices do not price all emissions at the same level.

Source: IEA (2020) and OECD (2019). Note: Carbon price includes carbon taxes and fuels excise taxes. Data on ETS are not very homogeneous and sometimes refer to pilot projects or sub-national schemes; therefore, data are not very suitable for generalizations, national estimates and comparison among countries. For these reasons, carbon pricing revenues resulting from ETS have been excluded from the analysis.

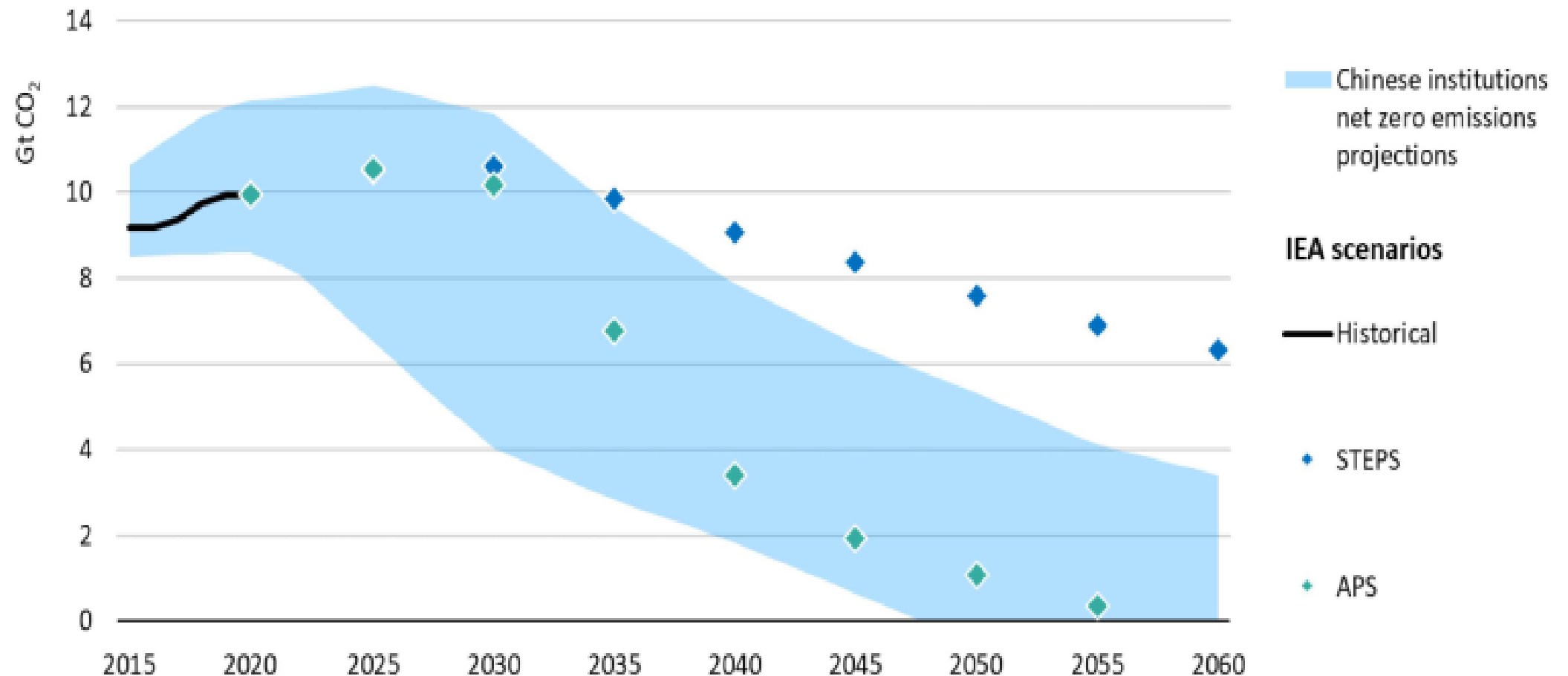
Valeria Termini 24 novembre 2021

Country (2018)	Average Carbon Pricing (all sectors) (explicit carbon tax + fuel excise tax) (USD/tonn CO2)	Carbon intensity of GDP (grCO2 / USD 2015 PPP)
	Source: OECD 2019	Source: IEA CO2 Highlights 2020
Switzerland	\$144.82	63
Sweden	\$62.64	67
Ireland	\$79.38	90
France	\$100.78	106
Iceland	\$130.07	117
Italy	\$93.46	136
Germany	\$54.70	168
EU	\$65.11 (EU 22 OECD countries)	149 (EU 28)
United States	\$15.70	252
Australia	\$24.09	317
Canada	\$25.46	333
China	\$7.36	396
Russian Federation	\$0.0053	432
South Africa	\$19.78	571

Cina: Emissioni di CO2 secondo gli scenari IEA. (Ignazio Musu)

STEPS (STate Policy Scenario): azioni già impostate.

Announced Pledge Scenario (APS): max. emissioni nel 2030; NZE nel 2060



28 Quote delle fonti di energia in Cina nello scenario di neutralità climatica IEA. (Ignazio Musu)

