

CONCLUSIONE

Un problema minerario → una rivoluzione globale

L'invenzione della macchina a vapore non fu un evento improvviso, ma una catena di soluzioni a problemi economici concreti.

Dal fondo delle miniere allagate nacque la forza motrice che avrebbe cambiato per sempre i modi di produrre, lavorare e commerciare.

«La necessità è la madre di tutte le invenzioni» — e le miniere allagate ne sono la prova storica.

Key Takeaways

- Necessità → invenzione
- Energia fossile = leva economica
- Catena di innovatori, non un solo genio
- Tecnologia + mercato = rivoluzione
- L'unità «Watt» ricorda che la scienza misura su chi ha cambiato il mondo

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EDWIN DRAKE

75



GEORGE BISSEL

76



Titusville, Pennsylvania, **27 agosto 1859**

- Primo pozzo di petrolio costruito dal colonnello Edwin Drake
- Tecnologia: Estrazione sale
- Mercato: Olio di balene
- Motori a combustione/automobili

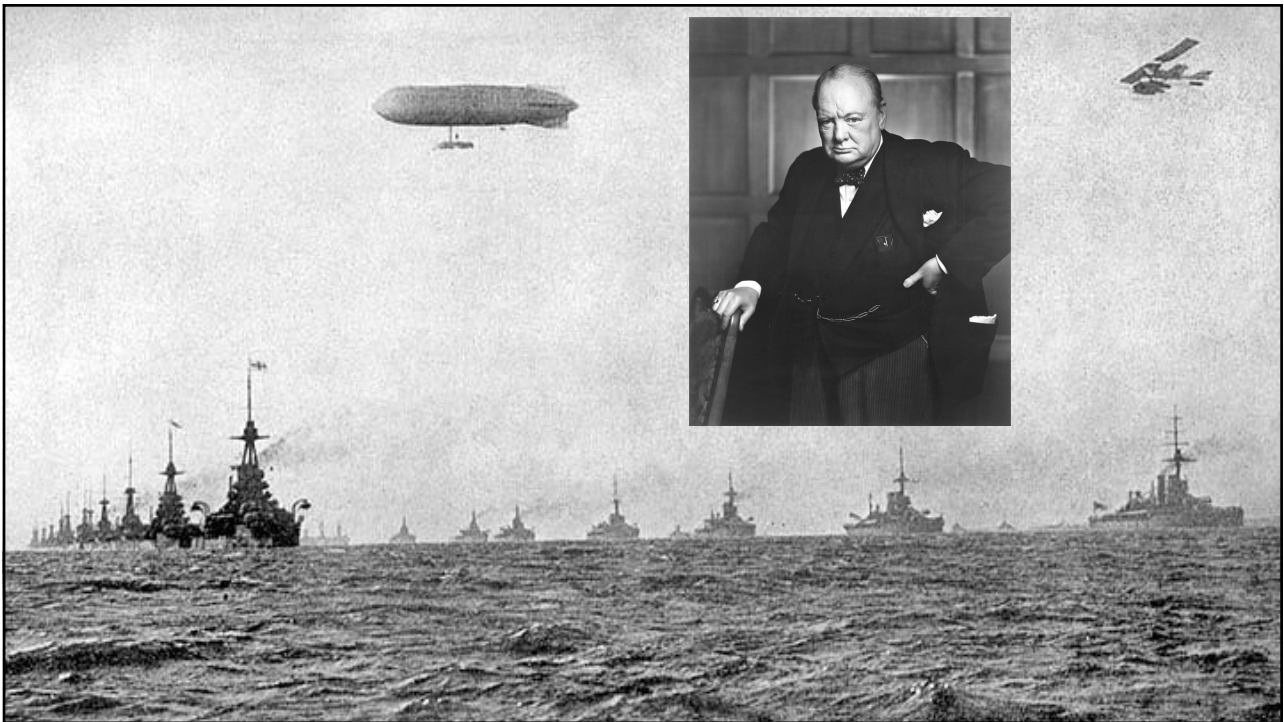
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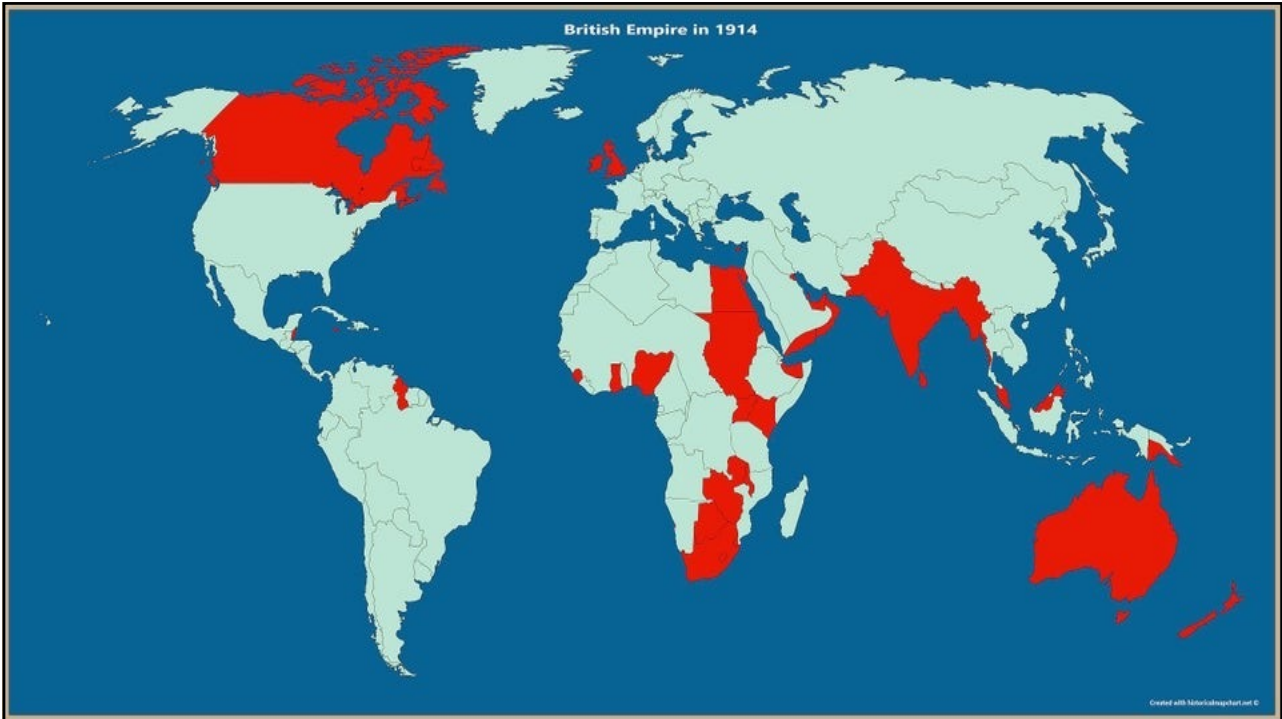
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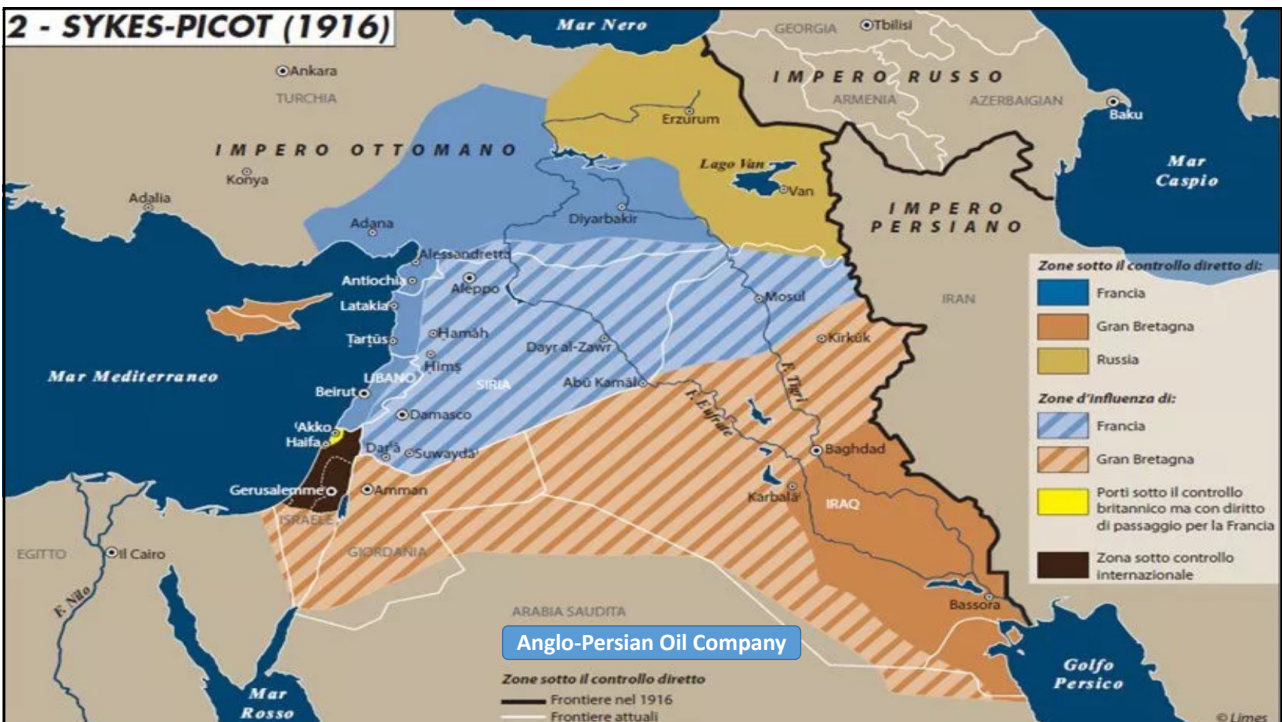
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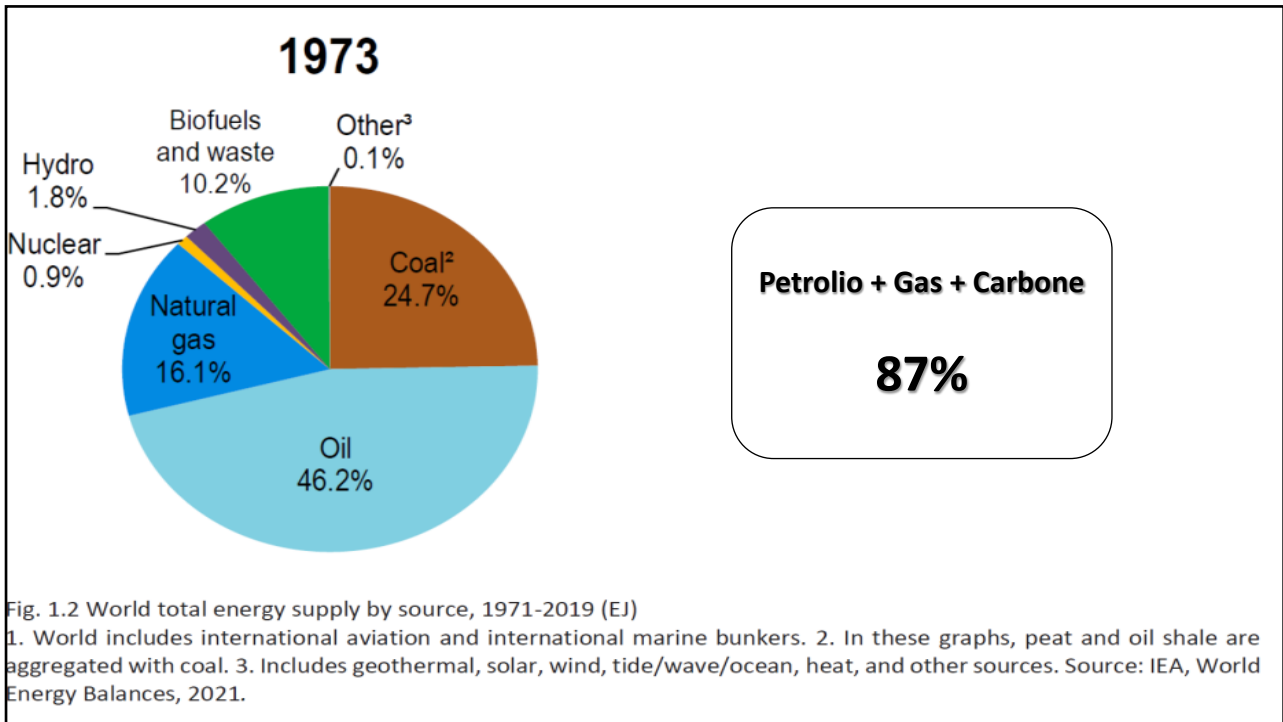
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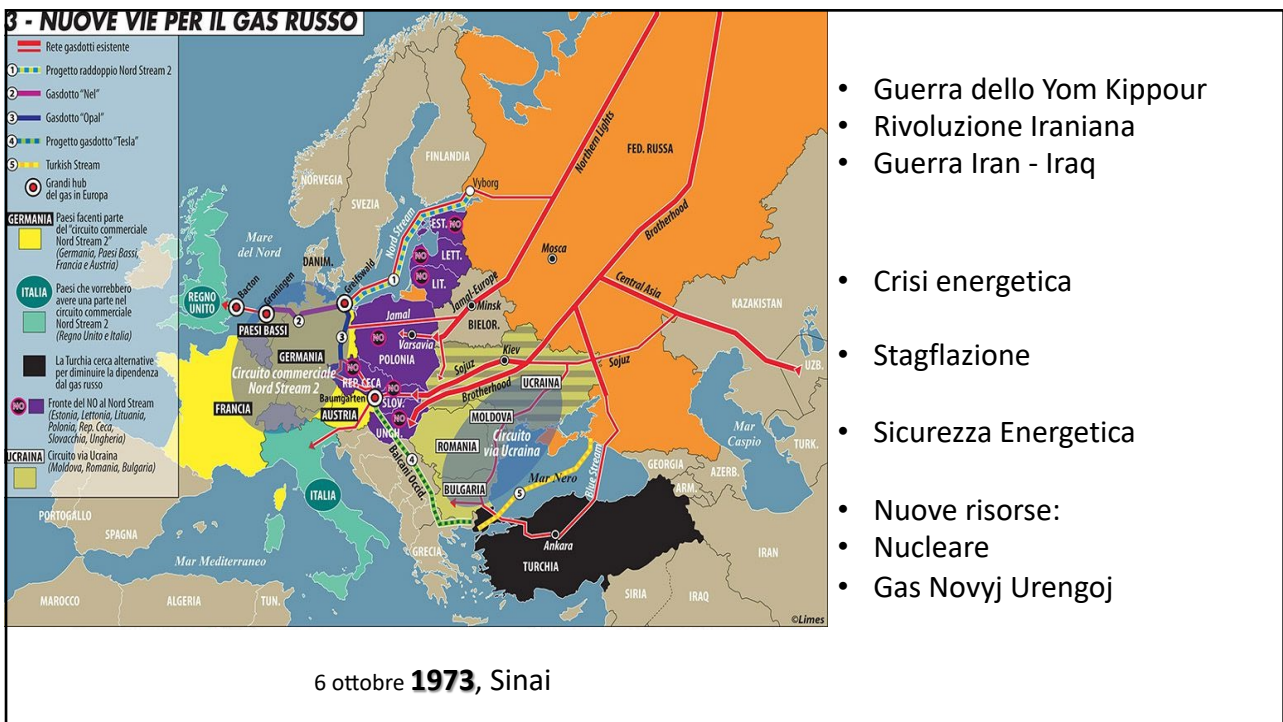
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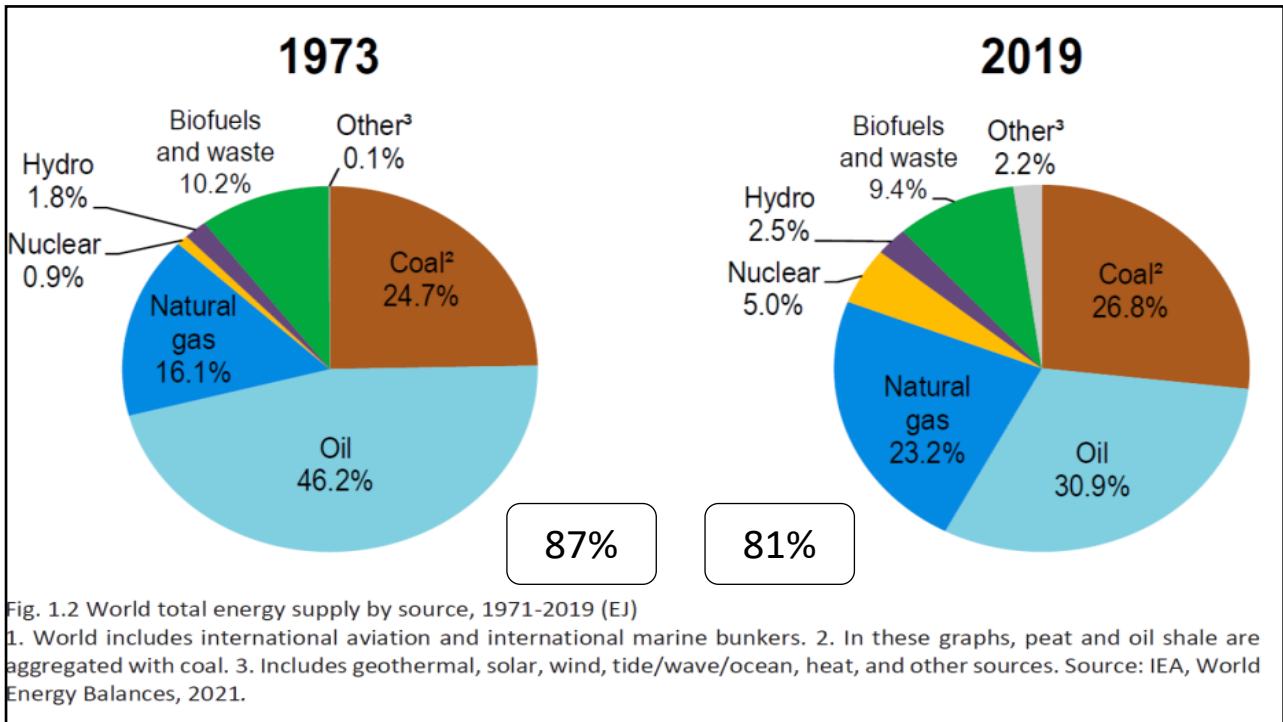
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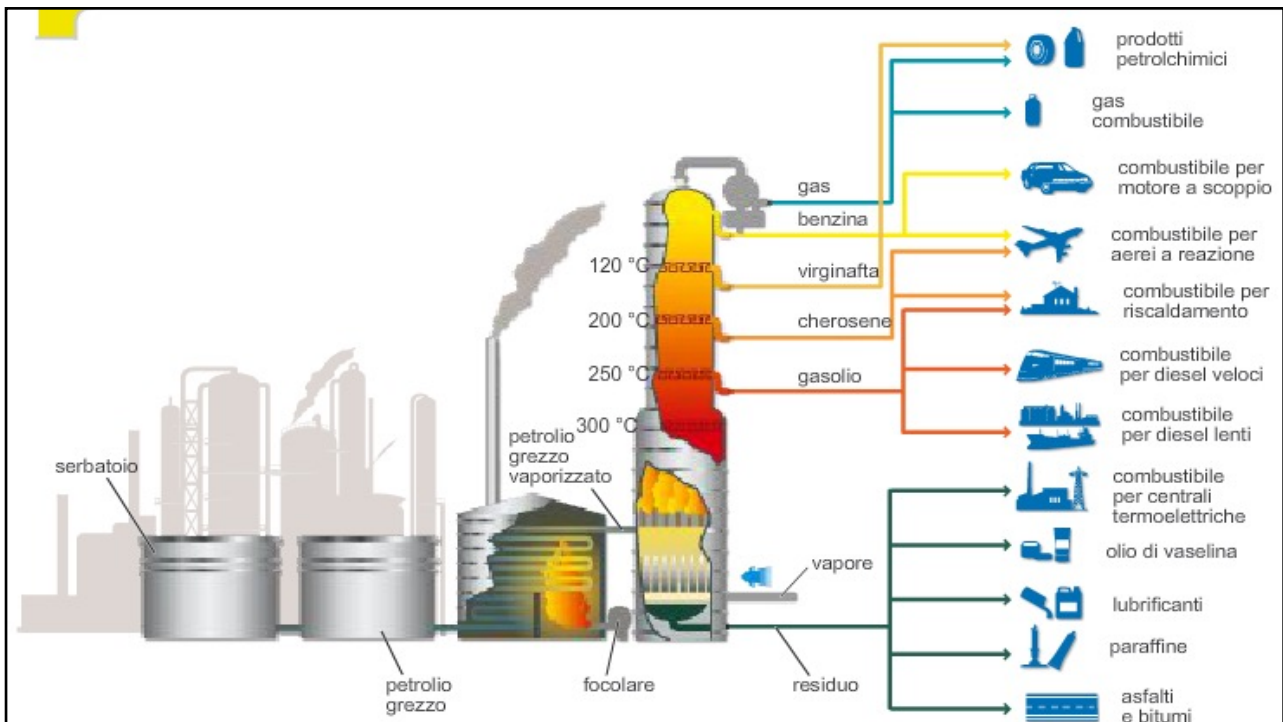
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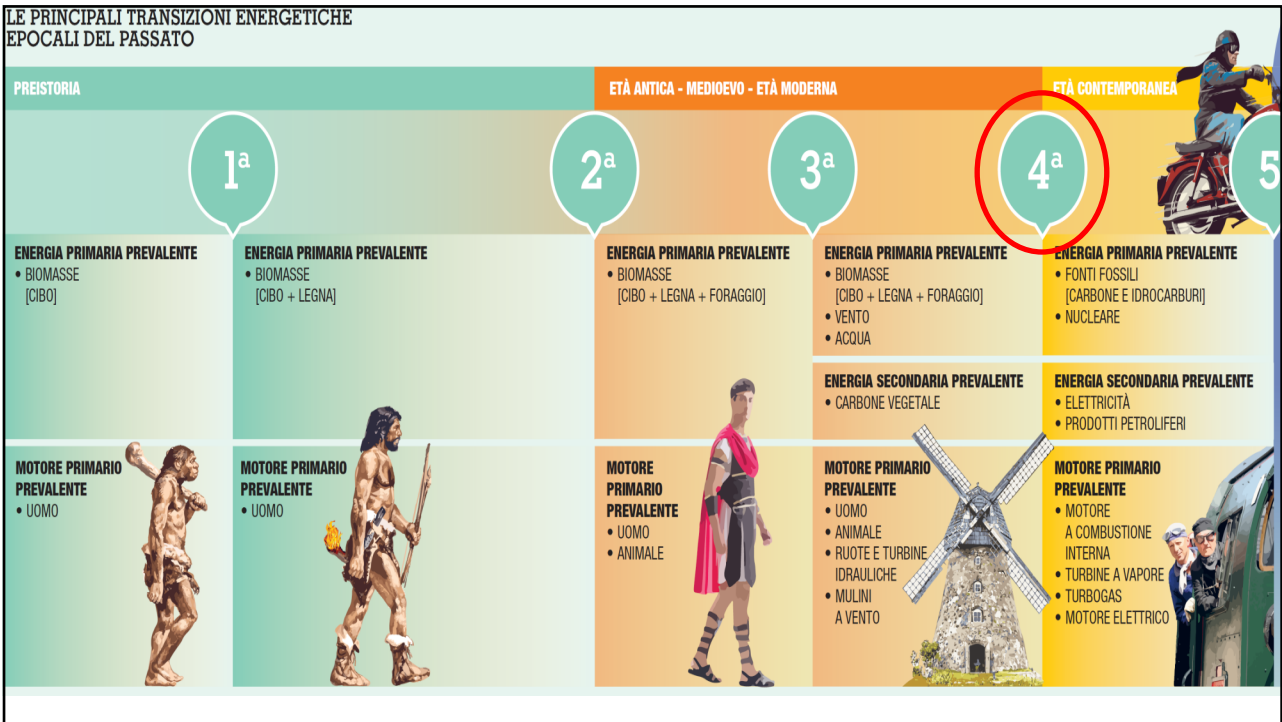
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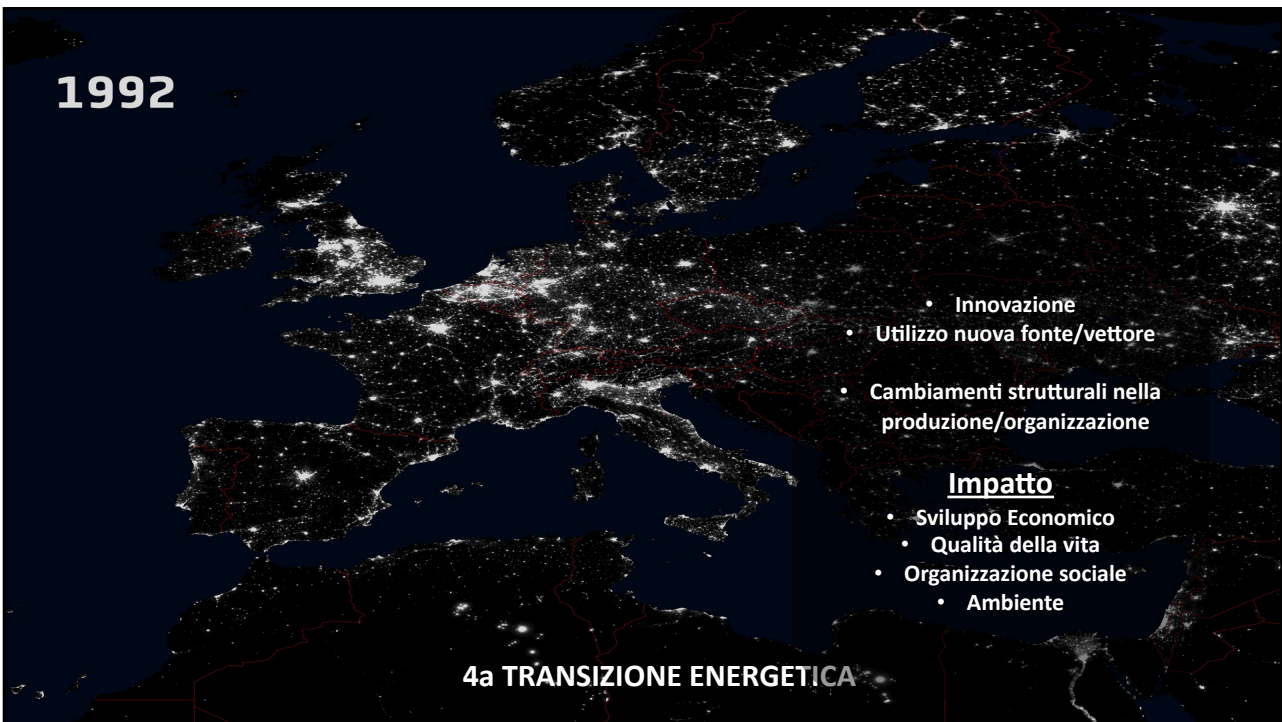
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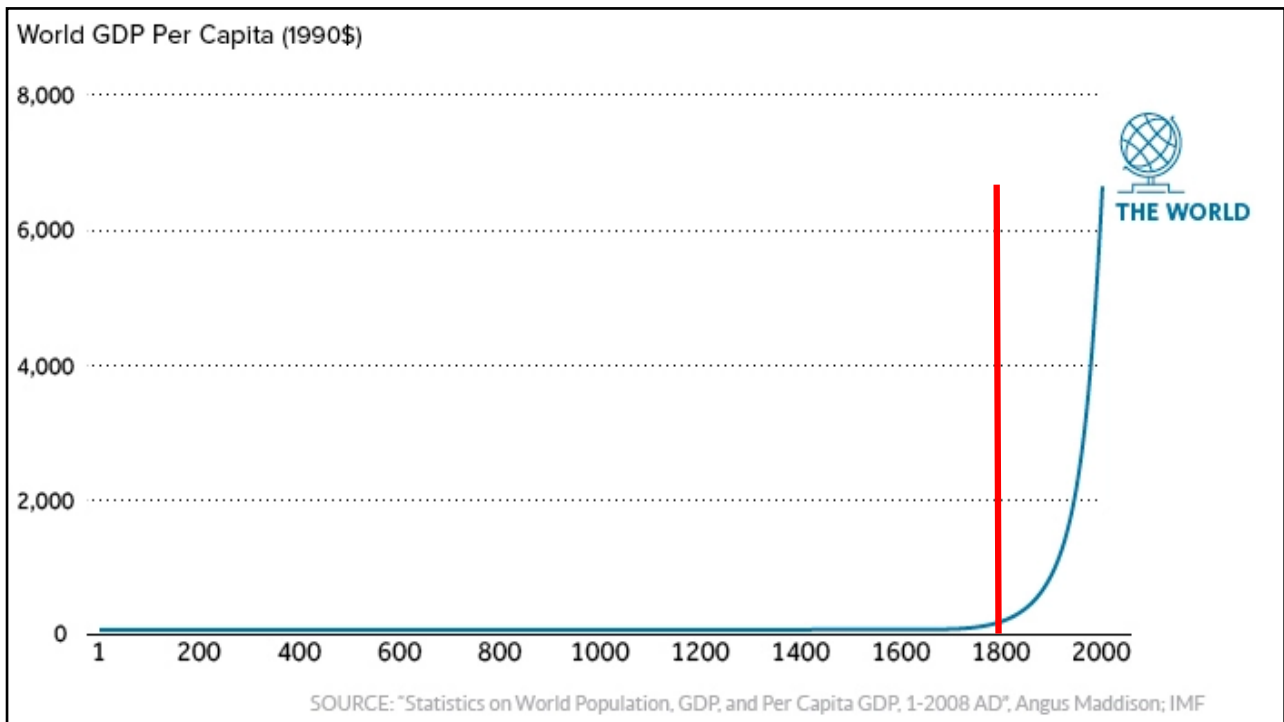
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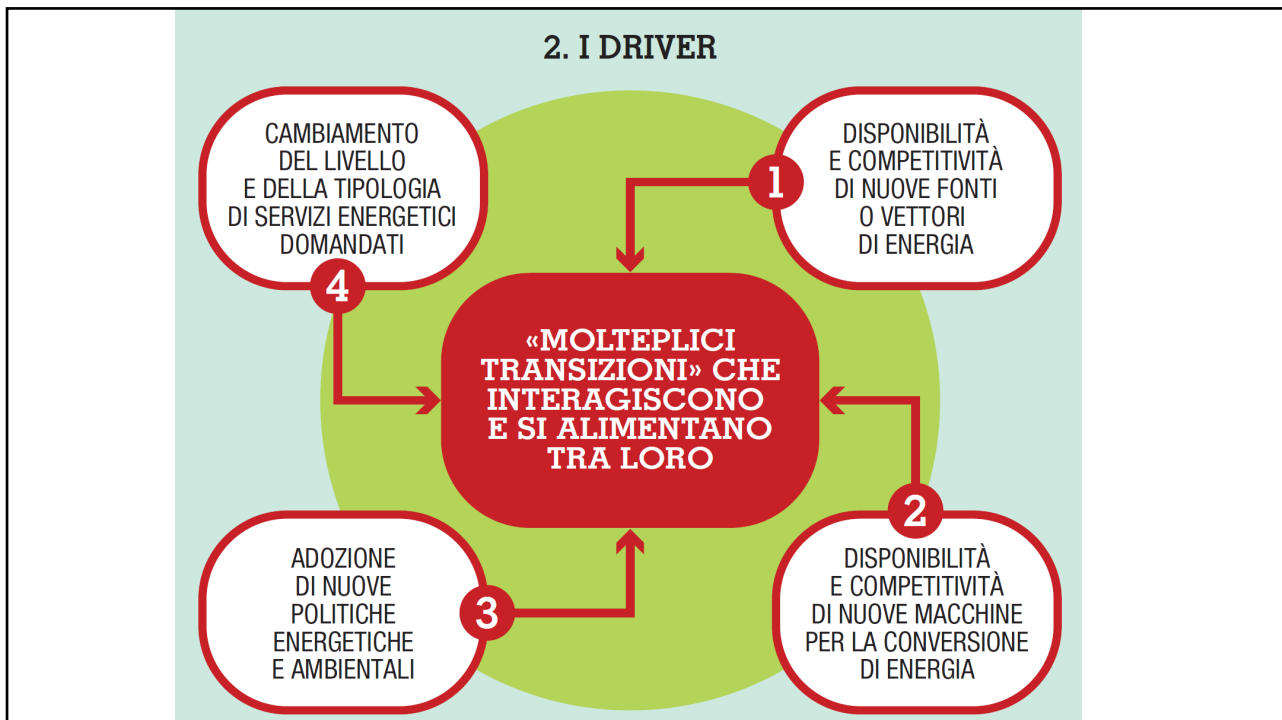


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Economia

- Dal punto di vista economico.....
- Sostituzione tra fonti energetiche.....
- Perché?

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Economia

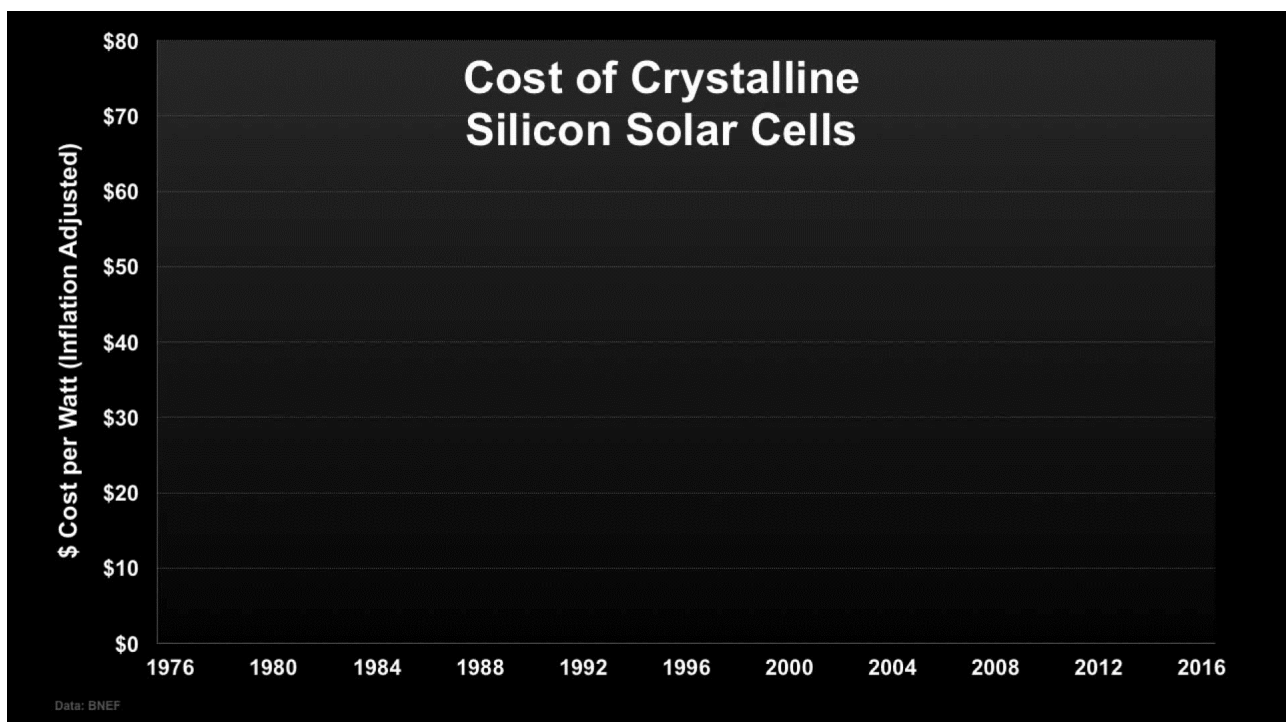
- Dal punto di vista economico.....
- Convenienza nuove fonti (prezzi più bassi)
- Convenienza nuove tecnologie (costi più bassi)
- Nuove Politiche
- Nuova domanda/consumatori (profittabilità)

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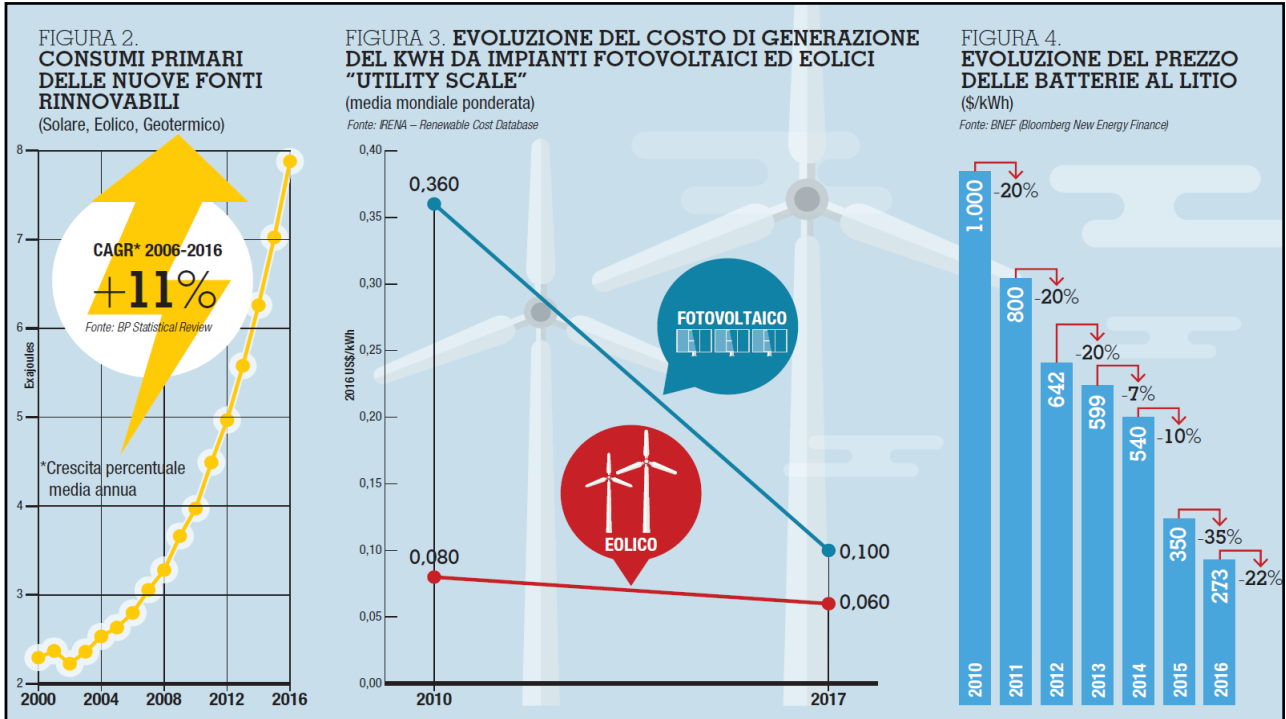
Economia

- Dal punto di vista economico.....
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- **Convenienza nuove tecnologie (costi più bassi)**
- Nuove Politiche
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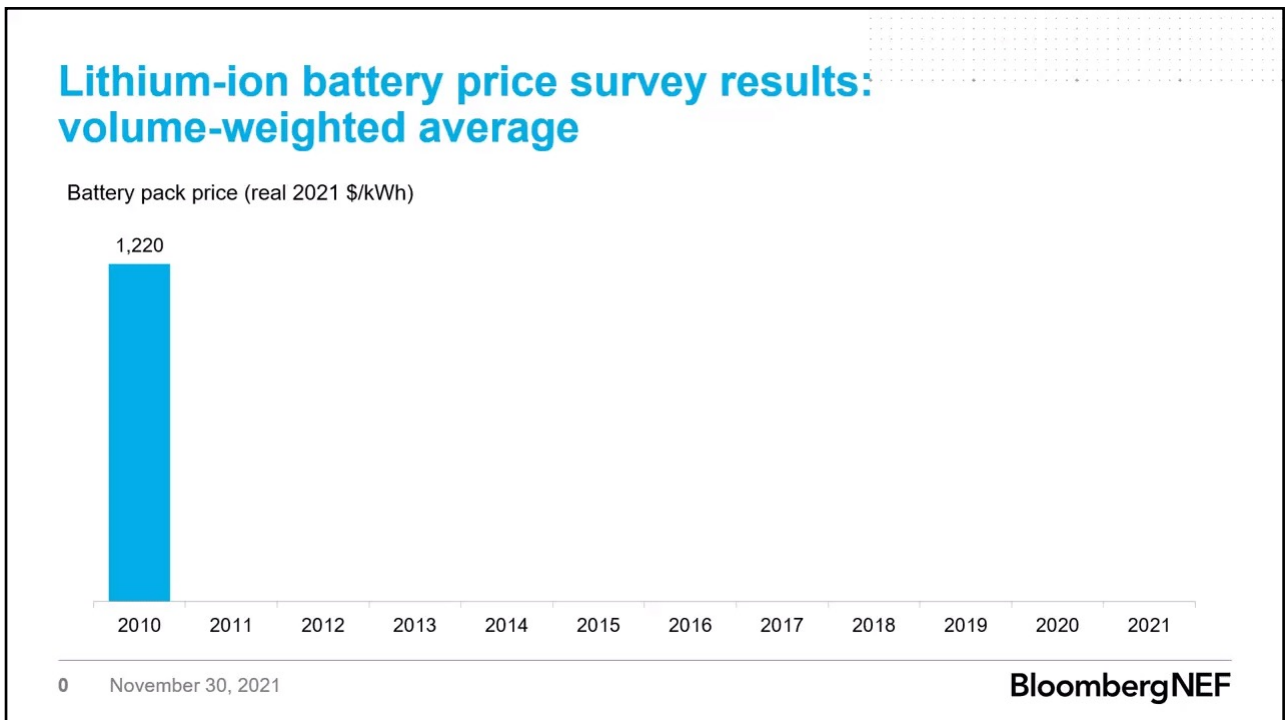
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Economia

- Dal punto di vista economico.....
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- Convenienza nuove tecnologie (costi più bassi)
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- Nuova domanda/consumatori (profittabilità)

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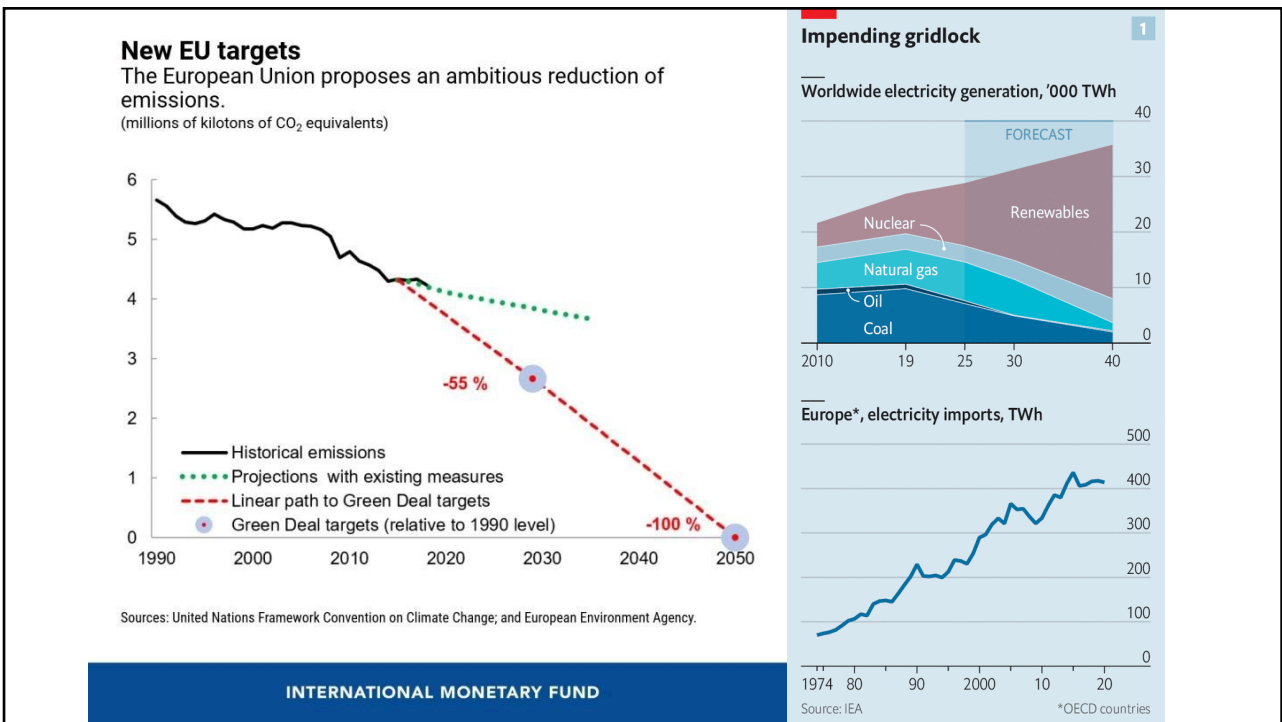
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Passare da un mix energetico incentrato sui combustibili fossili a uno a basso o nullo contenuto di carbonio e basato sulle energie rinnovabili.

NZE
Net Zero Emission

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Impending gridlock

Europe*, electricity imports, TWh

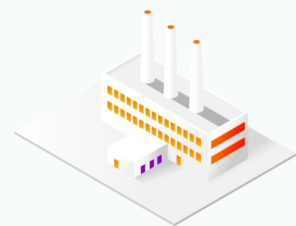
INTERNATIONAL MONETARY FUND

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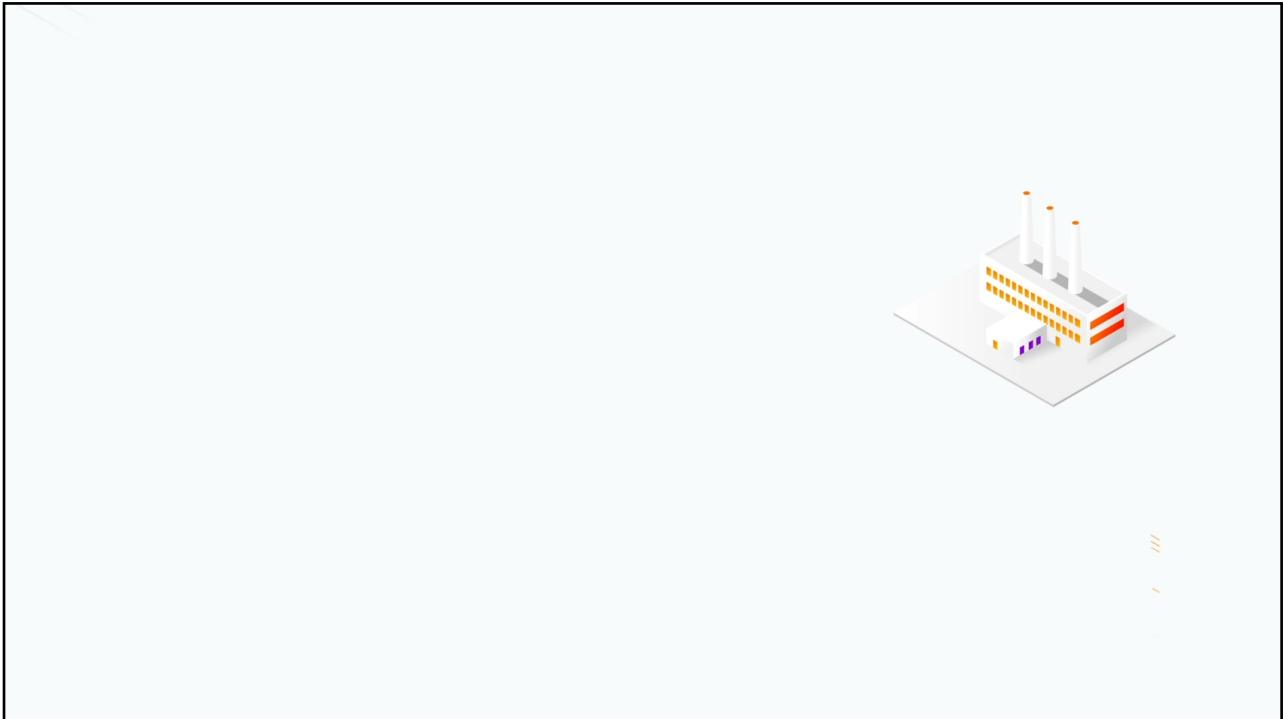
Economia

- Dal punto di vista economico.....
- Convenienza nuove fonti (prezzi più bassi)
- Convenienza nuove tecnologie (costi più bassi)
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- Nuova domanda/consumatori (profittabilità)

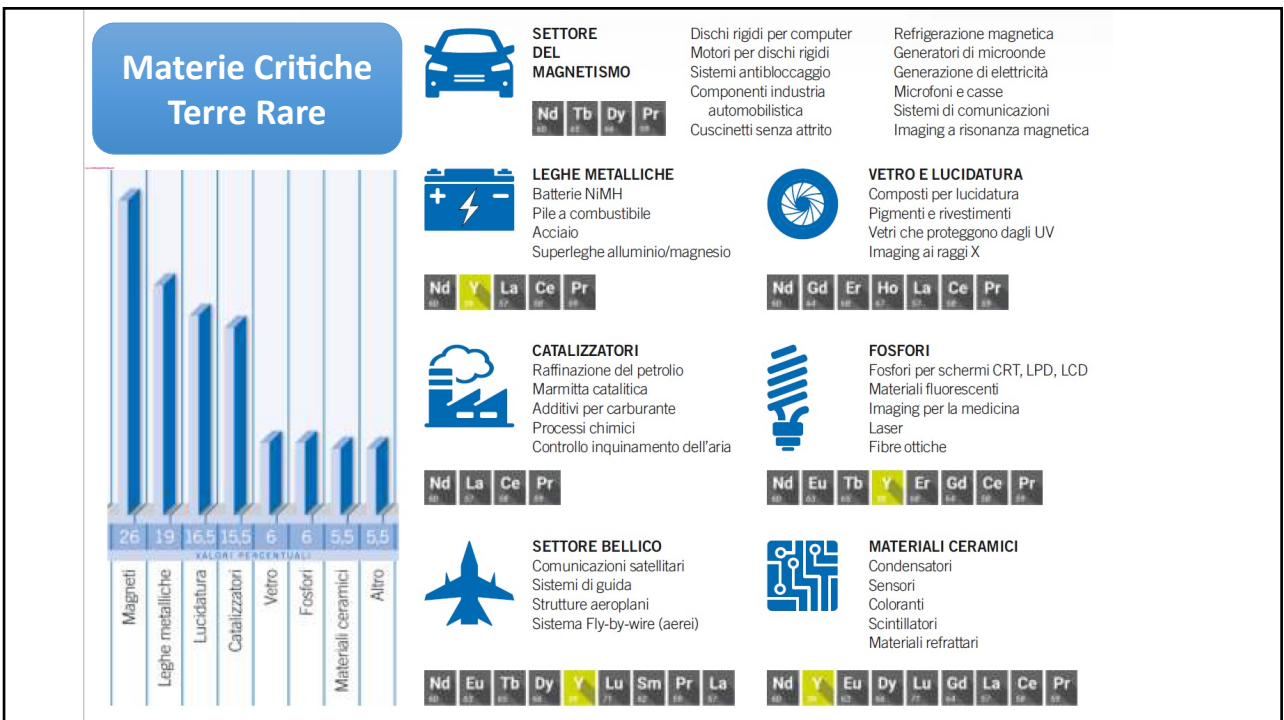
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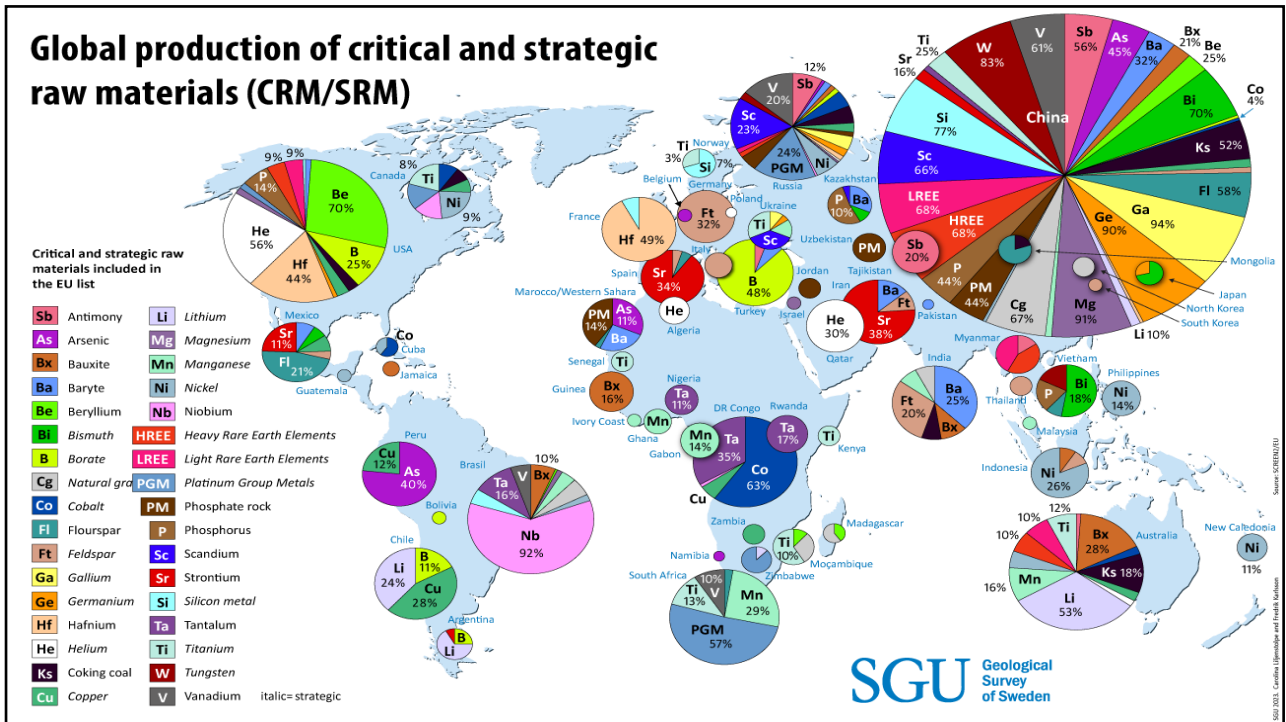
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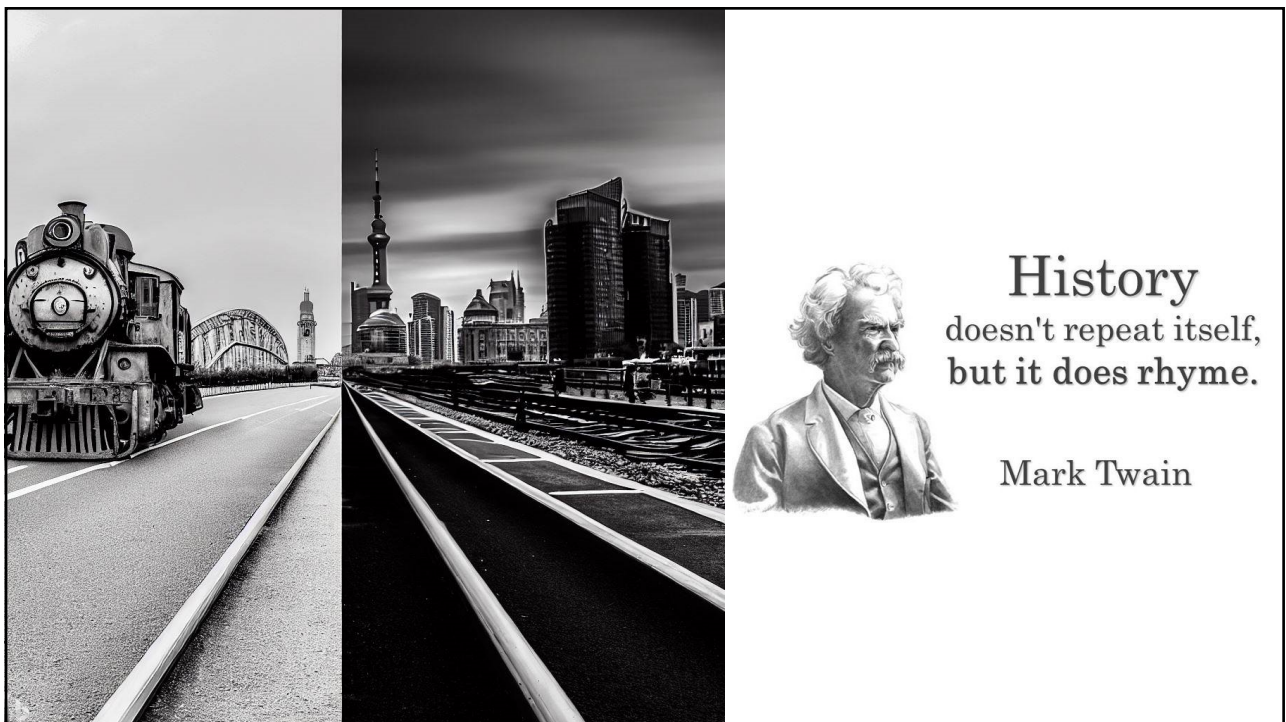
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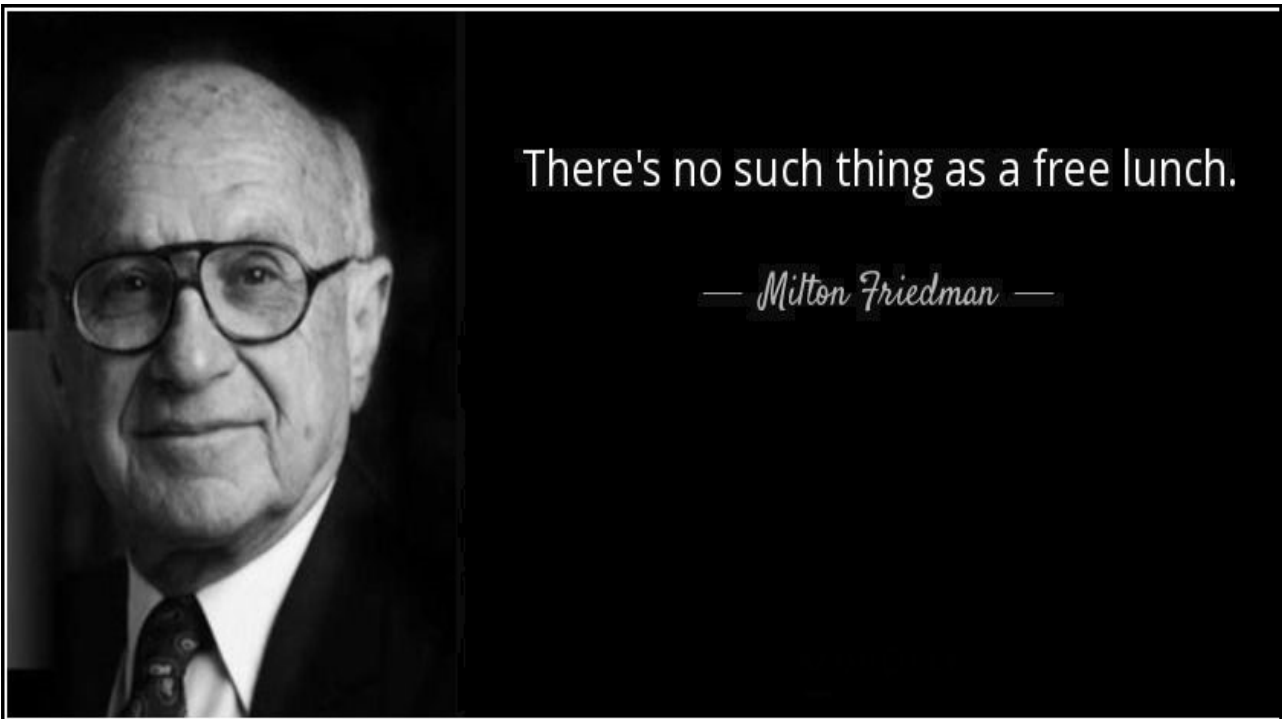
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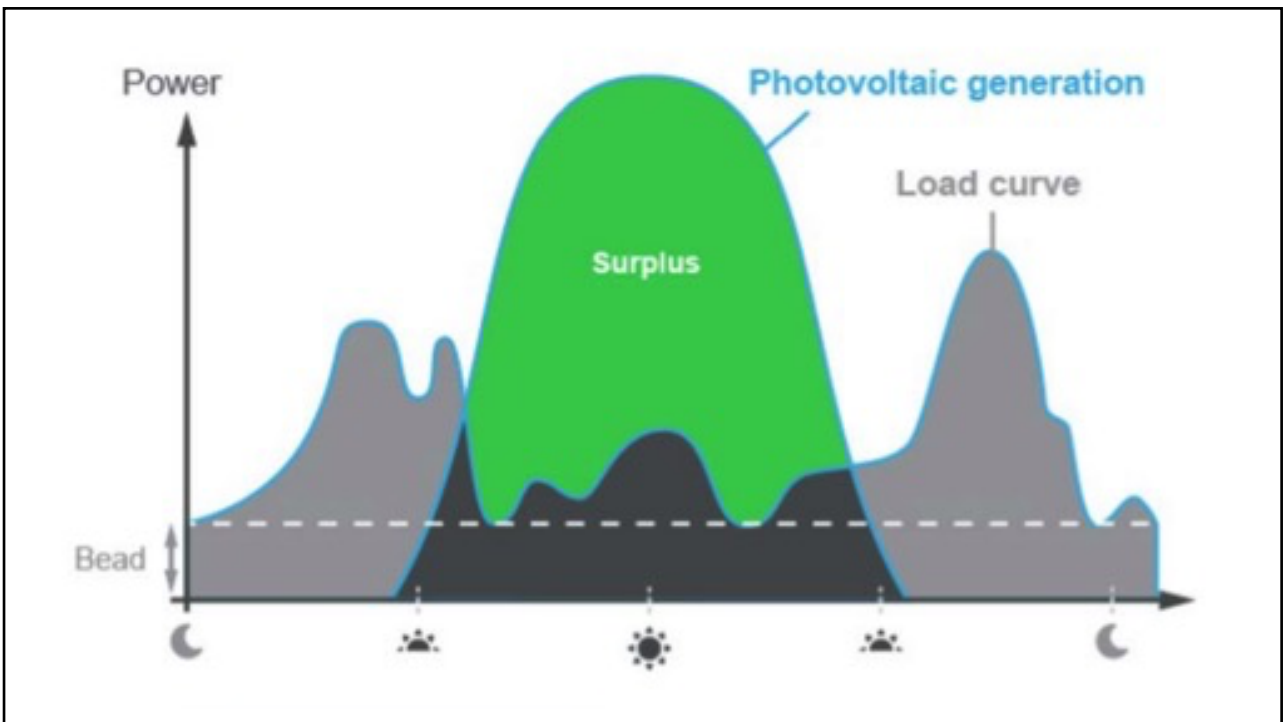
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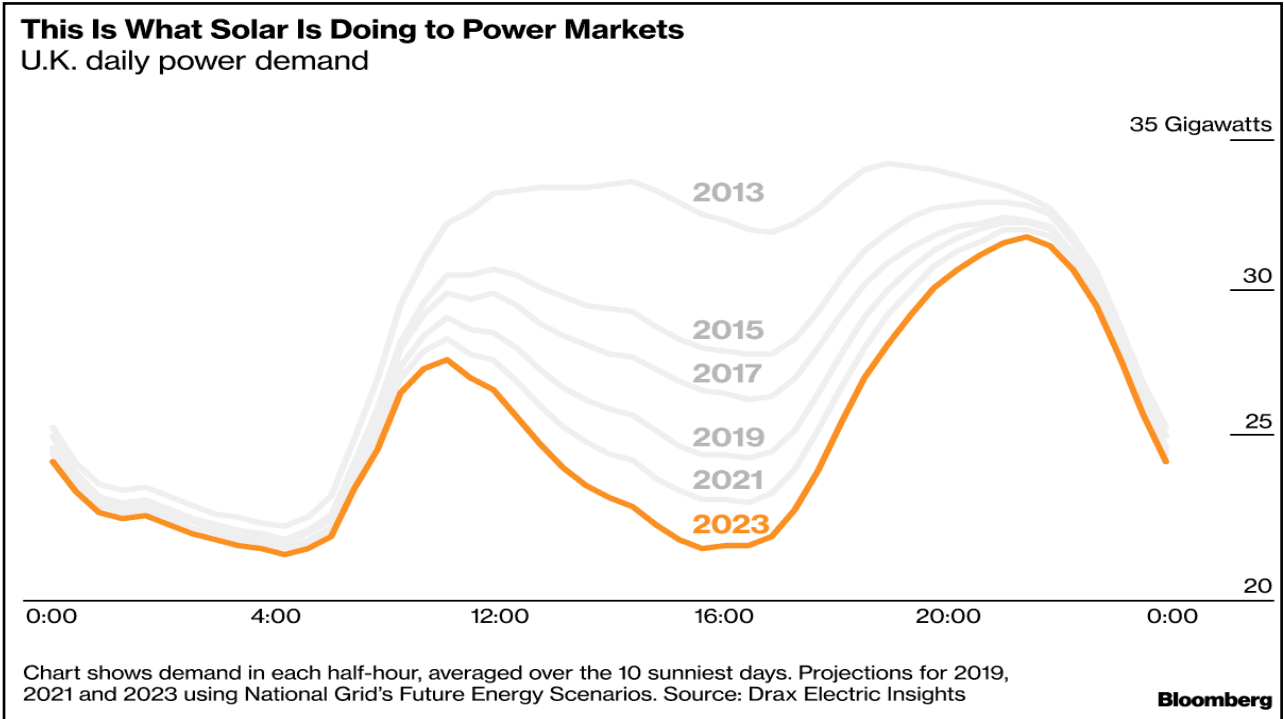
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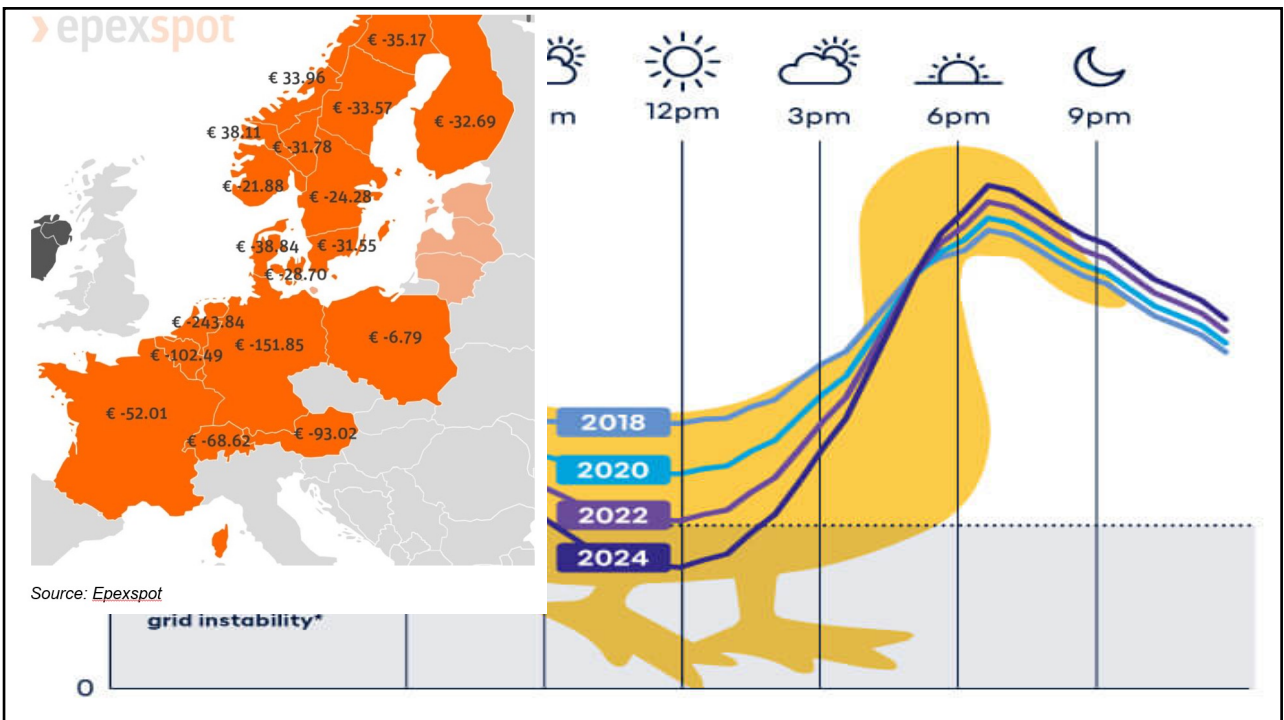
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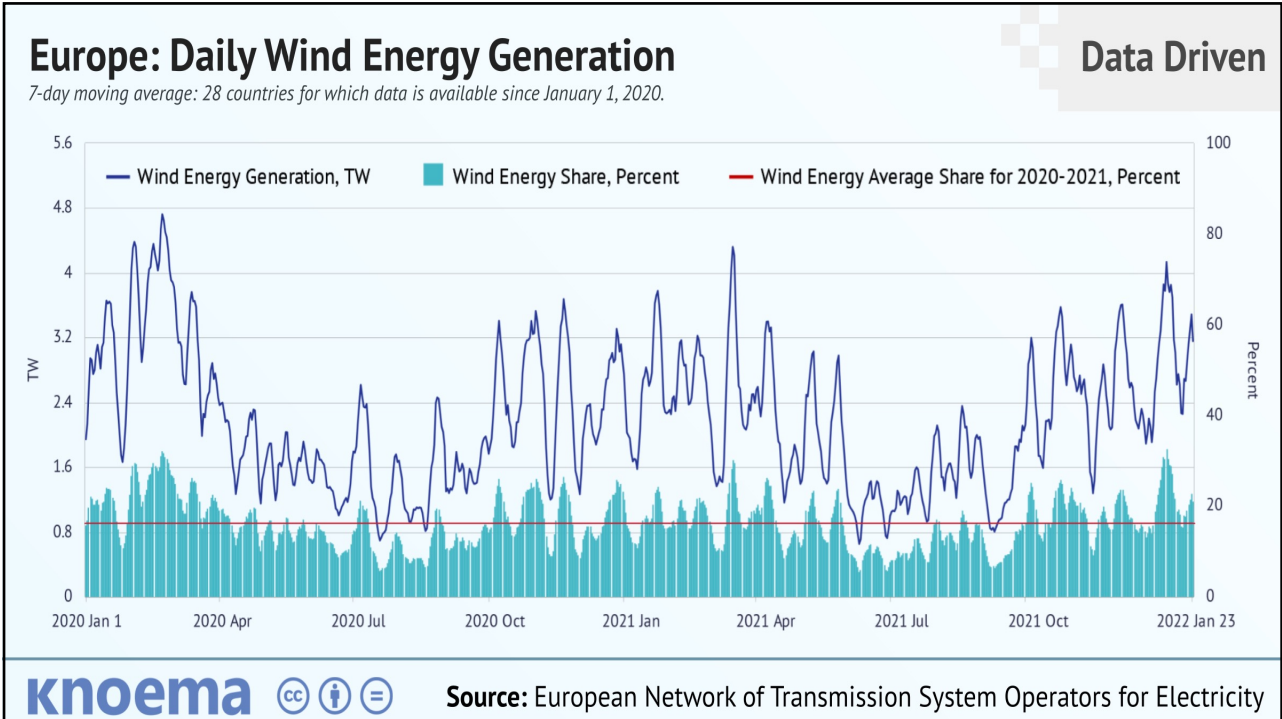
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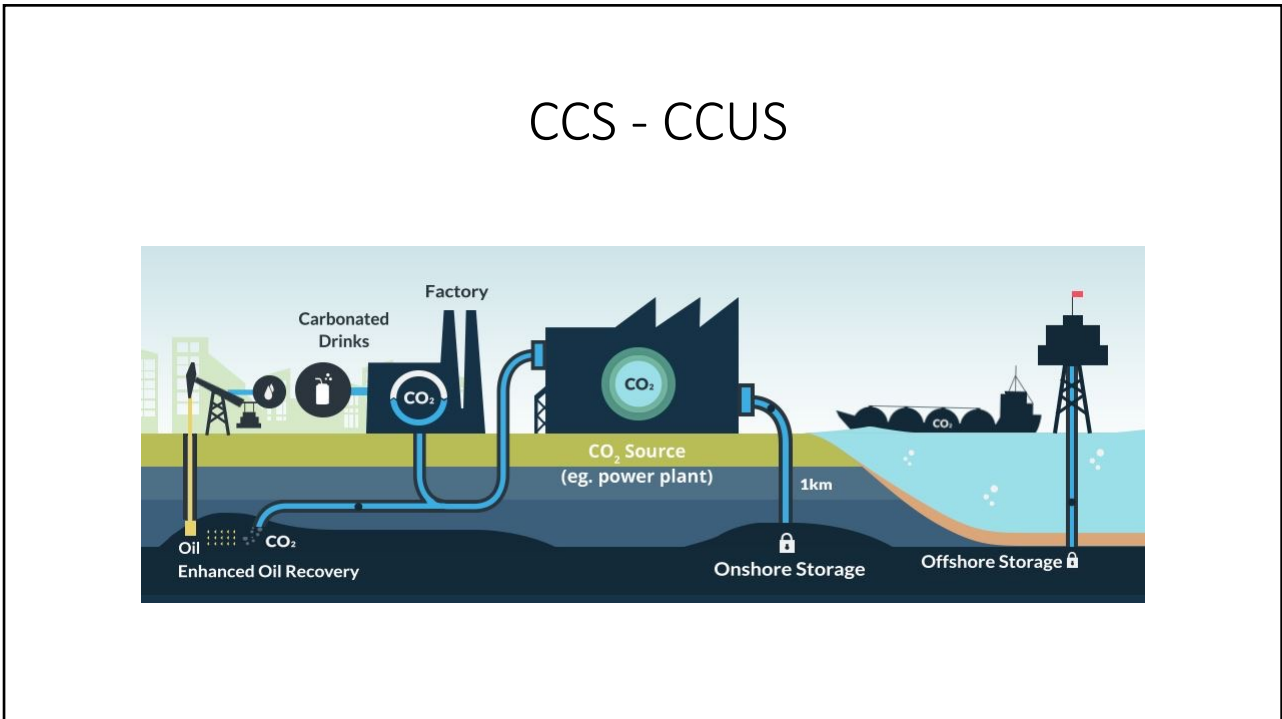
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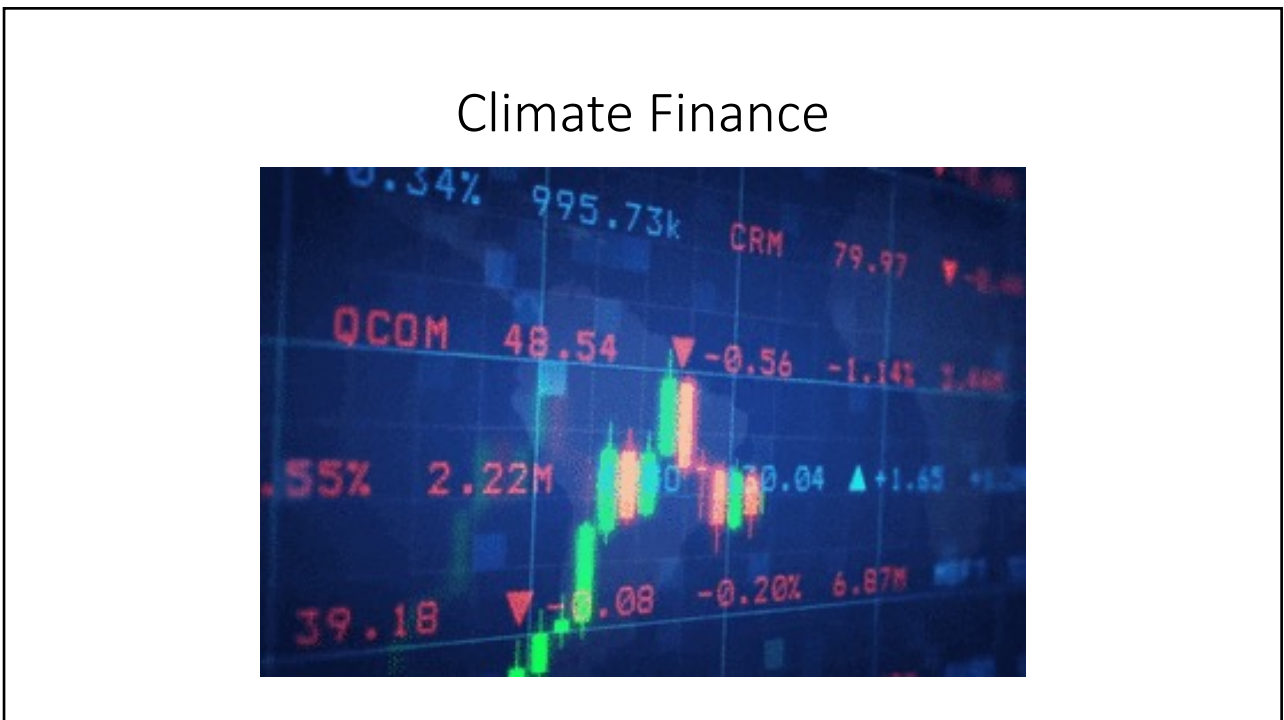
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Come studiare la Transizione in Economia?

- Modelli Economici Macro
- Modelli economici Micro (finanza, consumatori)
- Econometria


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Alcuni Esempi....

- **Modelli Economici Macro**
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- Econometria

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
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Balancing climate policies and economic development in the Mediterranean countries

Marta Castellini ^{a,b} , Chiara Castelli ^{c,f}, Camilla Gusperti ^{d,b}, Veronica Lupi ^{e,b}, Sergio Vergalli ^{d,b}

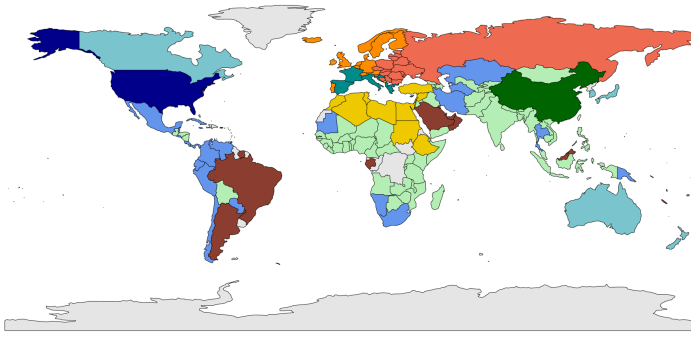
^a Department of Economics and Management Marco Fanno, University of Padua, via del Santo, 22, Padua, 35131, Italy
^b FEEM - Fondazione Eni Enrico Mattei, Corso Magenta 63, Milano, 20123, Italy
^c Wüw - the Vienna Institute for International Economic Studies, Rahlgasse 3, Vienna, Austria
^d Department of Economics and Management, University of Brescia, via San Faustino, 74B, Brescia, 25122, Italy
^e Institute for Environmental Studies, Vrije Universiteit, De Boelelaan 1111, Amsterdam, 1081 HV, The Netherlands
^f Department of Economics, WU - Vienna University of Economics and Business, Welthandelsplatz 1, Vienna, 1020, Austria



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RICE-MED: regional structure

- The world is disaggregated in different regions, created grouping countries with similar economic and political features.



China	Low Income	Mediterranean no EU	USA
Eastern Europe and Russia	Low-Middle Income	Middle Income	NA
Europe	Mediterranean EU	Other High Income	

MET – Modelling the Energy Transition

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RICE-MED: the Mediterranean countries

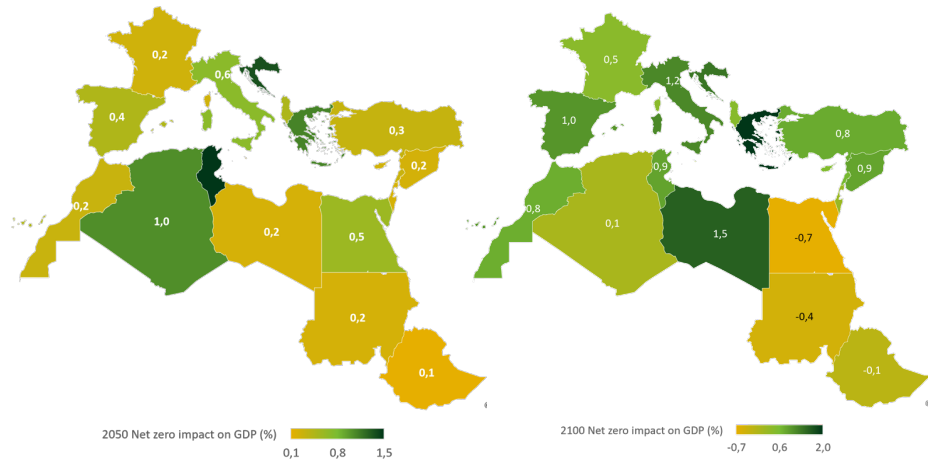


- RICE-MED includes the following Mediterranean countries: Albania, Algeria, Croatia, Cyprus, Egypt, Ethiopia, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Montenegro, Morocco, Spain, Sudan, Syria, Tunisia, Turkey.

MET – Modelling the Energy Transition

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RICE-MED: Projections for the Mediterranean Area under NZE



Percentage (%) gain (loss) w.r.t. business as usual fossil fuel-based economy.
LHS: 2050, RHS: 2100.


Source: RICE-MED model, FEEM 2022. Castelli, Castellini, Gusperti, Lupi and Vergalli.

MET – Modelling the Energy Transition

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
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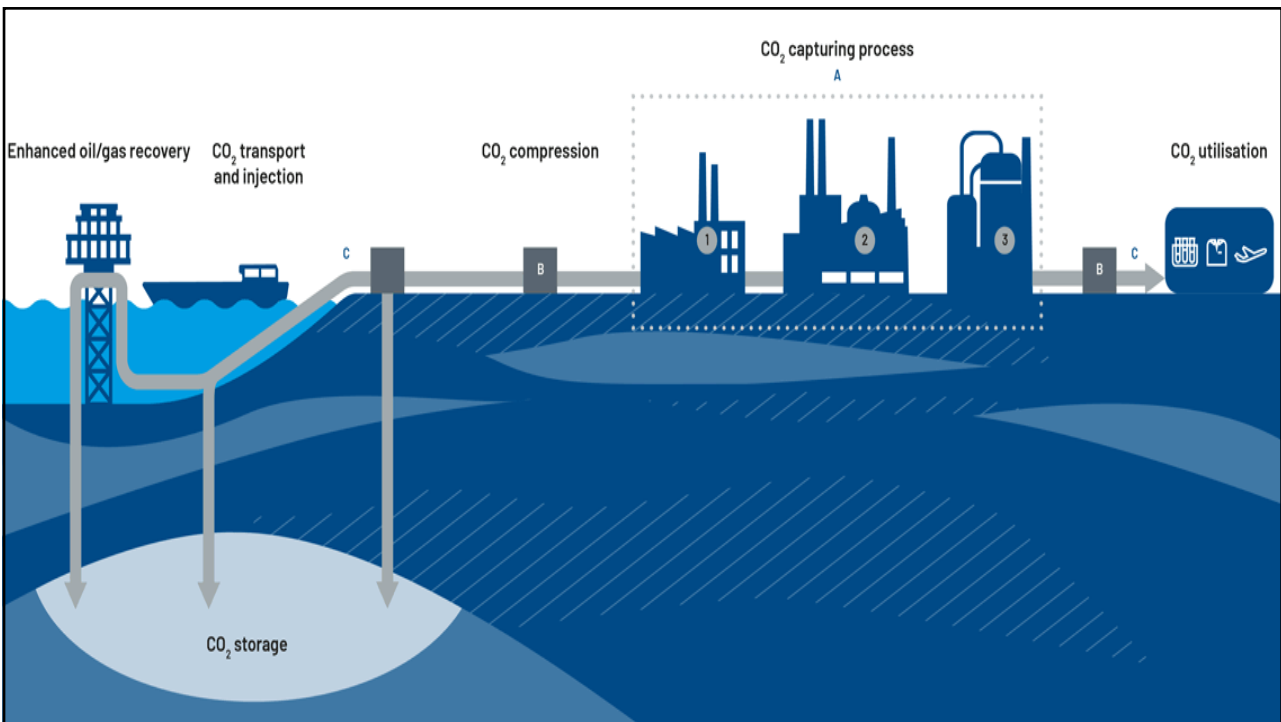
Gotta Catch 'Em All: CCUS With endogenous technical change

Davide Bazzana ^{ID}, Nicola Comincioli ^{ID}, Camilla Gusperti ^{ID}, Demis Legrenzi ^{ID}*,
Massimiliano Carlo Pietro Rizzati ^{ID}, Sergio Vergalli ^{ID}

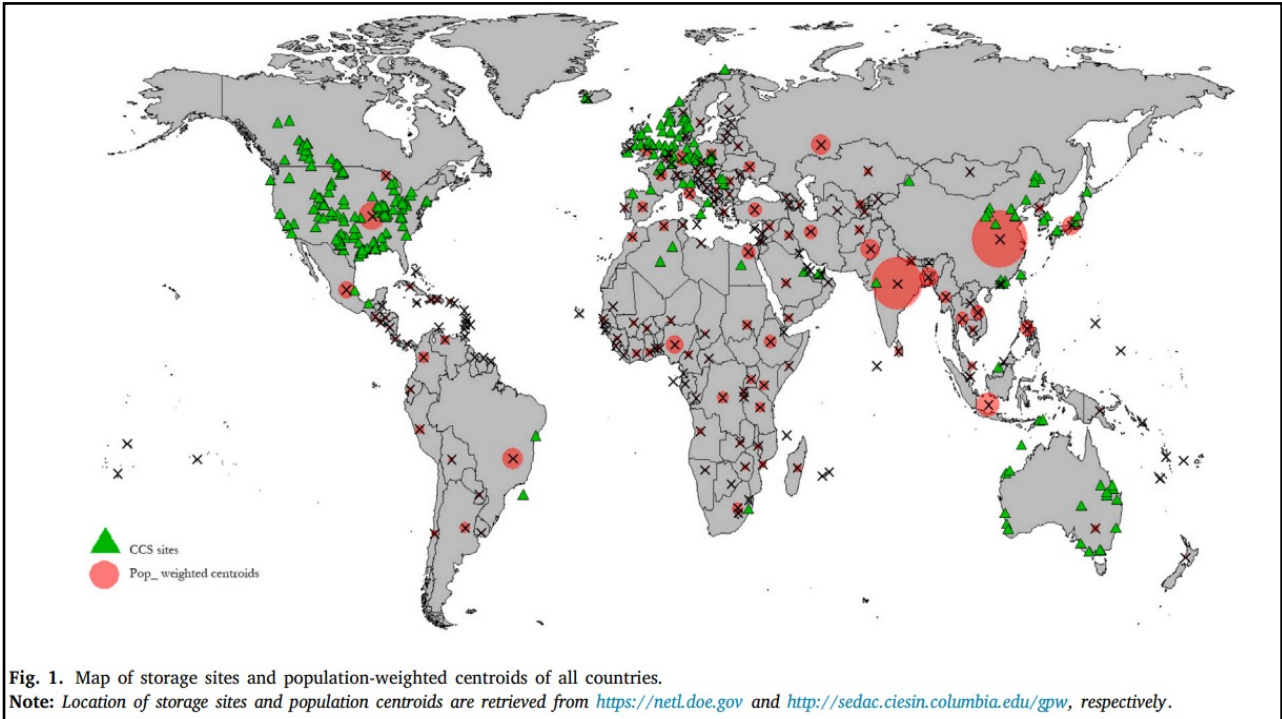
*Department of Economics and Management, University of Brescia, Italy
Fondazione Eni Enrico Mattei (FEEM), Italy*



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Distributional impacts of climate change between and within EU regions

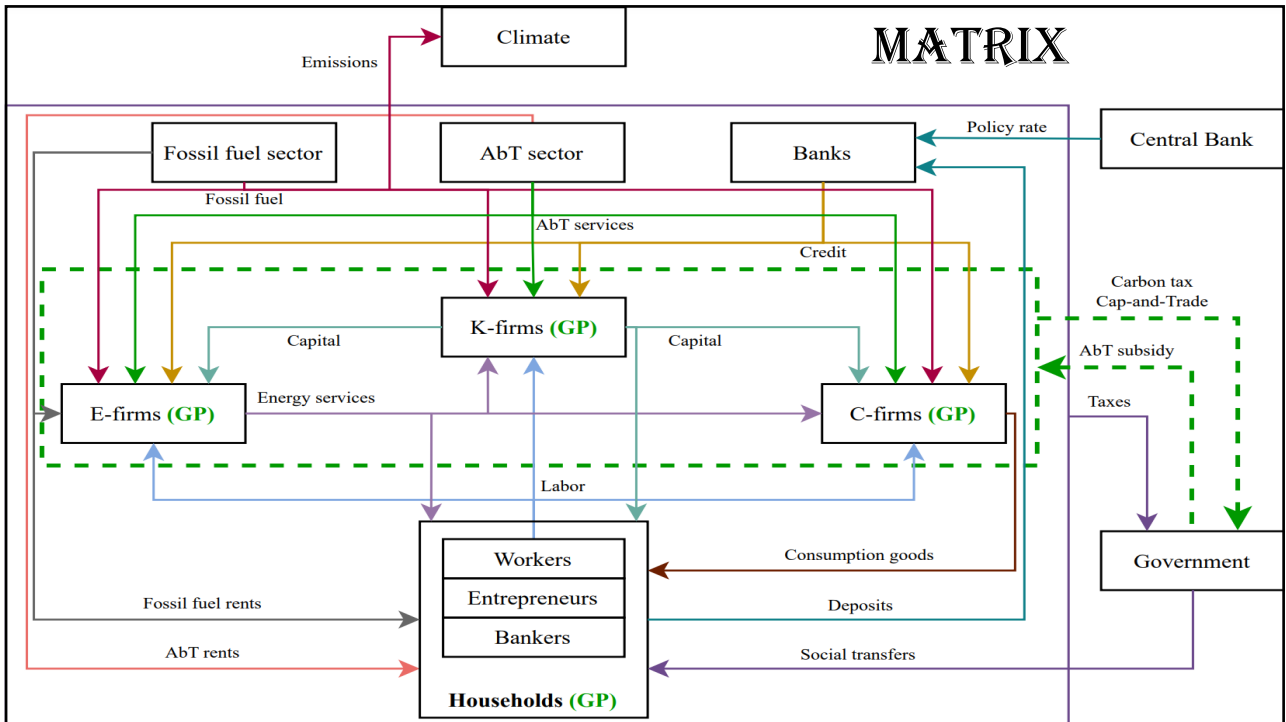
Enrico M. Turco^{1,2} Massimiliano C. P. Rizzati^{1,3}
Emanuele Ciola^{1,3} Sergio Vergalli^{1,3}

¹Fondazione Eni Enrico Mattei
²Università Cattolica del Sacro Cuore
³Università degli Studi di Brescia

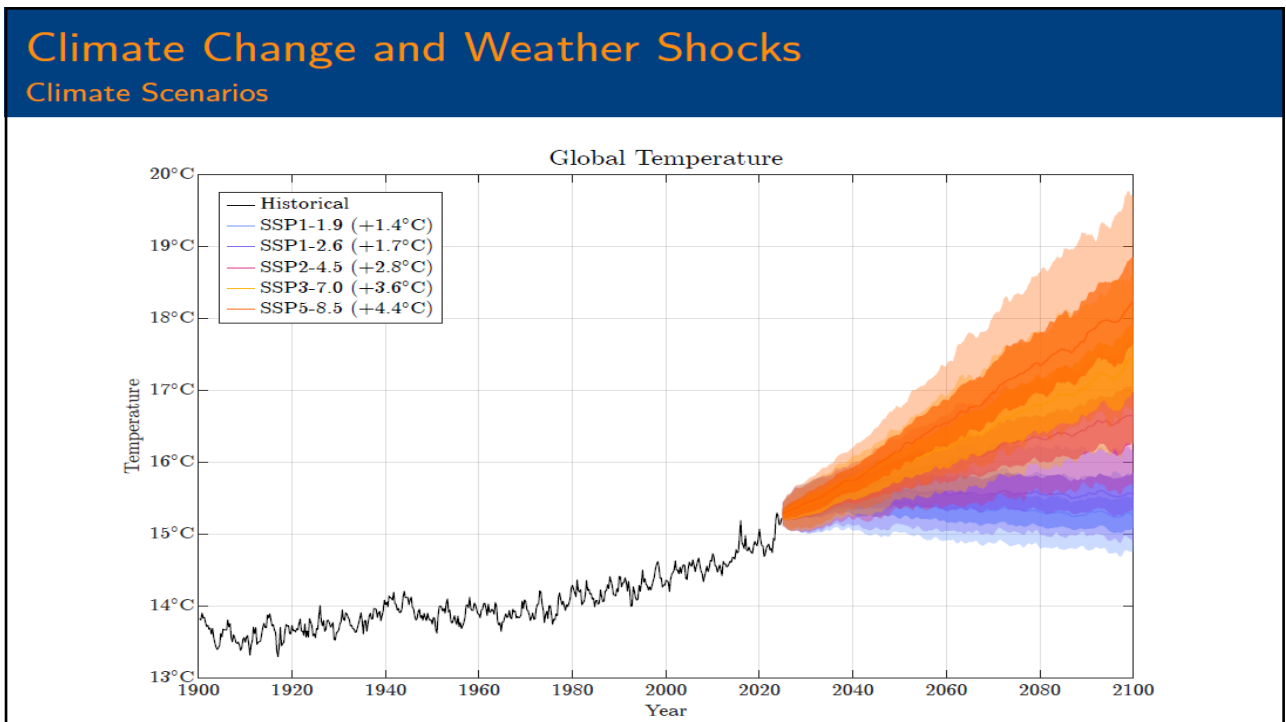
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Queen Mary University of London
 London, 9-11 June 2025



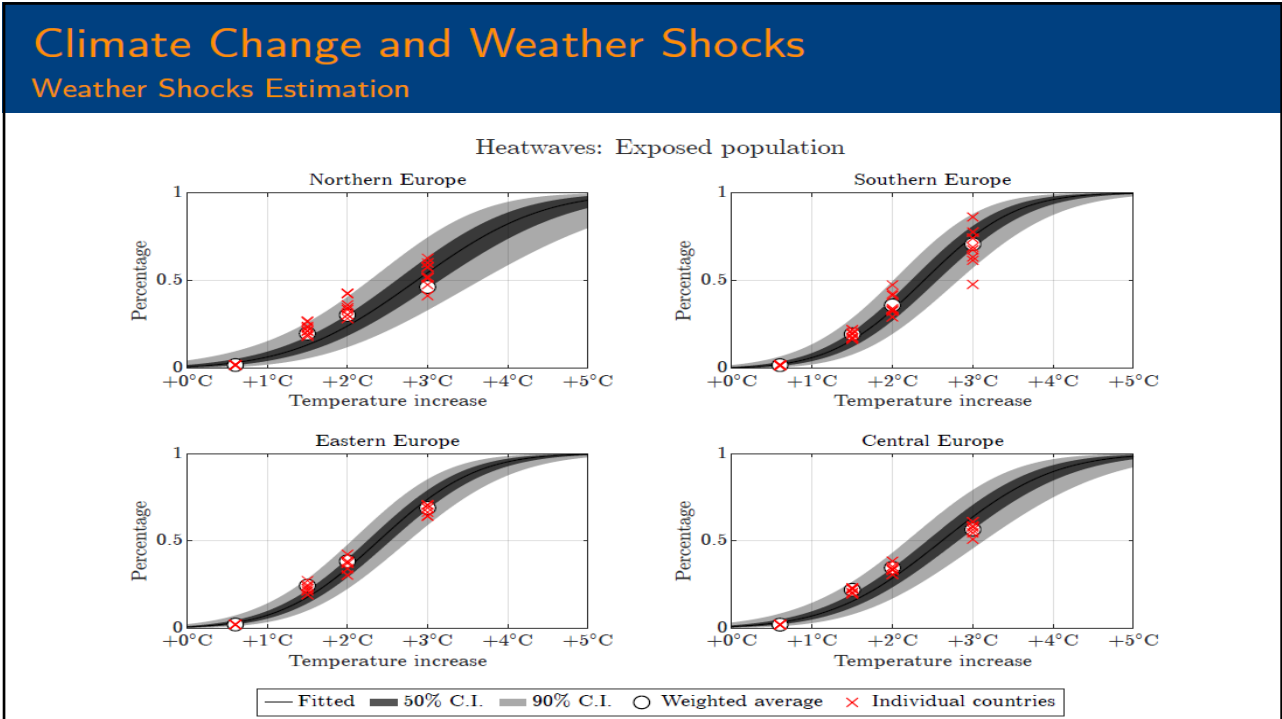
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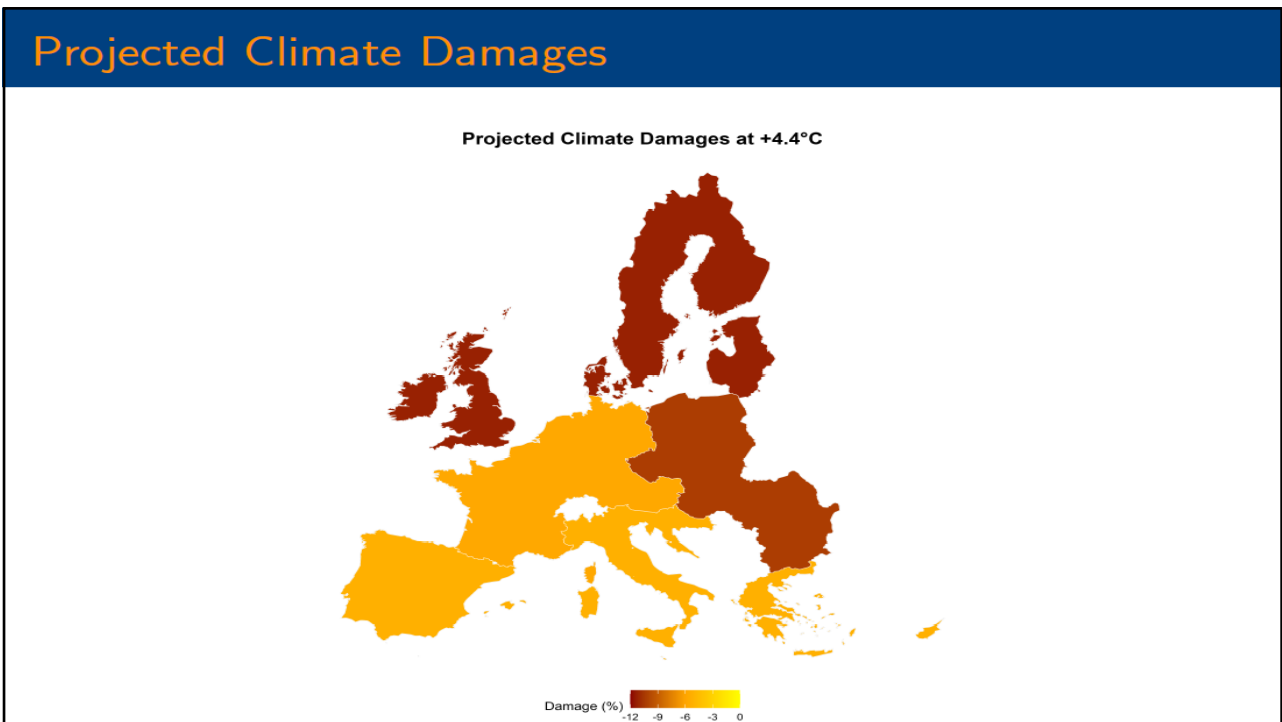
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Sector/Regional Statistics: Average % Deviation in 2100

C-firms sales (%)

Scenario	Northern Europe	Southern Europe	Eastern Europe	Central Europe
+1.7°C	-1.1	-0.6	-1.4	-0.7
+2.8°C	-3.6	-1.9	-3.5	-1.4
+3.6°C	-6.2	-2.5	-5.8	-2.5
+4.4°C	-11.3	-5.3	-10.3	-5.8

E-firms sales (%)

Scenario	Northern Europe	Southern Europe	Eastern Europe	Central Europe
+1.7°C	-1.3	-1.1	0.1	-0.7
+2.8°C	-3.9	-1.8	-2.4	-1.8
+3.6°C	-5.5	-2.9	-6.3	-3.3
+4.4°C	-10.6	-5.8	-10.3	-7.3

K-firms sales (%)

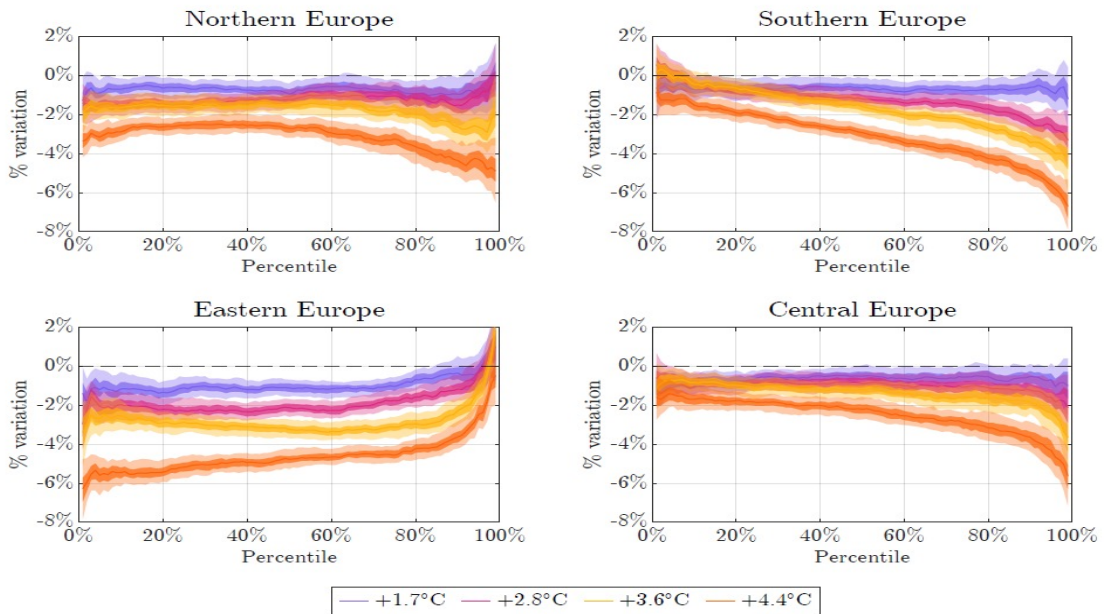
Scenario	Northern Europe	Southern Europe	Eastern Europe	Central Europe
+1.7°C	-0.6	-0.2	1.3	0.3
+2.8°C	-2.8	-1.6	-1.3	-1.6
+3.6°C	-3.3	-2.1	-3.8	-2.6
+4.4°C	-6.1	-6.6	-7.1	-6.2

Unemployment rate (p.p)

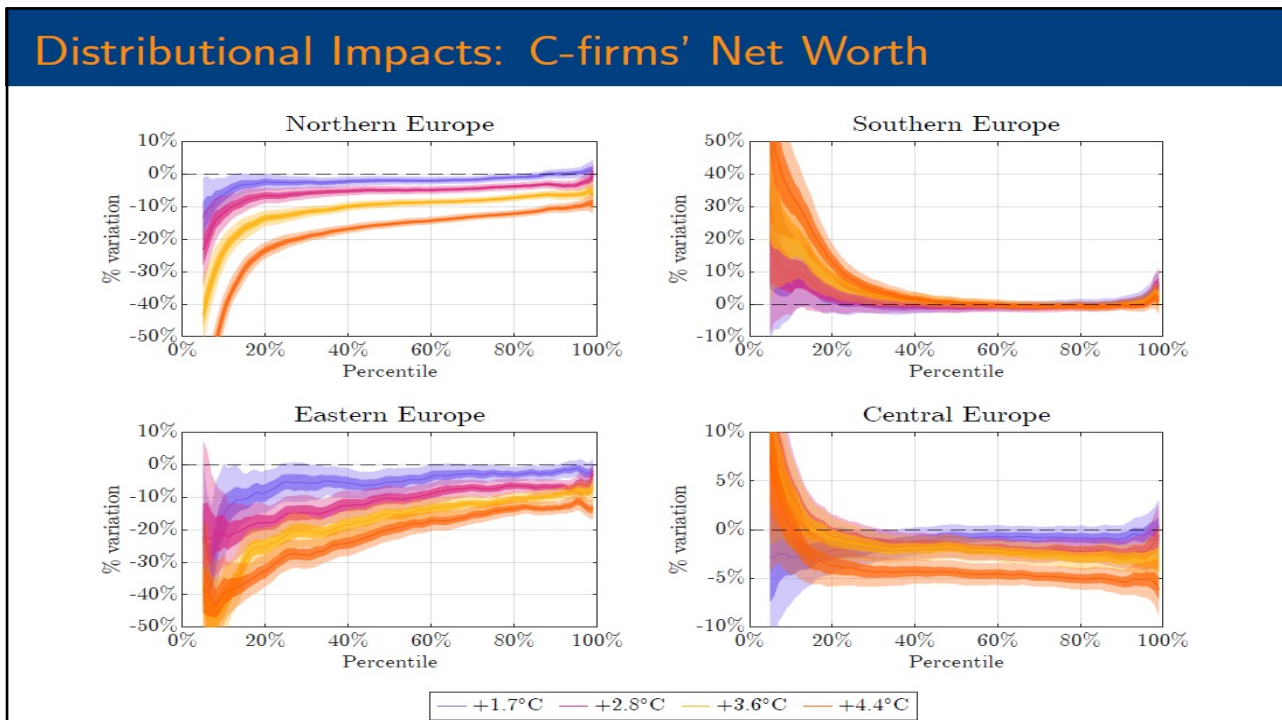
Scenario	Northern Europe	Southern Europe	Eastern Europe	Central Europe
+1.7°C	0.0	-0.2	0.6	-0.0
+2.8°C	0.4	-0.7	1.8	-0.2
+3.6°C	0.7	-1.0	2.9	-0.2
+4.4°C	1.7	-1.5	4.7	-0.2

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Distributional Impacts: Workers' Net Worth



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Alcuni Esempi....

- Modelli Economici Macro
- **Modelli economici Micro (finanza, consumatori)**
- Econometria

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DISCUSSION PAPER

Optimal Management of Public Energy Communities: Investment Strategies and Welfare Maximization



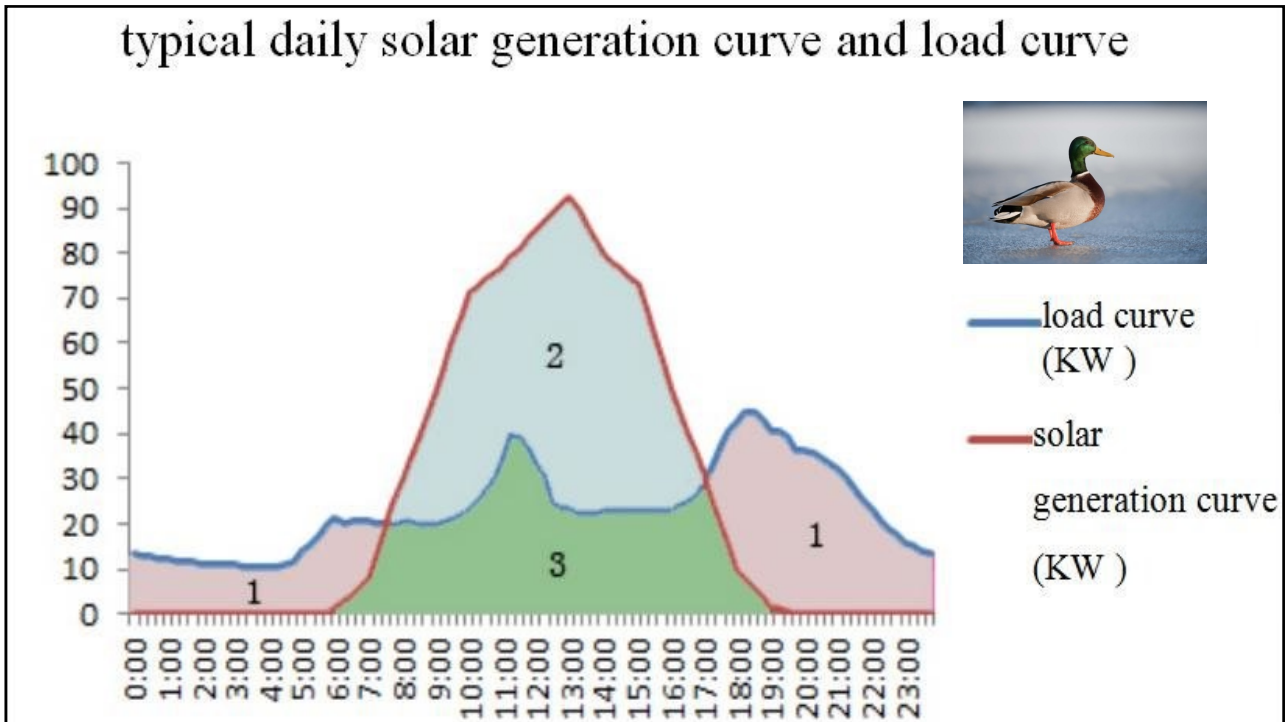
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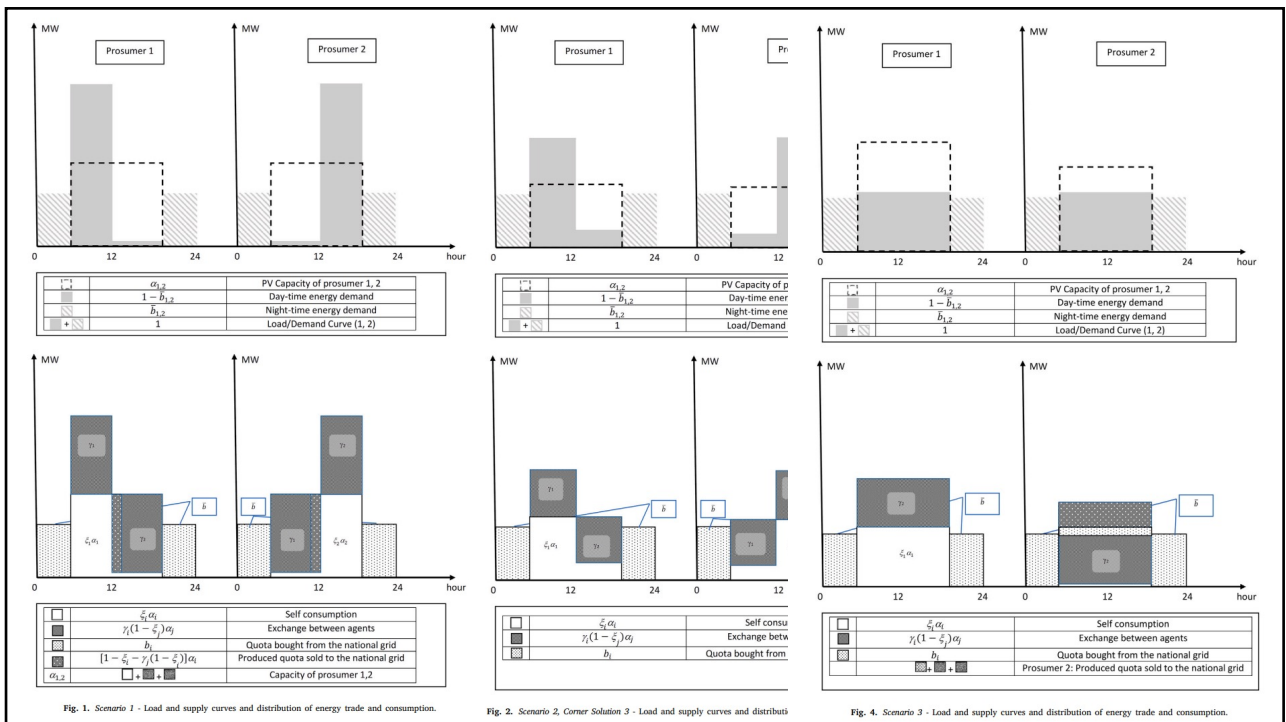
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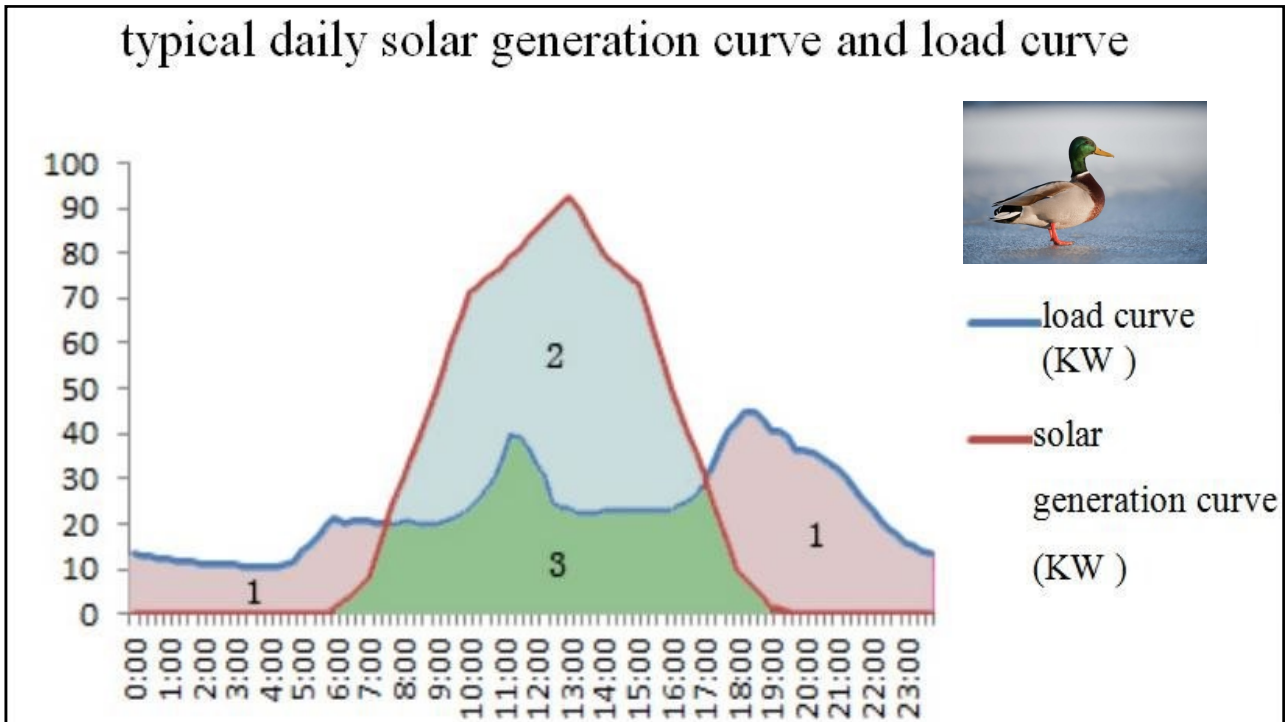
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MIT CEEPR
Center for Energy and Environmental Policy Research

Working Paper Series

Climate Policy and Cartelization Risk for Critical Minerals: An Application to the Copper Market

Ilenea Gaia Romani, Nicola Comincioli, and Sergio Vergalli

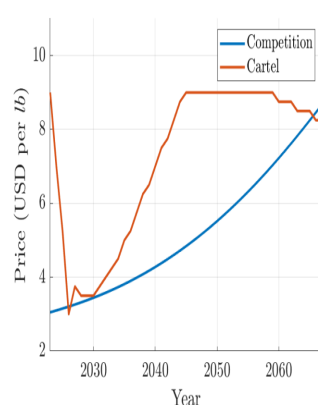


Figure 1

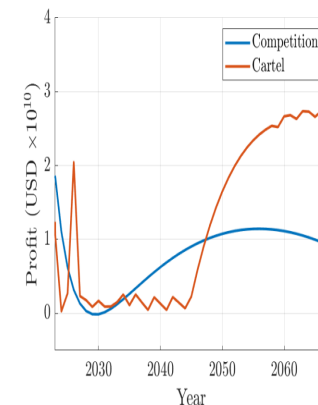



Figure 2

Notes: Figure 1 shows the optimal price trajectory, and Figure 2 the consequent profit dynamics, over a 45-year time horizon, for both the competitive and cartelized scenarios.

NOVEMBER 2024
CEEPR WP 2024-18



ceepr.mit.edu

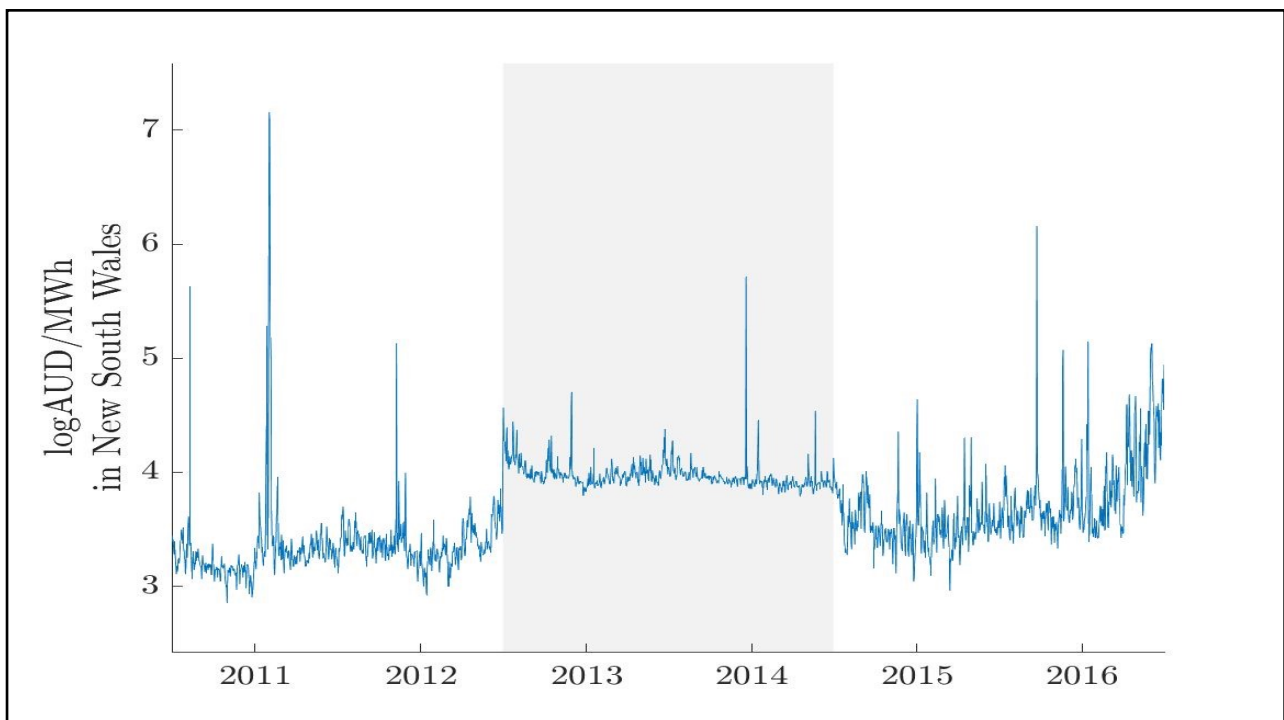
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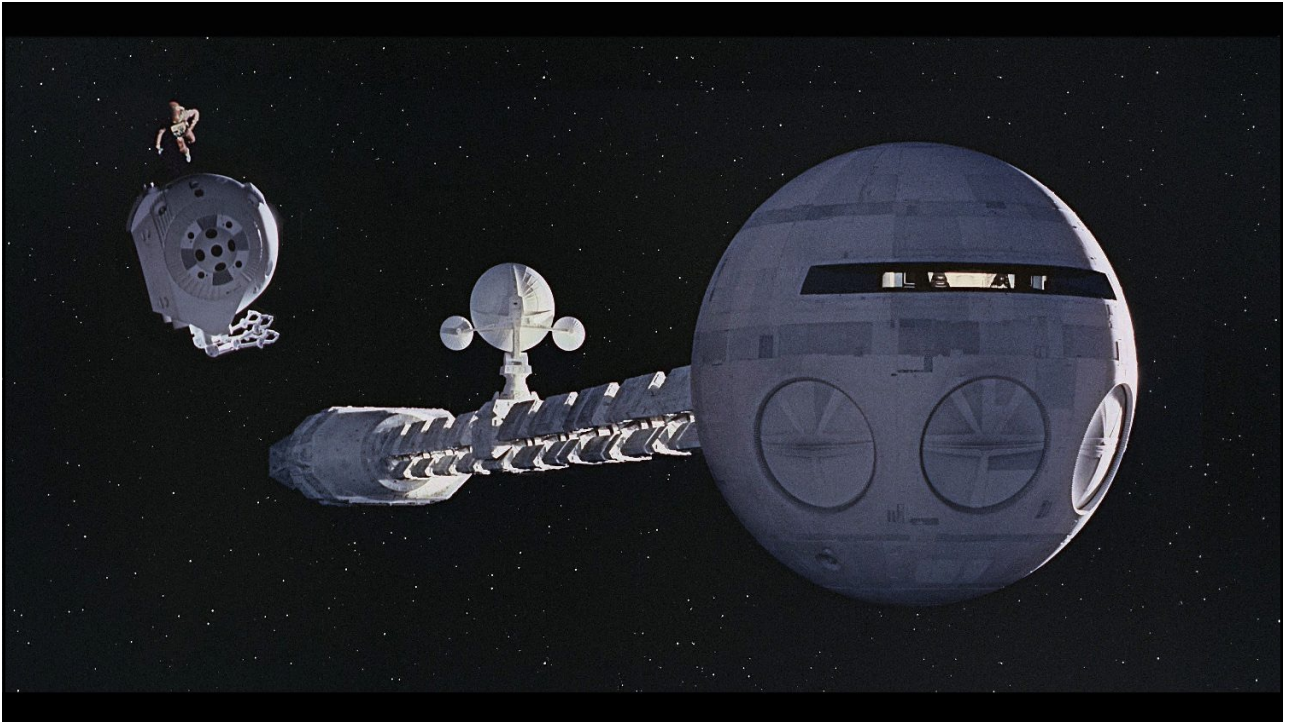
Alcuni Esempi....

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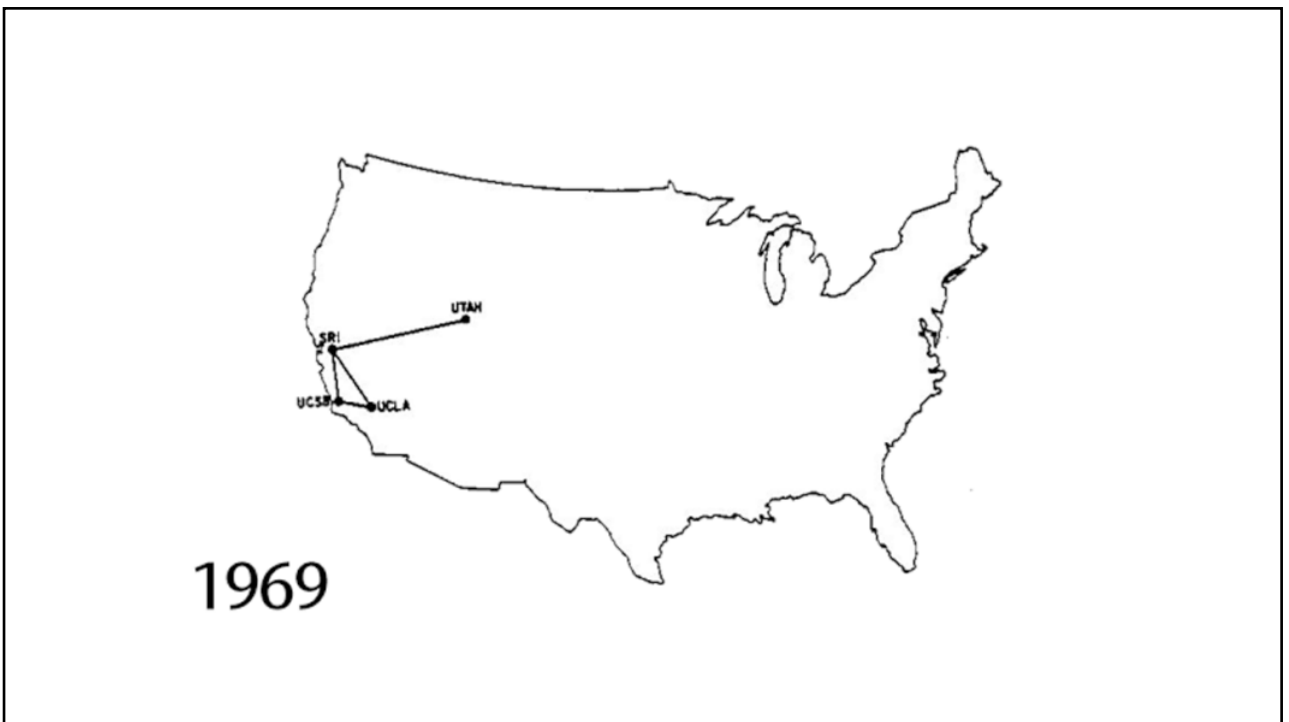
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TIM BERNERS LEE

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World Wide Web

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Everything there is online about W3 is linked directly or indirectly to this document, including an [executive summary](#) of the project, [Mailing lists](#) , [Policy](#) , November's [W3 news](#) , [Frequently Asked Questions](#) .

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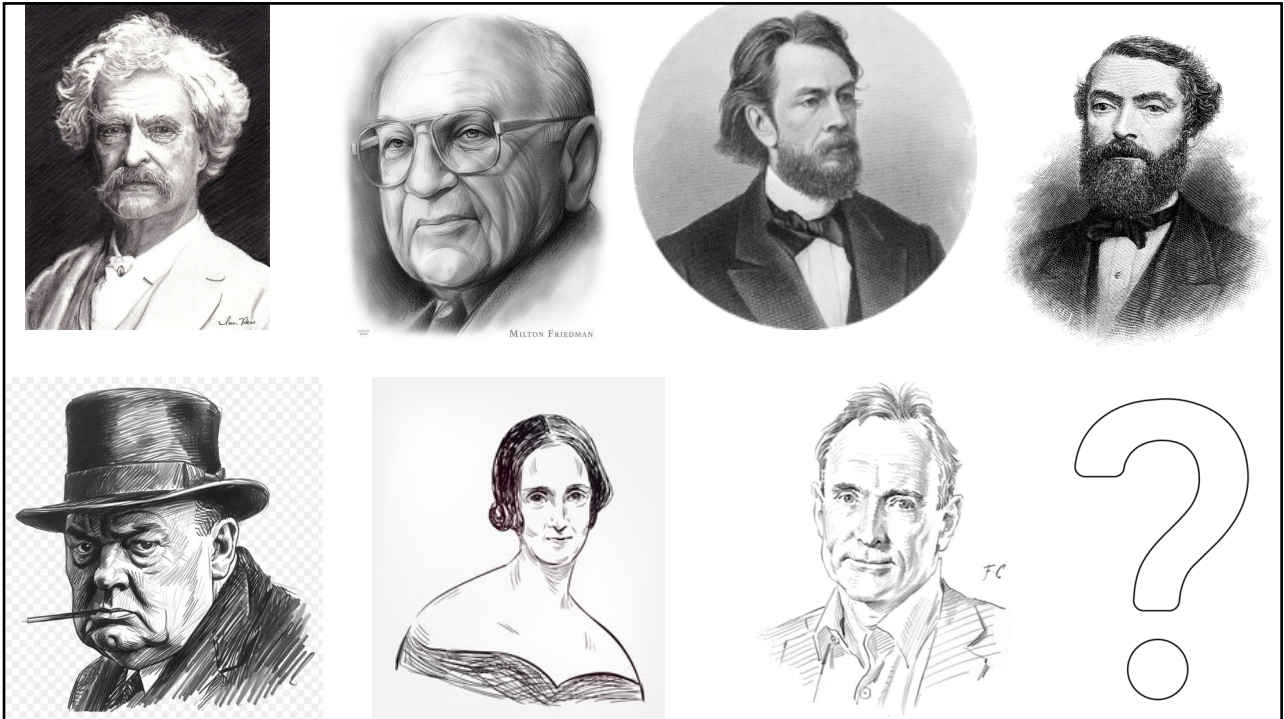
- Diciassette giorni affinché il primo utente visitasse la pagina web.

- 1994 yahoo
- 1995 Explorer
- Google

- *From the 'London Times' of 1904, è stato pubblicato nel 1898.*

6 agosto 1991, World Wide Web

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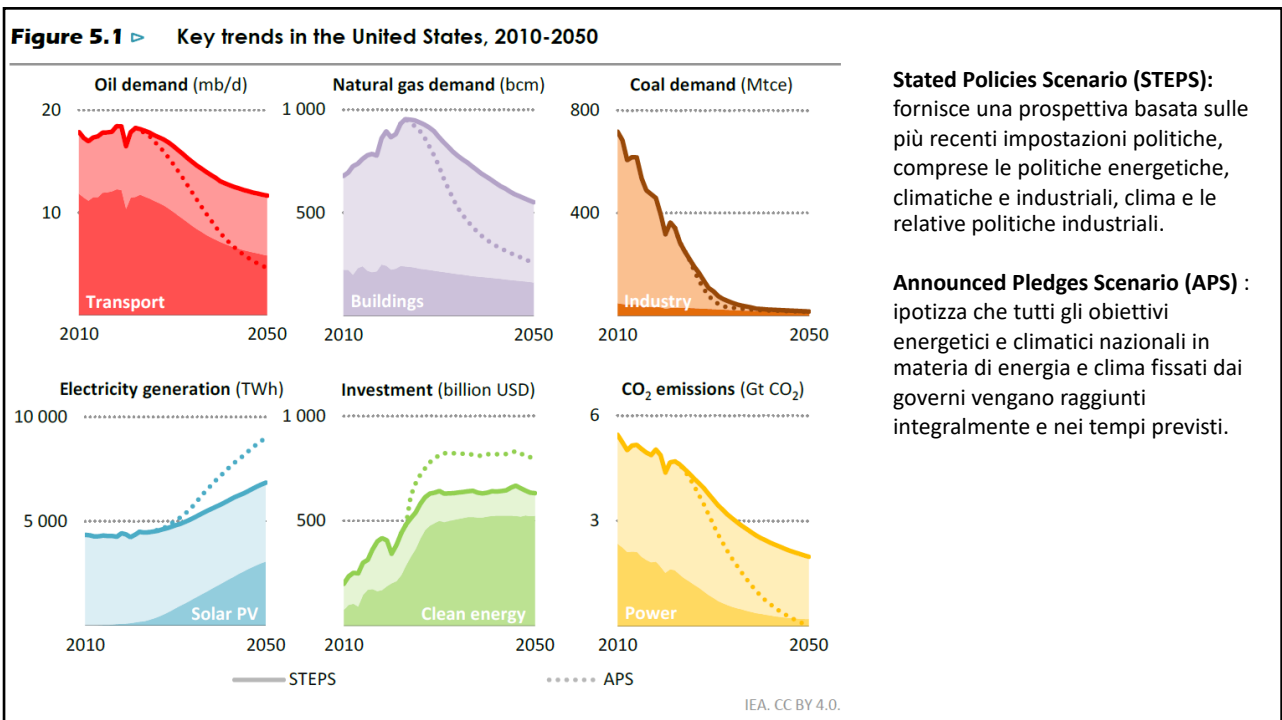
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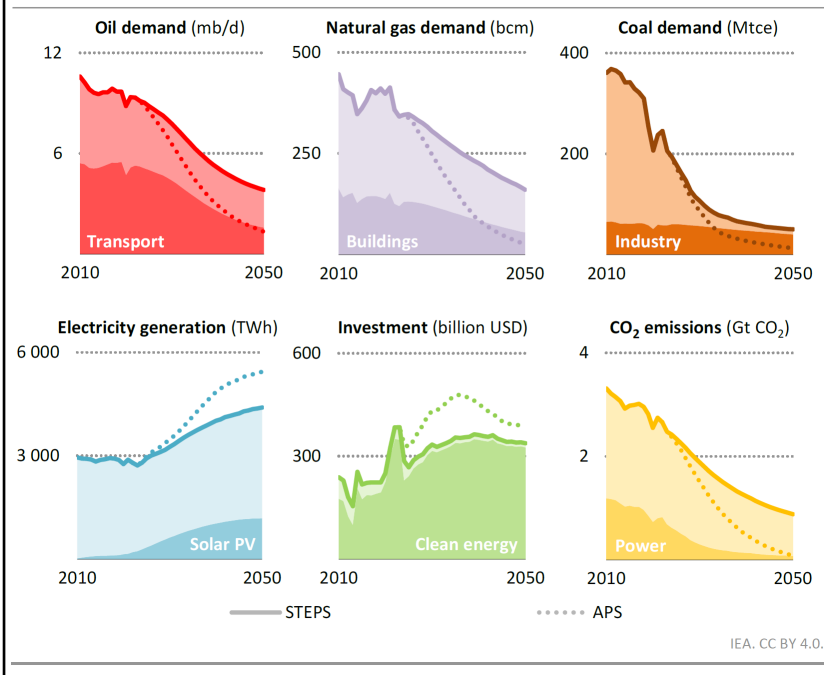


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Figure 5.7 ▶ Key trends in the European Union, 2010-2050

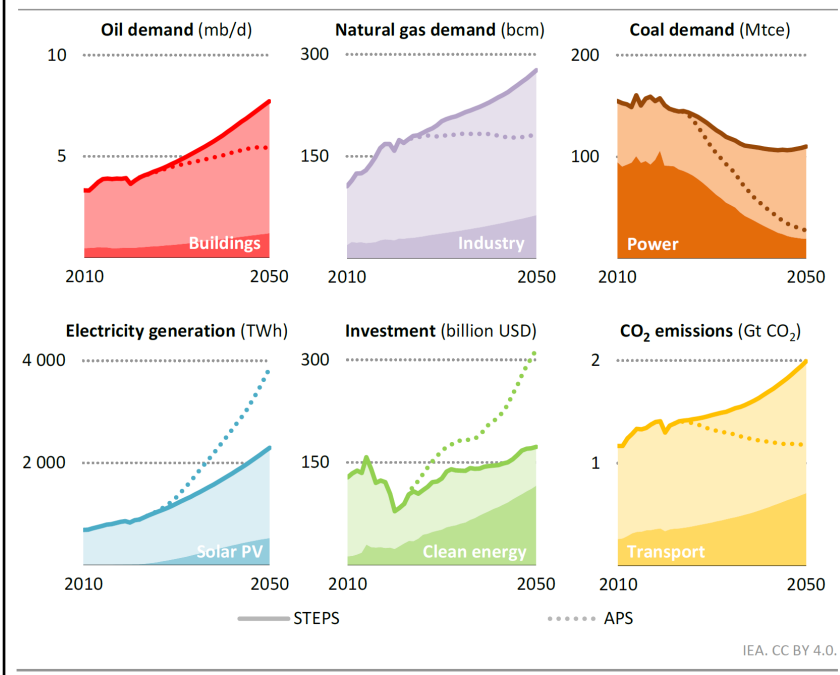


Stated Policies Scenario (STEPS): fornisce una prospettiva basata sulle più recenti impostazioni politiche, comprese le politiche energetiche, climatiche e industriali, clima e le relative politiche industriali.

Announced Pledges Scenario (APS) : ipotizza che tutti gli obiettivi energetici e climatici nazionali in materia di energia e clima fissati dai governi vengano raggiunti integralmente e nei tempi previsti.

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Figure 5.10 ▶ Key trends in Africa, 2010-2050

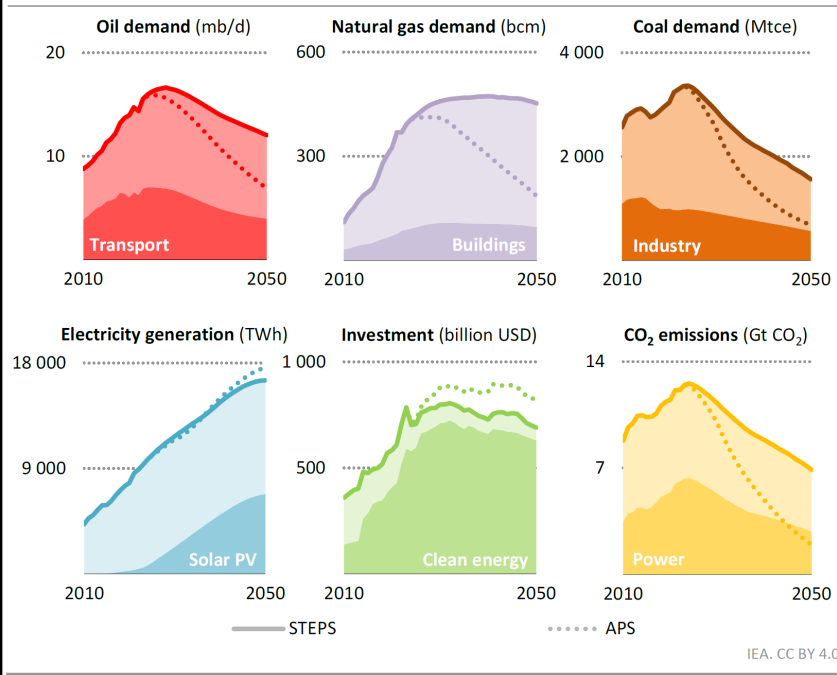


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Announced Pledges Scenario (APS) : ipotizza che tutti gli obiettivi energetici e climatici nazionali in materia di energia e clima fissati dai governi vengano raggiunti integralmente e nei tempi previsti.

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Figure 5.19 ▶ Key trends in China, 2010-2050



Stated Policies Scenario (STEPS): fornisce una prospettiva basata sulle più recenti impostazioni politiche, comprese le politiche energetiche, climatiche e industriali, clima e le relative politiche industriali.

Announced Pledges Scenario (APS) : ipotizza che tutti gli obiettivi energetici e climatici nazionali in materia di energia e clima fissati dai governi vengano raggiunti integralmente e nei tempi previsti.

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