

Effets économiques du pic de pétrole

Ian Schindler  

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INSTITUT DE MATHÉMATIQUES
de TOULOUSE



Toulouse
School of
Economics



ASPO France

Outline

Pic énergie primaire

Rappels

Prix de l'énergie

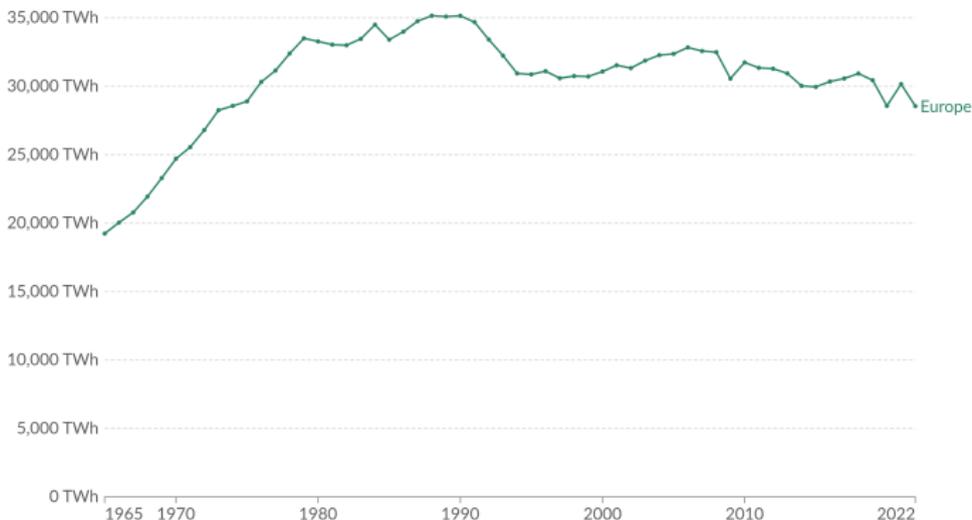
Prévisions

Europe (selon Our World in Data)

Primary energy consumption



Primary energy¹ consumption is measured in terawatt-hours², using the substitution method³.



Data source: U.S. Energy Information Administration (2023); Energy Institute - Statistical Review of World Energy (2023)

Note: Data includes only commercially-traded fuels (coal, oil, gas), nuclear and modern renewables. It does not include traditional biomass.

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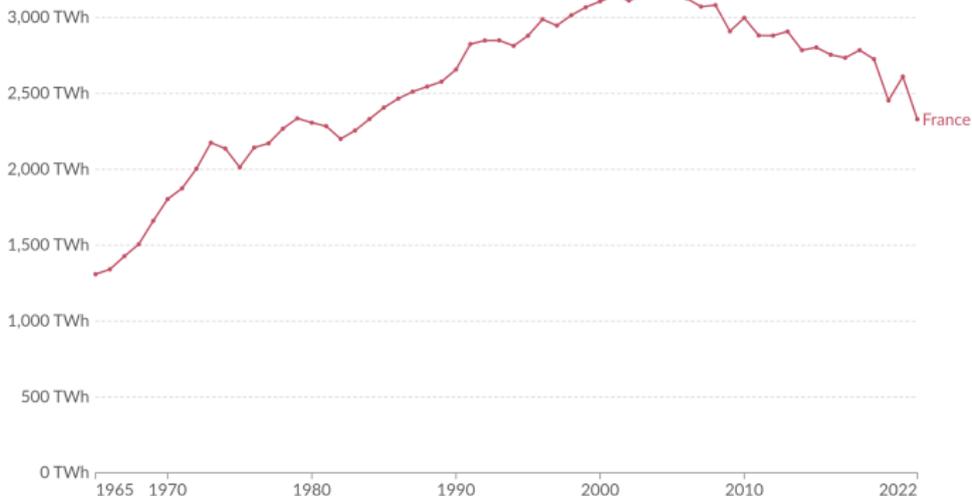
1. **Primary energy:** Primary energy is the energy available as resources – such as the fuels burnt in power plants – before it has been transformed. This relates to the coal before it has been burned, the uranium, or the barrels of oil. Primary energy includes energy that the end user needs, in the

France (selon Our World in Data)

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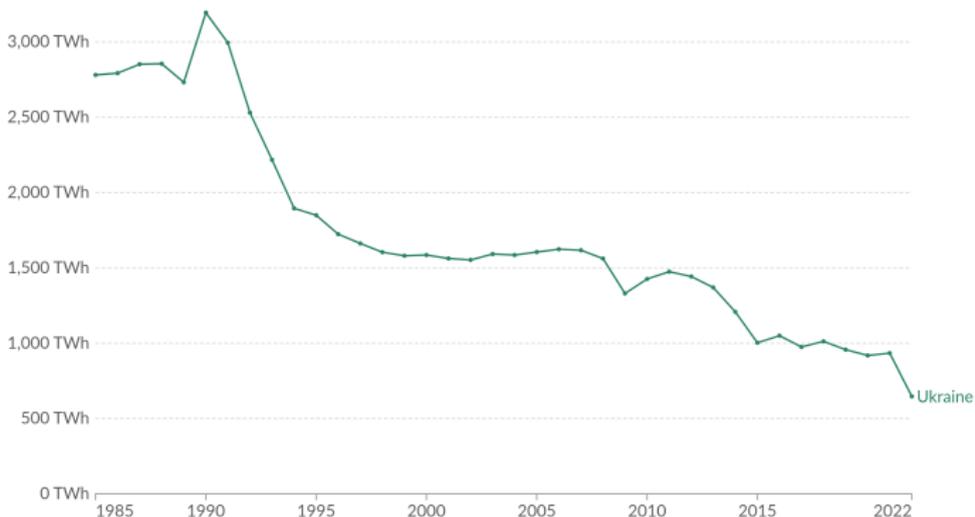
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Ukraine (selon Our World in Data)

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Effets ?

On les vit déjà !

Importance et "cost share"

Cost share $\stackrel{\text{def}}{=} \text{Proportion du PIB d'un secteur.}$

Théorème du cost share :

Version néoclassique : la taille

~ importance.

"Too big to fail"

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"Too big to fail"

(Illig and Schindler, 2017) :

la dynamique donne
 l'importance.

- ▶ PIB $\searrow \implies$ taille \nearrow .
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Théorie : cost share 1

$$Y = Y(t) \stackrel{\text{def}}{=} \text{PIB}(t)$$

$$Y_E \stackrel{\text{def}}{=} pq \subset Y \quad (1)$$

$$Y_{EG} \stackrel{\text{def}}{=} Y - Y_E \quad (2)$$

$$C = C_E(t) \stackrel{\text{def}}{=} \frac{Y_E}{Y} = \frac{Y_E}{Y_E + Y_{EG}} = pq/Y. \quad (3)$$

d'où

$$Y = pq/C \quad (4)$$

$$p = CY/q \quad (5)$$

Théorie cost share 2

$$(4) \implies \log Y = \log p - \log C + \log q$$

$$\frac{\partial Y}{\partial q_i} = Y \left(\frac{\frac{\partial p_i}{\partial q_i}}{p_i} - \frac{\frac{\partial C_i}{\partial q_i}}{C_i} + \frac{1}{q_i} \right). \quad (6)$$

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Remarque

Si $p \nearrow$, $q \nearrow$ et $C \searrow$, alors $Y \nearrow$.

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Surproduction ?

Cohérence : (Veblen, 1899; Graeber, 2018; Fix, 2020)

Exemples

Monde

20^{ème} siècle : $C_E \searrow$. L'industrie de pétrole payait : les investisseurs, les propriétaires, les employés, les impôts.

$\implies Y_{EC} \nearrow$. Contraste avec 21^{ème} siècle !

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France

Cost share nourriture, 1960: 35%, 2023: 18%

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France

Cost share nourriture, 1960: 35%, 2023: 18%

Cuba

Cost share nourriture 2024 : 70%

Paradoxe de Jevons

Ansatz : $Y(U) \nearrow$ où

$$U \stackrel{\text{def}}{=} eE$$

(Ayres and Warr, 2006).

Si $C = \text{const.}$ et $q = \text{const.}$: (5) $\implies p = CY(U)/q$.

$e \nearrow \implies Y \nearrow \implies p \nearrow$.

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Avant le pic, $C \searrow$, après $C \nearrow$.

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$$\begin{aligned} p &= CY/q \\ &= Ckq^{\alpha-1} \end{aligned}$$

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C constant alors

$$\alpha < 1 \implies \frac{\partial p}{\partial q} < 0$$

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Exposant critique : 1

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$\alpha = \alpha(t)$.

Cost Share

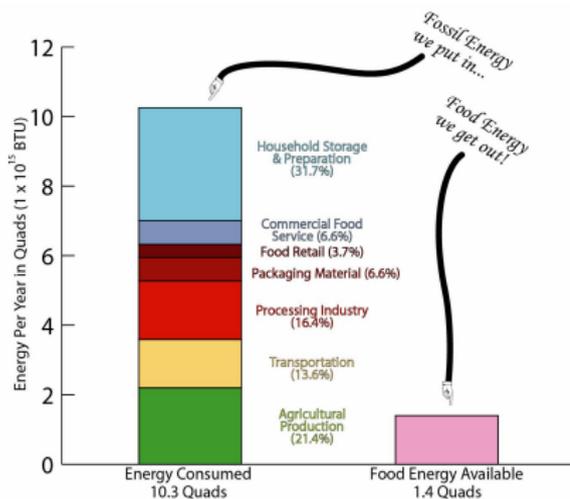
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Cost Share

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$$C_{\text{nourriture}} \nearrow .$$

$$\alpha(t) \nearrow .$$

Agroécologie



La politique

Beaucoup de politiques.

Comment résoudre des problèmes socio-économiques sans la croissance ?

Références

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