

European Bioeconomy Scientific Forum 2023

Moving Towards the Transformation

6th-8th September, 2023 - Vienna

europaean
bioeconomy
university



The uncomfortable knowledge associated with the concept of bioeconomy

Mario GIAMPIETRO

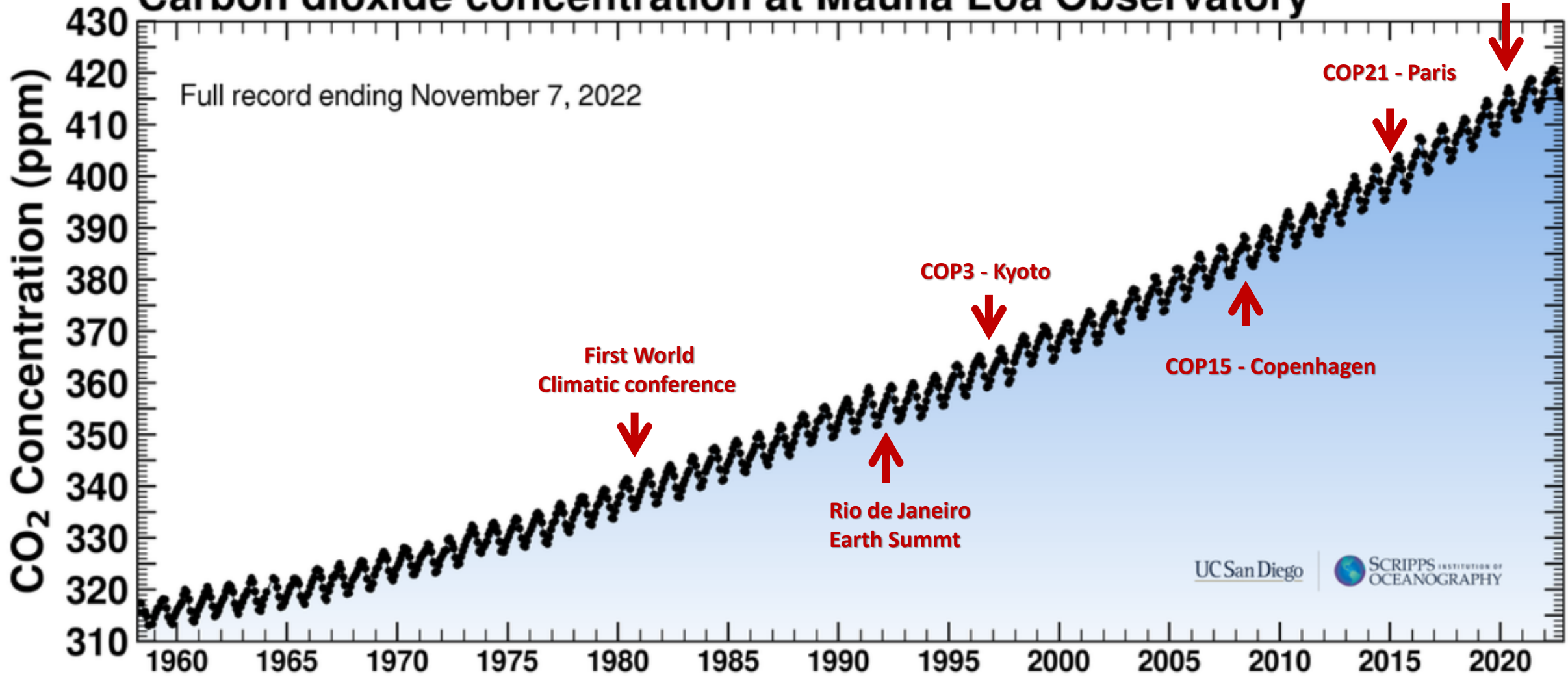
icta



UAB
Universitat Autònoma
de Barcelona



Carbon dioxide concentration at Mauna Loa Observatory



https://bluemoon.ucsd.edu/co2_400/mlo_full_record.pdf

full record – 1960-2022

Climitard

/'klimit'tard/

**A person that believes
the climate
can be changed by
paying a CO₂ tax to
the government.**

TRADABLE PERMITS (WITHOUT CAPS)

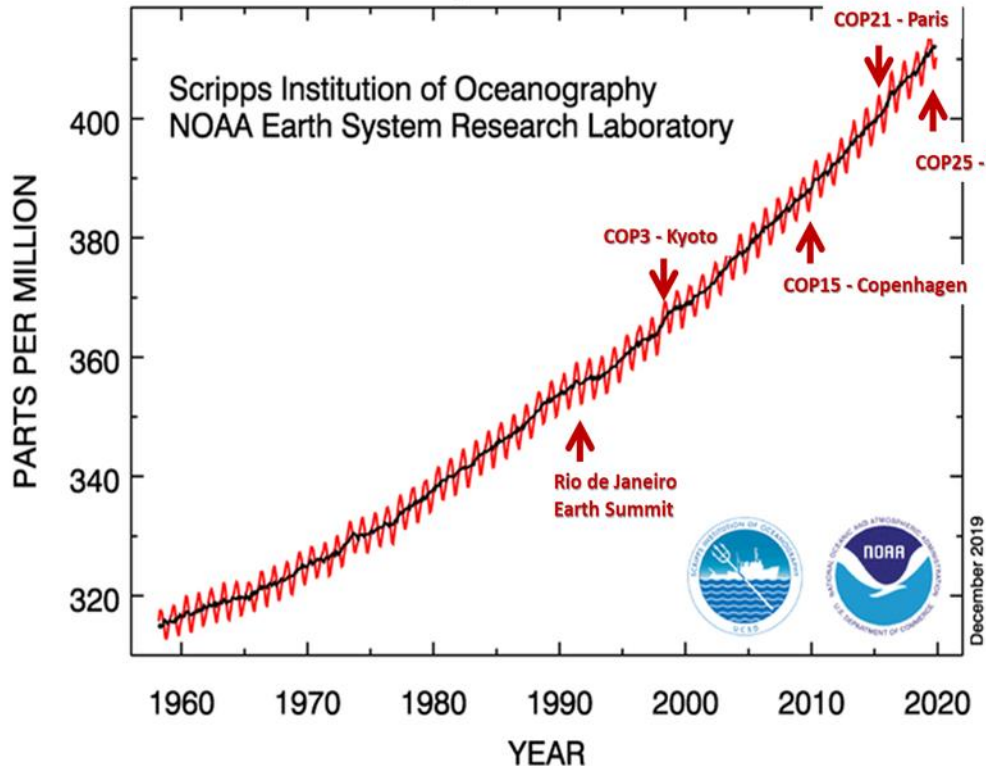
The countries that emit CO₂ can keep emitting if they give money to the countries not emitting enough so that they can industrialize

KUZNET CURVE

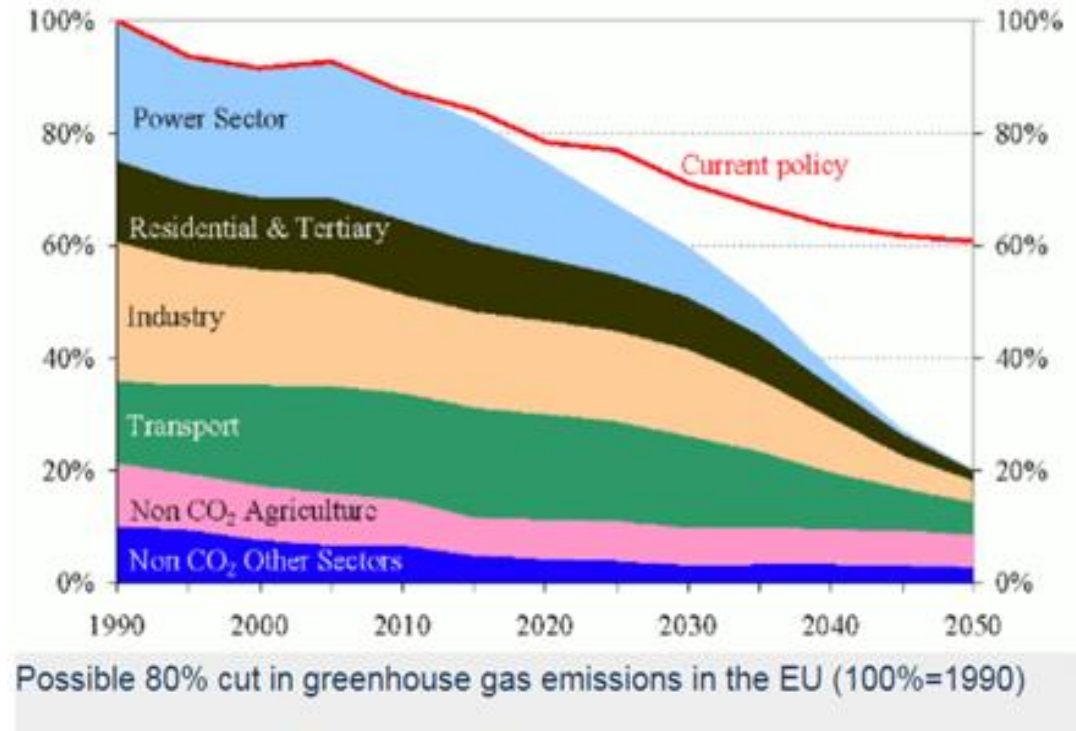
Post-industrial countries move from the production of industrial products to the production of financial products (debts). In this way, they can import what they consume reducing the pressure on their local environment (that is externalized elsewhere)

How is it possible that we use such sloppy narratives?

Atmospheric CO₂ at Mauna Loa Observatory



IAMs scenarios



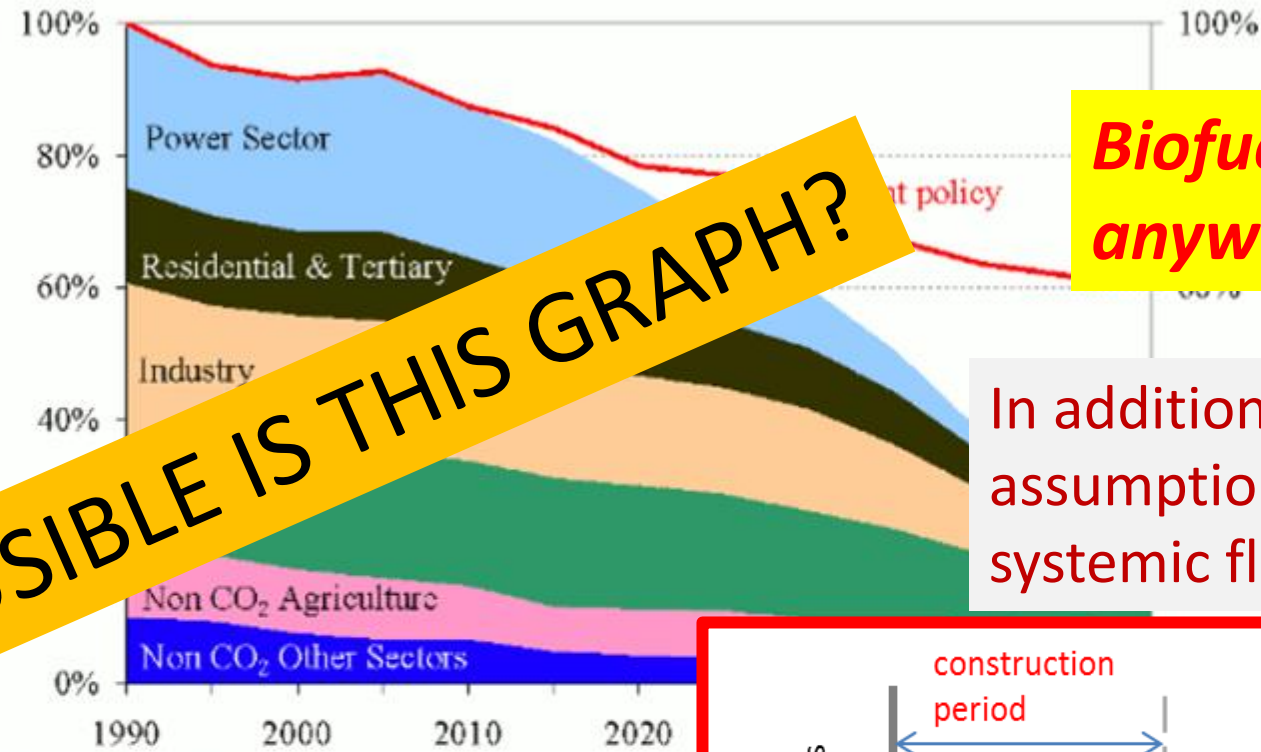
EU estimates 2019

Practical consequences – policy legends generating implausible analysis

Power generation & distribution

The power sector has the biggest potential for cutting emissions. It can almost totally eliminate CO₂ emissions by 2050.

Electricity could partially replace fossil fuels for transport. Electricity will come from renewable sources like



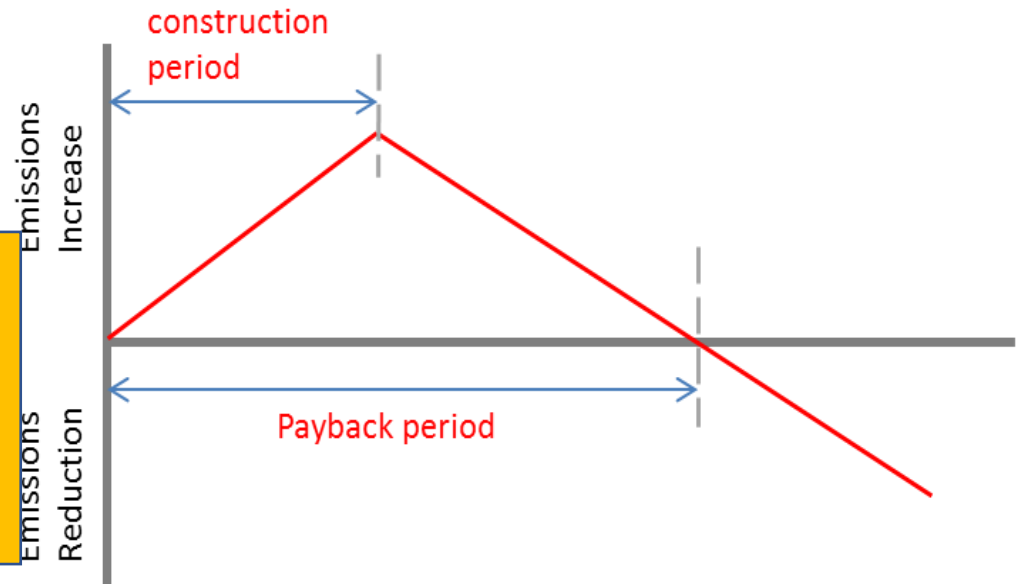
Biofuels are not getting anywhere

In addition to the implausible assumptions there is also a systemic flaw in the modeling . . .

HOW PLAUSIBLE IS THIS GRAPH?

Implementing processes* needed for producing: (i) energy carriers; (ii) cement; (iii) steel; (iv) plastic; (v) ammonia (*fertilizers*)

* *Making Power plants, Fabrics, Infrastructures*



Payback time of an investment in alternative energy

A black and white line drawing of a hand pointing upwards. The hand is wearing a blue wristband. A speech bubble is positioned above the hand, containing text. The drawing is simple and sketchy.

sorry my friends: the social conquests
were only temporary concessions

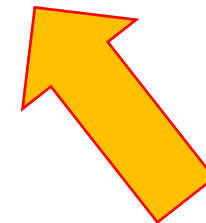
*Viñeta de El Roto
6 Septiembre 2012*

THE EMOTIONAL DIMENSION . . .

What is the function of science in society?

1. Generating useful knowledge

**2. Legitimizing social institutions
("they know what they are doing . . .")**



**This function takes over
in serious crises!**

The sustainability predicament #1: SOCIALLY CONSTRUCTED IGNORANCE



Steve Rayner

“To make sense of the complexity of the world so that they can act, individuals and institutions need to develop simplified, self-consistent versions of that world. The process of doing so means that . . . **knowledge which is in tension or outright contradiction with those versions must be expunged . . .**”

dysfunctional cases of **uncomfortable knowledge**
have to be ignored in the official story-telling

Rayner, S., 2012. “Uncomfortable knowledge: the social construction of ignorance in science and environmental policy discourses”, *Economy and Society*, 41(1): 107-125.

1 EU citizen
8,760 h/year

Energy
& Mining

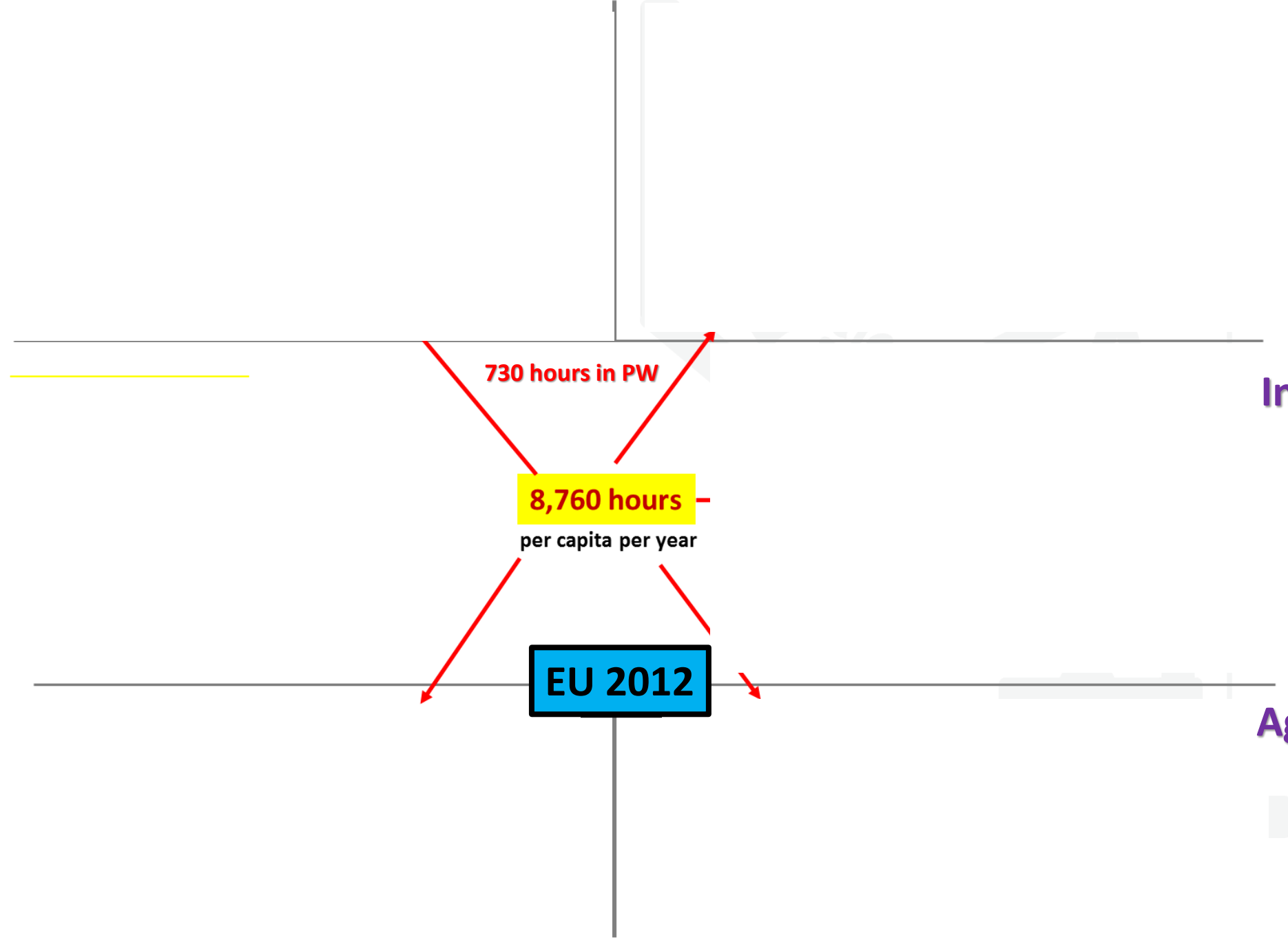
Industry

Agriculture

730 hours in PW

8,760 hours
per capita per year

EU 2012



For more information you can check the results of the EU project MAGIC

<https://magic-nexus.eu/documents/deliverable-44-report-nexus-structuring-space>

Moving Towards Adaptive Governance in Complexity: Informing Nexus Security

<https://magic-nexus.eu/>



**Uncomfortable
Knowledge Hub**

uncomfortableknowledge.com



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Giampietro M & Funtowicz SO 2020, 'From elite folk science to the policy legend of the circular economy', *Environmental Science & Policy*, vol. 109, pp 64-72. DOI: 10.1016/j.envsci.2020.04.012.

Giampietro M & Bukkens, SGF (2022). 'Knowledge claims in European Union energy policies: Unknown knowns and uncomfortable awareness', *Energy Research & Social Science*, vol. 91, article 102739; <https://doi.org/10.1016/j.erss.2022.102739>

Thanks for your attention
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Perez-Sanchez, L., Velasco-Fernandez, R., & Giampietro, M. (2020), 'The international division of labor and embodied working time in trade for the US, the EU and China', *Ecological Economics*, <https://doi.org/10.1016/j.ecolecon.2020.106909>.