

**Integral Ecology: Chances and obstacles.
Economic motivations prompting quick action?**

Marina Fischer-Kowalski

Contribution to the International Conference
of the Centesimus Annus pro Pontifice Foundation, Rome, June 7-8, 2019

Integral ecology – dearly needed

- Over two centuries ago, a novel model of human progress had emerged in some countries, and has spread globally since:
 - Its **social relations** build upon **capitalism** and **democracy**
 - Its **relation to nature** builds upon the **use of fossil fuels** that give humans unprecedented power over nature
- This model indeed brought a substantial improvement in human living conditions – but its lifetime is limited.
 - It has been producing extreme **inequality** between humans, and it
 - **threatens** the climate and the **ecological balance** of the planet, even its future inhabitability

What I will discuss

1. Are there **economic forces** prompting / facilitating a departure from fossil fuels?
2. Is there a process of **social transformation** leading in the right direction (away from fossil fuels, and towards more equality)?

**1. Will capitalist mechanisms achieve
our departure from fossil fuel use?**

Should an investor or a pension fund, thinking long term, put money into coal-mining companies?

Best Five Returns in 2018 From Coal-Mining Companies, Global

- 1. BHP Group PLC:** Market Cap \$126.06 billion
0.72% annual return
- 2. Arch Coal Inc.:** Market Cap \$1.93 billion
-11% annual return (declared bankruptcy in 2016)
- 3. Warrior Met Coal Inc:** Market Cap \$1.69 billion
-11.38% annual return
- 4. Consol Energy Inc:** Market Cap \$965.75 million
-15.82% annual return
- 5. Teck Resources Ltd.:** Market Cap \$13.77 billion
-20.01% annual return

And oil?

Europe's oil giants are getting the climate message. US companies not so much



By [Ivana Kottasová](#), CNN Business

Updated 9:40 AM ET, Wed April 24, 2019

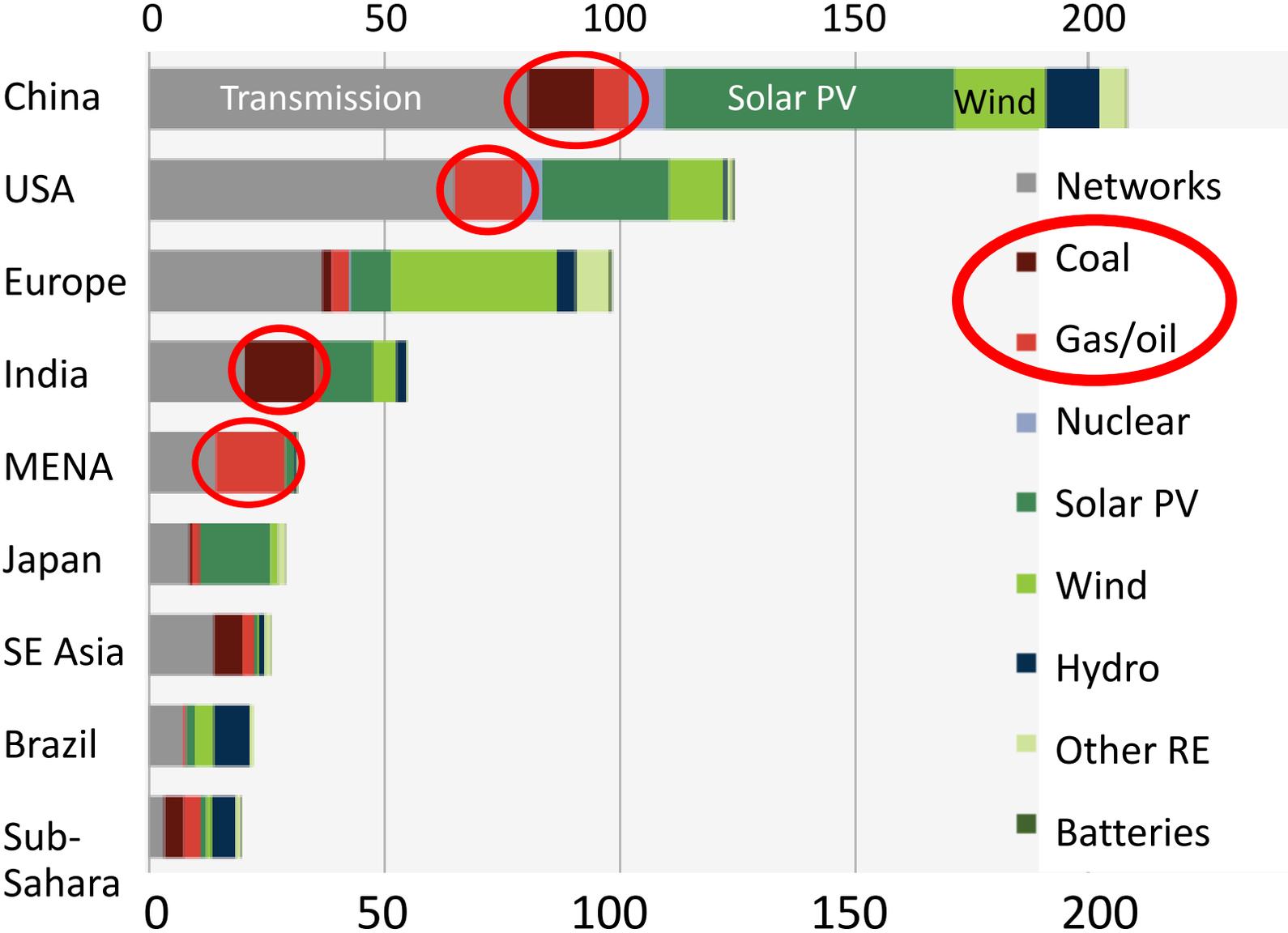


London April 24: “Equinor (formerly Norway’s Statoil) just became the latest European energy company **to cave in to** 320 investors with \$33 trillion in assets over climate change”, joining “Total, Royal Dutch Shell and BP, as well as coal mining and commodities giant Glencore, in taking steps to...” **align with Paris Agreement targets.**

But, “**ExxonMobil in the US blocked a shareholder vote** this month...[urging] the company to adopt...Paris [targets]. **Chevron tried** to scrap a similar shareholder vote, **but was prevented from doing so** by the Securities and Exchange Commission.” And finally, “**Shell recently said it would quit a major US oil lobby over its climate policies.**”

Thus: disinvestment pressures mounting, success mixed

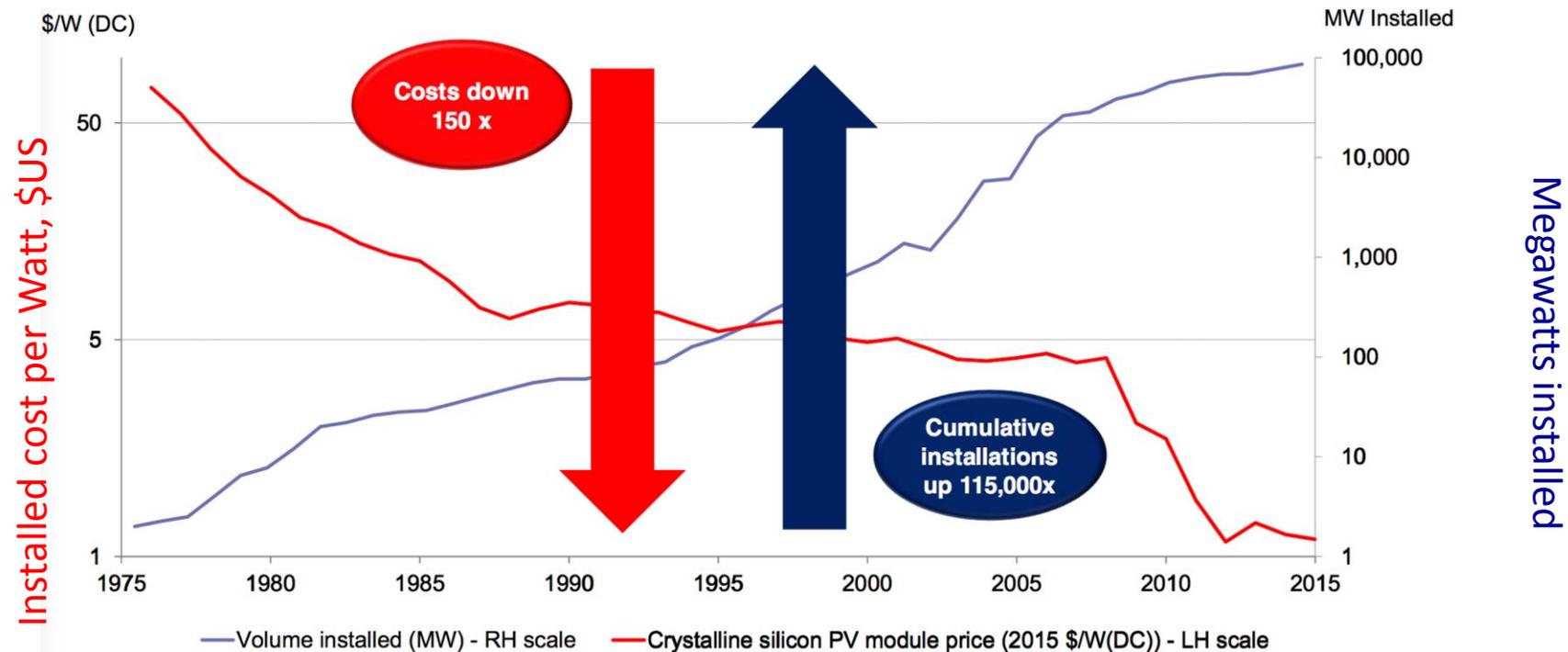
Power Sector Investment, 2017



US\$, Billion

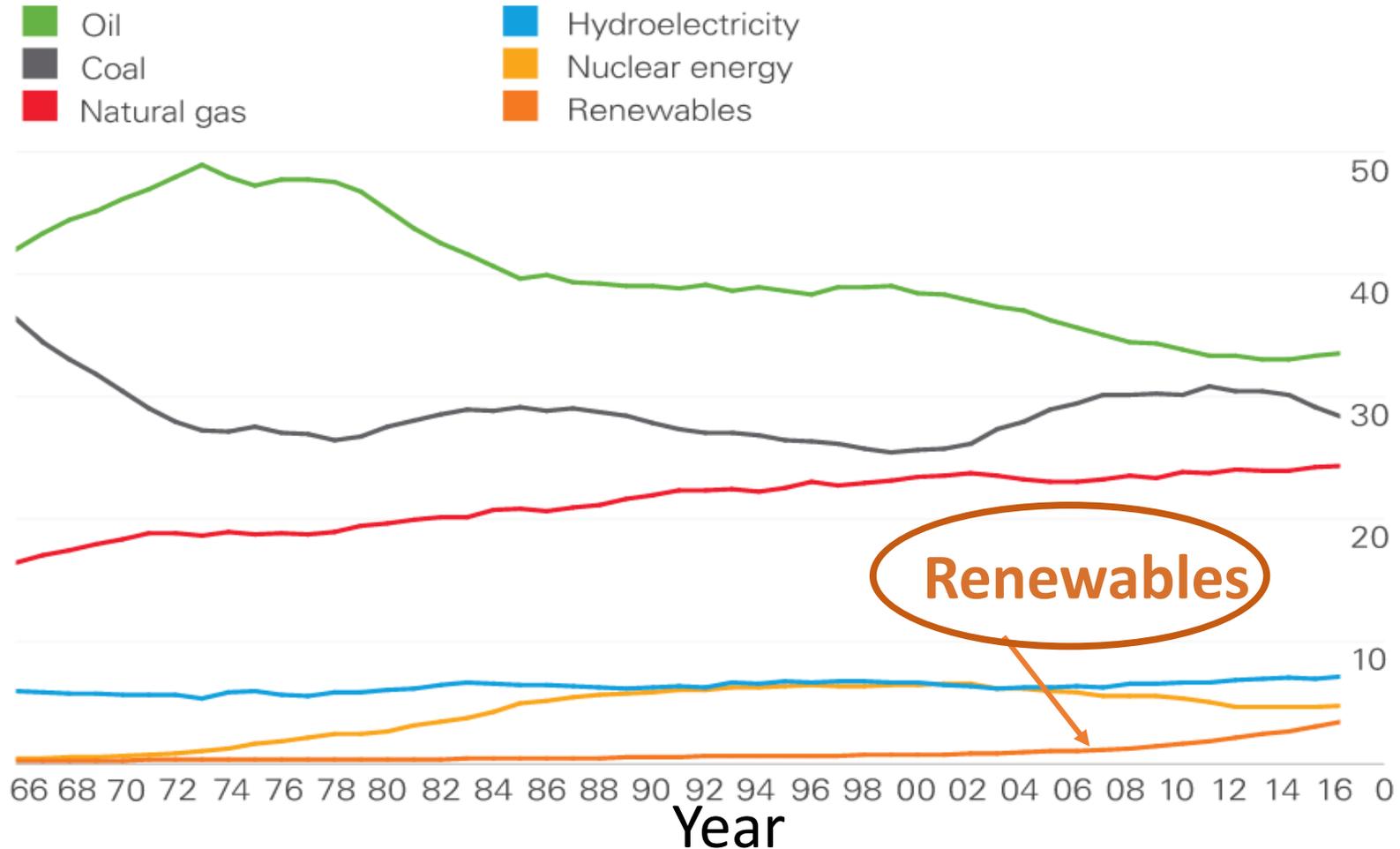
Source: IEA, July, 2018

Declining costs and increasing installation of Photovoltaic Cells



Sources: Bloomberg Energy Finance, April 6, 2016

BUT: Renewables account for no more than 5% of primary energy supply, globally



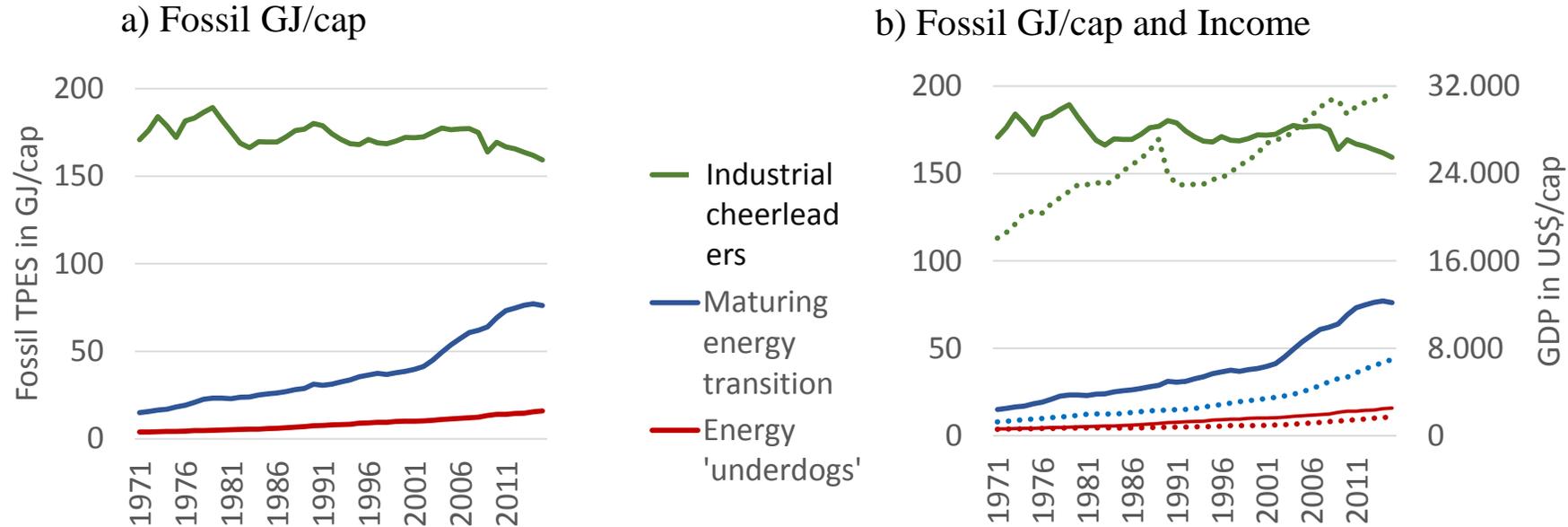
1. Will capitalism achieve our departure from fossil fuel use?

**Some of its mechanisms seem to favour that
– but many others stand against it**

&

2. most of the world is still caught in a social transformation towards fossil fuel use

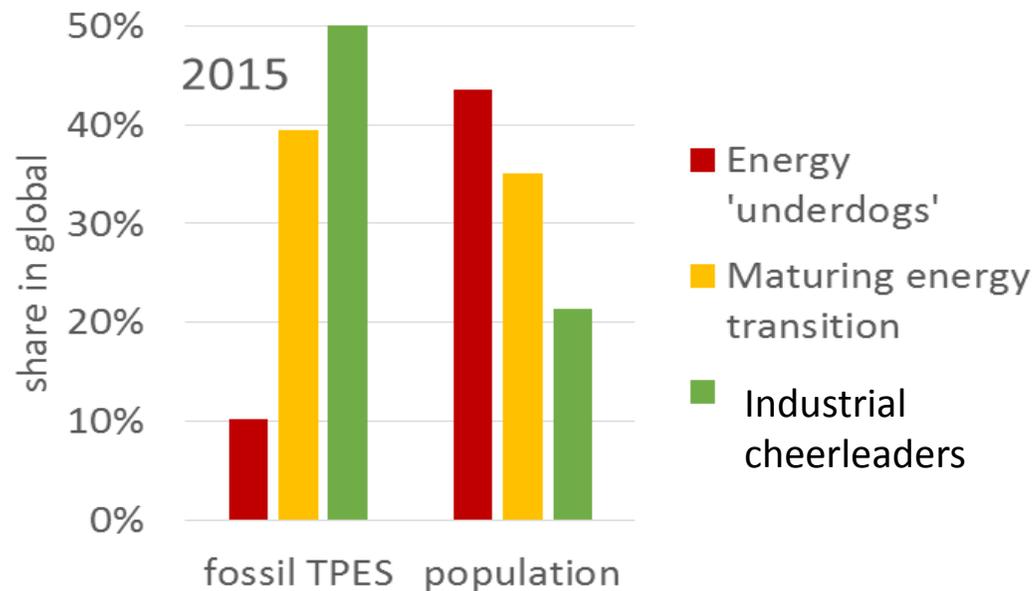
The dynamics of fossil fuel use and income since the 1970s



„Maturing“ countries gain most in FF/cap use, while those that „completed“ (industrial cheerleaders) reduce a little. Underdogs gain, but much is absorbed by pop growth.

Economically, „maturing“ countries gain less income, while the industrial cheerleaders increase their income above FF use. (Unequal exchange, outsourcing)

Shares in global fossil energy use 2015 of countries in different transition phases



Energy transition underdogs

3.1 billion people
48.6 EJ fossil TPES
15.8 GJ_{FF}/cap

Maturing energy transition

2.5 billion people
188.0 EJ fossil TPES
76.2 GJ_{FF}/cap

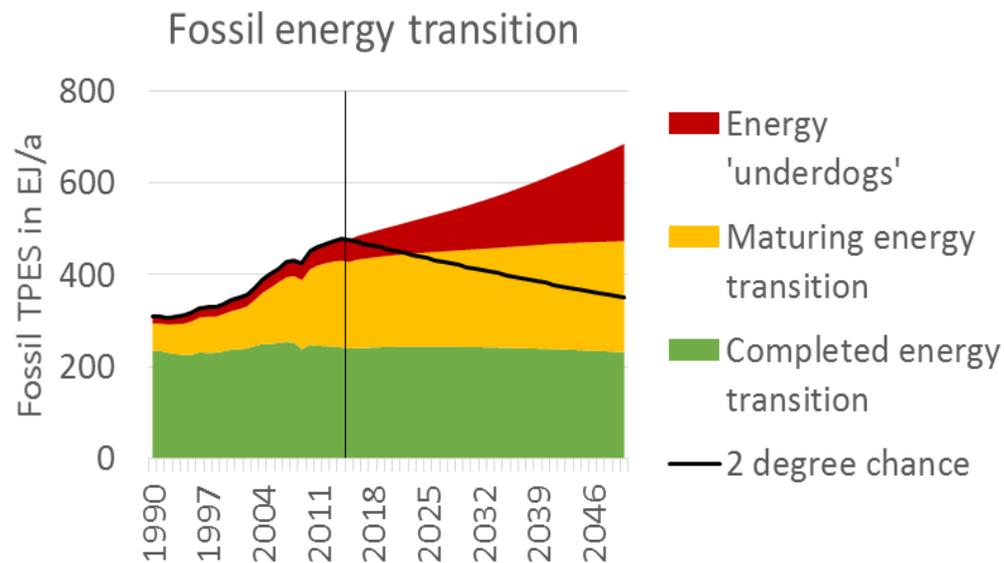
Completed energy transition

1.5 billion people
239.8 EJ fossil TPES
159.3 GJ_{FF}/cap

44% of the world's population are energy underdogs, consume just 10% of the world's FF, just 16 GJ/cap;

21% have completed the transition and account for 50% of global consumption, consume 160 GJ/cap.

If the ongoing energy transition dynamics continues, we end up with a 4 degree temperature rise in this century

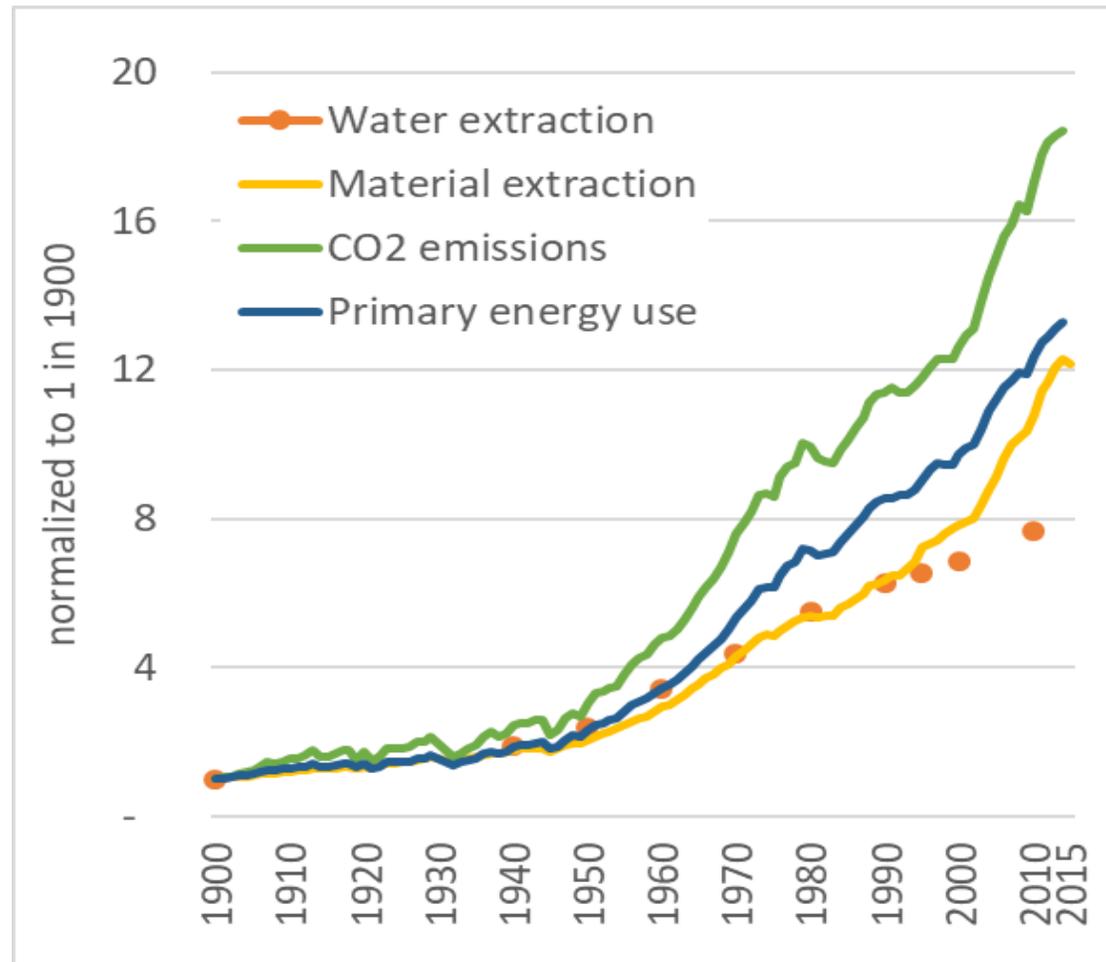


Fossil energy transition following previous trends

If the fossil energy transition continues, almost 700 EJ of fossil TPES would be required by 2050, **twice as much as would allow the chance for limiting global warming to 2 degrees** (McGlade & Ekins 2015).

Nevertheless, energy underdogs would barely reach 50 GJ_{FF} / cap by 2050.

Global resource use and CO₂ emissions longterm: 1900-2015



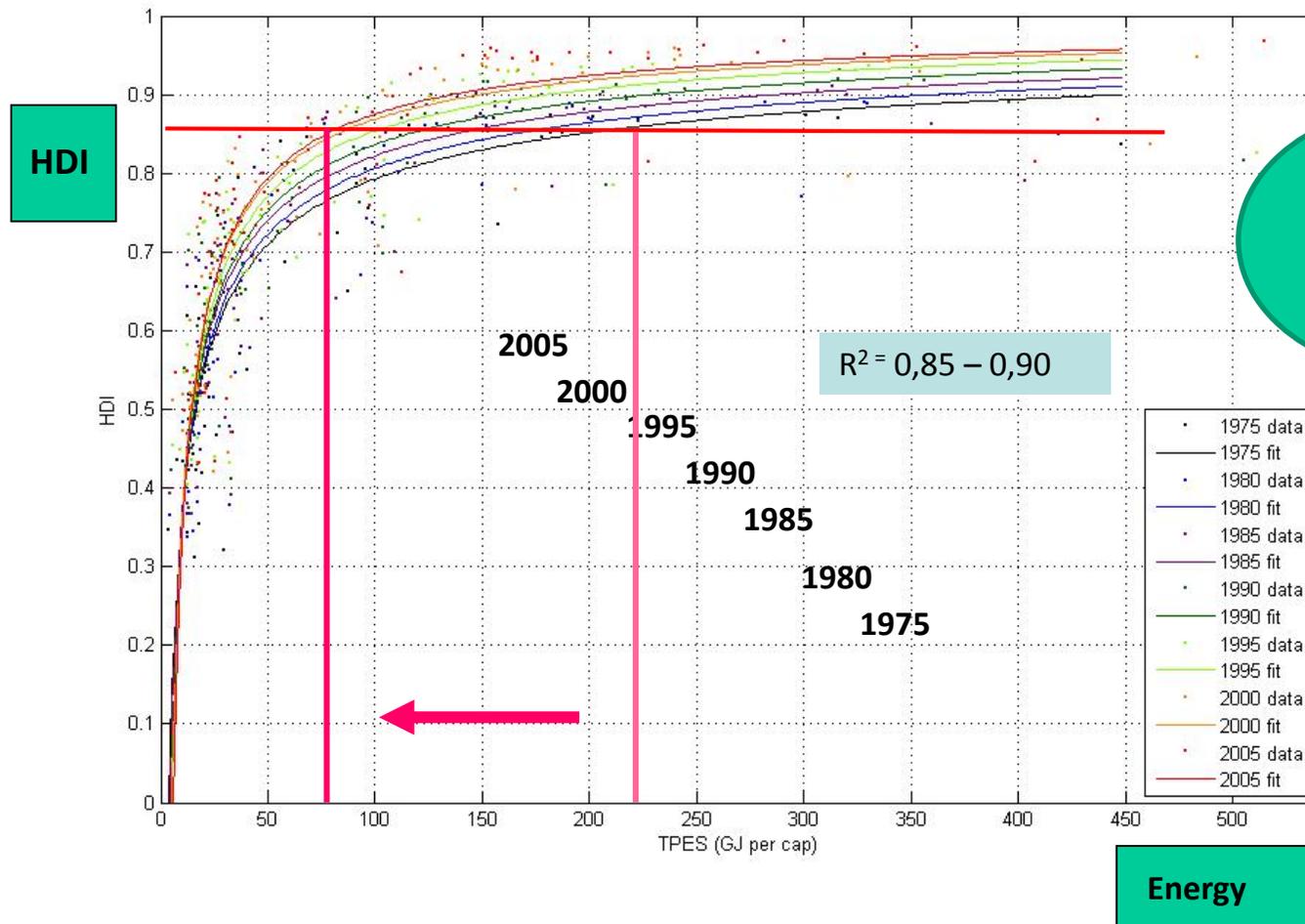
rocketeering...

Policies matter!

- Le Queré et al. (2019) found 18 countries, all of them among the industrial cheerleaders, with a „**peak and decline**“ pattern in carbon emissions 2005-2015.
- The decline was mainly explained by *reductions in energy use* and *reductions in fossil share*.
- She could identify policies towards *energy efficiency*, *renewable energies* and *climate protection* to be highly correlated with this trend.
- In her control groups she found rising carbon emissions, despite some mitigating policies that were overruled by *growth in energy use*.

**3. Good news at the end:
We have learned to do pretty well with less
energy,
and more of it does not improve
the essentials of human lives.**

Global modern energy use and human development Index 1975-2005 (by countries)



source: Steinberger & Roberts 2009

*Everybody talks about
the weather, but nobody
does anything about it!*

Mark Twain

Student poster at the Fridays-for-Future demonstration in Vienna, May 31st, 2019