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Fossil Energy Sources in Light of the Energy Transition

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“In the West, many people are of the impression that a radical shift from oil and gas (‘red meat’) to a rapid and complete phase-out of hydrocarbons (‘vegan’) is the way to go, often without differentiating between oil and natural gas at all. As we are now waking up to the realization that it is not so easy and that natural gas is the transition energy source – ‘the chicken’ – that could help bridge the gap in hydrocarbon energy supply and the demand for net zero emissions”

(Edward Wiarda, president of EAGE). In light of this here some critical words to my topic:

Over 2 billion people worldwide, half of them in Africa, are typically cooking over open fires and basic stoves. Using charcoal, wood, agricultural waste, and animal dung as fuel, they inhale harmful toxic fumes and smoke with dire consequences for health. It is the second leading cause of premature death in Africa. Women and children account for most of the lives lost, the vast majority of them in sub-Saharan Africa. Opportunities for education, employment and independence are limited because women instead spend hours each day foraging for rudimentary fuels.

Question: shouldn't we support these underprivileged people in improving their energy-technologic standards timely by appropriate means?

Coal, petroleum, natural gas – often seen as today's 'best hated enemies' of climate and human lives – are natural products, generated from ancient biomass.

Living in an industrialized world with steady economic growth they have become basic raw materials for almost all kinds of progress mankind has made during the last two centuries. Today's technical, medical, pharmaceutical, communications or mobility and even food and cosmetic products were impossible without these fossils. We could not enjoy the comfort of living and health standards we do now and billions of people worldwide are still striving for.

2022, our growing community and economy consumed about 100 million barrels of oil per day and demand has still not reached the often discussed peak. Beyond this oil volume some 8.8 billion tons of coal and 4 trillion m³ of natural gas satisfied the world market.

To reach the agreed COP15 climate targets the IEA estimates annual investment needs of USD 1.3 trillion in renewable energy sources. Between 2012 and 2022 several trillions of invested dollars in renewables reduced the fossils' share from 81 to 79 percent of the worldwide growing energy consumption.

Extremely ambitious energy transition targets require an almost total replacement of fossil energy sources by renewable ones by 2050. Is this doable? We don't know.

The public discussion often neglects the widely differing energy content of 'bad fossils' versus 'good renewables' in favor of the fossils. Running steel mills or concrete plants with energy from wind mills or PV plants is rather unrealistic, ample 'green nitrogen' a vision.

What should be a realistic target? 'Out of the fossils' may be valid for the long term. For the coming decades, global availability at competitive prices for coal, oil and gas with their high energy contents and expanding renewable energy sources need to complement each other where possible – either source has its justification and business segment. The call to minimize their ecologic footprint needs to be heard and obeyed by all!

First indications for degrowth by de-industrialization are already visible in our immediate neighborhood, merely caused by high gas prices and abnormally high subsidies for 'green power' combined with partly chic industry aversion. Climate anxious politicians and public opinion leaders should rather 'follow the science', means physics based natural laws, instead of often ideology-driven activism and emotions. Eventually, beyond energy generation, the multiple roles of fossils as valuable industrial raw materials are fundamental foundations of our wealth.

Session: Pangeo workshop: Mineral Raw Materials, and Energy Transition

Keywords: coal, oil, gas, energy transition