

**Subject:** All In -- environment

**From:** Alex Cannara <cannara@sbcglobal.net>

**Date:** 5/23/2024, 7:50 PM

**To:** Chris Hayes <christopherlhayes@gmail.com>

Dear Chris,

Good comments regarding the seriousness of our environmental problems. Your guest Roberts was helpful re Biden's policy & actions.

Those of us in science/engineering who've been actively auguring for specific actions over the years have marvelled at how hard it is to get simple, clear messages through through to the public, even through competent organizations and mainstream media.

There are 3 main parameters of normal Earth's world that we've been screwing up: overall temperature, ocean heat content and ocean alkalinity. Pollution, land waste, overpopulation, species threats, etc. are very significant, but less significant, meaning a bit less horrible.

We've been generating about 40 billion tons of CO2 each year that we've dumped into Earth's air. We've warmed the planet enough with that GHG to trigger polar tundra warming sufficient to release even more of a worse GHG -- methane. It currently is out of our control and already generates warming about equal to what our ~40GT of CO2 does now (attached graph). Thing about methane is it's far worse than CO2 and it's mainly released from natural sinks (tundra, continental shelves...) as they warm from what GHGs we've already caused to escape into the air. For CO2 acidification we can just barely use the ~1,000,000 oceanic container ship transits per year to deliver ~10,000 tons of lime, per trip, to oceans under biologist guidance. But the methane threat remains and the lime must come from emissions-free kilning.

Here's a talk I gave a decade ago...

<https://www.youtube.com/watch?v=UHxJxkVIEck>

A bit more recent one to scientists/engineers...

<https://lynceans.org/talk-117-1-17-18/>

The gist of both was that then we could consider a worldwide effort to rein in GHG emissions. They warm everything including ocean water, and CO2 acidifies waters (makes them less alkaline. The oceanic plankton that supply most of all animals' oxygen need alkaline water that's also not hot.

The silver lining in the above talks was that we'd not yet screwed the pooch via CO2 emissions. We could bank on oceanic plankton removing CO2 from air, building their shells/skeletons with it and upon dying taking that CO2 as carbonate to seabeds as limestone (kilned without fossil fuel). If we in turn dumped about 10 billion tons of lime (cement) into seas each year and we reduced our emissions, we might gradually catch up in countering our CO2 emissions to return temperature and other world parameters to values near when we started burning coal, oil...

Of course, we'd also have to deal with methane releases, as from tundra, Siberian sink holes, gas-well leaks, etc. But, our power sources would have to be chosen wisely. The longer we took to eliminate combustion or wasteful 'renewable' power sources, the more grief we program into our offspring's future.

Suppose, for instance, we want to combat Greenland ice loss. The loss is a bit more than 50 cubic miles of ice per year. The amount of energy just to refreeze that melt (not put it back up on Greenland's glaciers) require freezers consuming all the world's electric power for a few years -- no power left for us.

And, another reality -- if the ice/snow on northeastern Canada were allowed to melt from

warming, its freshwater flow would cover the heavier, salty Gulf Stream, pushing it below the surface and allowing Britain, Ireland... to freeze (as its latitude suggests they should).

Sorry for this lengthy note. The idea is to communicate reality in the harshness we've naively chosen to allow it.

The indictment we all share is that we've known what to do for decades...

<https://tinyurl.com/ye27te2z>

Even Exxon-Mobil knew what to do (just think if they had). The French cared about OPEC rather than the environment, but did the right thing -- 2ns attached. And our Infrastructure Bill is a step, but much more explicit effort is required, as some of us have expressed to the Administration over recent years...

<https://tinyurl.com/44uv49z3>

As part of our wising up, we need grasp that there's no such thing as 'renewable energy', at least not in the real world facing us all. Ma Nature doesn't care how dumb/foolish we are. Or, as the Old Farmer said: "Wish in one hand and spit in the other and see which fills first".

Happy to discuss any questions.

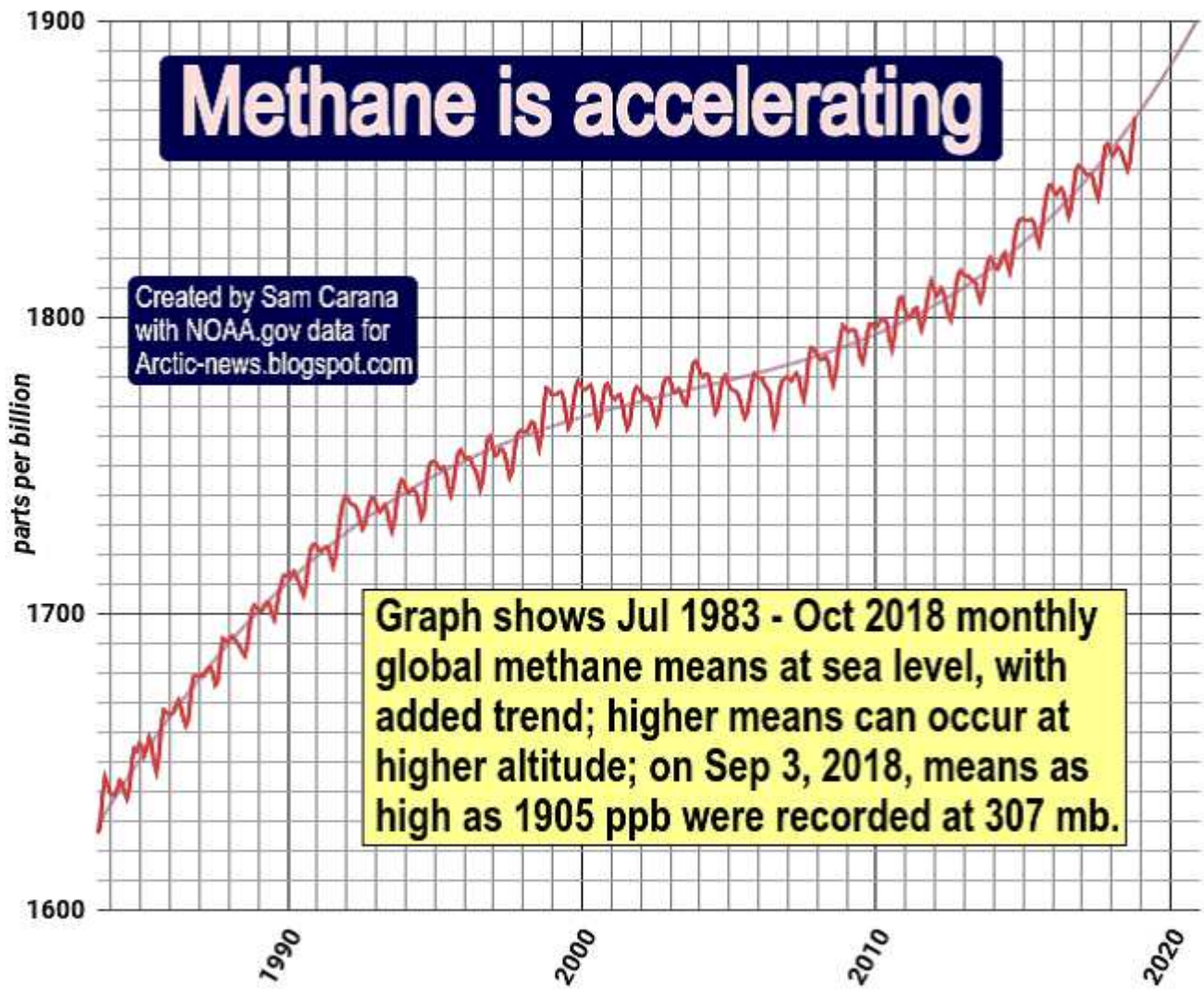
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—MethaneIncrease.png

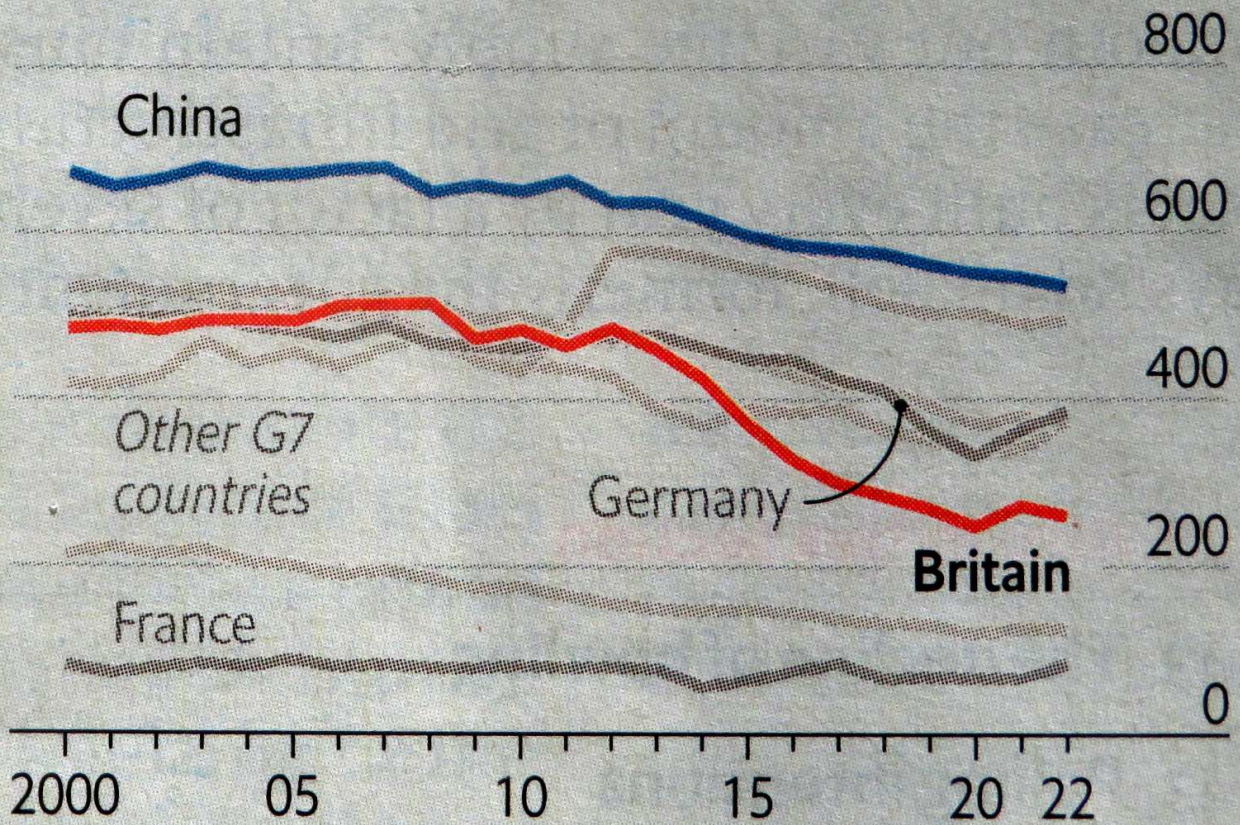




# Clean competition

## Carbon intensity of electricity

Grams of CO<sub>2</sub> equivalents emitted per KWh of electricity



Source: Our World in Data

Attachments:

MethaneIncrease.png

124 KB

CO2Intensity2023.JPG

1.2 MB