

Open letter to the Danish Climate-, Energy- and Supply Committee.

10<sup>th</sup> March 2022, the [UN Secretary-General](#) stated that Earth's climate has now passed the "Point of No Return" (PNR). And in 2017, [Sir Stephen Hawking](#) said, shortly before his death, that if global warming got irreversible, Earth's climate would get similar to that of Venus! A statement we should probably take with a grain of salt, since the new equilibrium point will only be somewhere between +200°C and +250°C. And also, because air-pressure will only be half the pressure on Venus – approximately 50 bar. Based on the information from the UN Secretary-General, 2022 is therefore year zero for PNR. And as of now, the new equilibrium point for Earth's average temperature is approximately +200°C higher than the 20<sup>th</sup> century global average temperature.

The new challenge facing the world is, that we can no longer stop global warming at a certain temperature, regardless of whether we end all human emissions of greenhouse gases! A simple scientific realization which – simple as it is, becomes the greatest existential and political challenge humanity has ever faced, as it changes everything, we think we know – or knew, as we can now calculate the end of biological life on earth. In Denmark, it is only the first +3°C to +10°C that is of interest, as it determines how long time Denmark has left. But actions must be taken now if the world's lifespan is to be extended, which unfortunately will only happen when you politicians understand what PNR really means. If we want to survive, we must find ways to face the inevitable. And we can only avoid the inevitable by trying to shield Earth from the sun's radiation and divert the excess energy back into space, that is stored in our atmosphere, in our oceans and on land, day by day. A solution that is unfortunately associated with a forbidden word in the climate debate, if we are to extend the period from now until Earth becomes +200°C warmer. A buzzword called geoengineering! A forbidden word, regardless of the fact that it is the result of unstructured geoengineering, that has caused global warming in the first place.

Geoengineering can be done in many ways, where the methods can be divided into two main groups. Methods which are reversible respectively irreversible. An irreversible method is, for example, the method where we try to reflect the sun's radiation by injecting aerosols and particles into the outer stratosphere. Aerosols and particles that will be almost impossible to remove again. Other reversible methods involve the introduction of albedo effects. For example, painting all roofs white. Making surfaces of our roads and all our paved areas reflective. Put reflective flamingo balls into the sea. Choose crops that are light-reflective in color or make clouds whiter by adding mists of seawater. Or the safest and most controllable method, which is to copy [nature's own meteorological cooling method](#), where we try to create artificial thermals.

Basic research to investigate the possibilities of creating artificial thermals cost approximately DKK 500 million, which corresponds to the Danish defense spending every single week. And no military threat to Denmark, NATO or the World – current or past – has been bigger than that of global warming, which is why it makes good sense for Denmark to try to save herself, in addition to the surrounding world. Especially if we recognize the consequences of the alternative! But you politicians must make a quick decision, which cannot wait for one, two or three years, because we are facing a new El Niño very soon, which we know will hit the Earth this year or next year. An El Niño, which heralds the beginning of a rapid collapse of the West Antarctic Thwaite Glacier, which, according to NASA, could cause the sea level in the world's oceans to rise 1-3 meters. We know that the Pacific Ocean, which makes up  $\frac{1}{3}$  of the Earth's surface, had the coldest surface temperature last year, measured this millennium, after a triple-dip La Niña, with an ONI (*Oceanic Niño Index*) of minus -0.95°C compared to the average temperature measured over the last 30 years. In comparison, the ONI for all of 2015 was +1.46°C, leading to the warmest year on record, in 2016. A record that will be broken by +0.2°C or +0.3 °C, in 2024 or 2025, as the next El Niño hits. A record that follows from the fact, that the start of 2023 could indicate, that we are about to experience the largest and fastest increase in the ONI ever. And at the same time, the Antarctic sea-ice has the smallest extent ever measured, here in 2023.

We are running out of time, and the country – or group of countries, who first introduce a safe method to cool our Earth will certainly also get the intellectual ownership of the method, and thus get a bigger Global voice in the climate debate. And for Denmark and the Nordic countries, there may be a significant political interest in global warming being controlled by us, rather than by other countries, that do not necessarily take our special wishes and needs into their account.

Per Uggen, 6<sup>th</sup> March 2023.