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ABOUT US



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Sun-Dimming Technology to Fight Global Warming?

Fatih D. Oral 

In the past three decades, the global average temperature has risen by 0.5 °C. The accumulation of carbon in the atmosphere is observed as the biggest responsible for global warming. In the past thirty years, the amount of CO₂ in the atmosphere has increased 15%. Therefore, governments and international organizations have focused on policies and regulations to cut emissions. However, emissions keep rising. Until today, there have been different methods to reduce emissions. Unless those methods will reduce emissions, what is plan B?

The sun-dimming technology can be the best answer to the previous question. A group of scientists from Harvard University launched solar geoengineering research, the Stratospheric Controlled Perturbation Experiment (SCoPEX), in 2017. The SCoPEX project aims to do experiments towards the development of Stratospheric Aerosol Injection (SAI). SAI seeks to mask the warming effects of greenhouse gases instead of reducing emissions. SAI proposes to reflect sunlight back into space to reduce the world's warmth by spraying large amounts of small reflective particles high into the Earth's stratosphere. The primary researchers of the SCoPEX project who are Frank Keutsch and David Keith, announced that they are going to conduct the first part of the experiment in Sweden, and the test is scheduled for June 2021. Swedish Space Corporation is going to host the experiment in Kiruna, Northern Sweden.

The SCoPEX project has presently planned to release a cloud

of 2 kilograms calcium carbonate – also known as chalk dust – into the stratosphere from a high-altitude balloon to study its effects on sunlight reaching Earth. Although sulfate aerosols might be the best choice for solar geoengineering by absorbing more heat, the SCoPEX project will spray the small plumes of calcium carbonate because it has less impact on the ozone. SCoPEX executives liken the release of calcium carbonate into the stratosphere to the ashes produced by volcanic eruptions. The Mount Tambora eruption in Indonesia in 1985 concluded with "year without a summer." In 1991, 20 million tonnes of sulfur dioxide released due to the eruption of Mount Pinatubo in the Philippines dropped the global average temperature by 0.5 °C.

When it comes to the financial burden of the sun-dimming technology, 3 million American dollars has been allocated only for the previously mentioned first test of SCoPEX. The billionaire founder of Microsoft, Bill Gates, and other private names are funding the sun-dimming technology developments of SCoPEX. The Harvard University Solar Geoengineering Research Program (SGRP) partially finances the SCoPEX project, and Bill Gates is an outstanding donor of SGRP. The SCoPEX project is also funded by the Fund for Innovative Climate and Energy Research (FICER), a fund for research grants and co-founded by Bill Gates. Last month, the National Academies of Sciences, Engineering, and Medicine (NASEM) also published a new report that urges the U.S. government to invest in sun-dimming technology research. According to the recent report of NASEM, solar

geoengineering studies, including SAI experiments, should be financially backed by 100 and 200 million American dollars over five years by the U.S. government.

However, many scientists argue that sun-dimming technology can lead to inevitable adverse consequences, and Dr. Bill Hare is one of these scientists. Dr. Bill Hare argues that sun-dimming technology can be a hazardous technology and argues that it can be a dangerous interference with the climate system in many ways. A recent report by the Intergovernmental Panel on Climate Change (IPCC) has suggested that the sun-dimming project could reduce global temperatures by 1.5°C. However, this temperature decrease example brings many serious risks. As seen in the previous example of the 1815 Tambora Mount eruption, freezing temperatures caused crops to fail near-famine conditions.

Some scientists have mentioned releases from volcanic eruptions in Alaska and Mexico as potential causes of drought in the Sahel region of Africa. Therefore, this project may also cause significant deterioration of the global climate and undesirable consequences. Then, high-populated areas may be adversely affected, and this situation can cause another global refugee crisis. Dr. David Kaith is also aware of these concerns, and he has suggested establishing a risk pool for secondary disadvantages caused by sun-dimming technology.

Another concern is about exploiting this method by claiming against emission-free policies because sun-dimming technology mainly focused on reducing carbon in the atmosphere instead of cutting green gas or carbon emissions. According to Dr. David Keith, solar geoengineering is a supplement to cut emissions, not a substitute for cutting emissions.

Solar geoengineering is also complicated in the political field because deciding who can conduct this project will not be easy. According to Environment Editor of The Economist Catherine Brahic, all governments are needed on board to acquire global effect, which can be extremely difficult. When a state decides to use sun-dimming technology alone, this decision can impact specific regions or worldwide. Then, this situation can lead to intense international tension.

Theoretically, sun-dimming technology can cool the entire planet. The method is potentially straightforward because injecting a number of particles into the stratosphere is only need to do and there are several ways to execute it. However, some analysts and experts are concerned that this method could lead to different kinds of problems from climate to political. It will be the best choice to see the experiment results that will take place in June and follow the actions of the U.S. government, which has received a new proposal on this issue.



EU-US-China Climate Talks: Sudden Outbreak of Cooperation?

Selin Kumbaracı 

In the wake of US President Joe Biden's upcoming (virtual) climate summit, which will bring together 40 heads of state and government on April 22-23 to discuss increasing national climate targets, there has been a revitalization of cooperation between the major actors involved in climate change. This renewed sense of coordination is especially evident when it comes to the US and EU's relations with China.

Prior to the summit that is being organized by Biden, there was also a trilateral video conference between Germany, France, and China—which the Chinese side strategically referred to as a 'summit' in what seemed to be an attempt to undercut Biden's coming summit. Climate was discussed during the call but was not the only matter on the agenda, as emphasized by the Europeans.

Such engagement with China is mostly seen as being necessary, given the greenhouse gas emissions of China accounting for over 25% of global emissions—making China the largest emitter. Nonetheless, this engagement doesn't come without its political risks, especially for Merkel and Macron in the European context, given the recent retaliatory

sanction imposed by China on a number of EU officials and MEPs.

Additionally, while the EU and US have been trying to get China to raise the level of ambition that is present in its climate targets, it is unclear whether or not a definitive announcement from China will come on this matter by the start of Biden's summit. Indeed, many have expressed that even if such an announcement were to come, it would take place in a setting more appealing to Beijing's domestic audience than a summit organized by the US—which would also amount to a US diplomatic victory.

There are various obstacles, of course, standing in the way of further cooperation on climate action between the EU-US bloc and China. Of the two main issues that the Western duo has highlighted, the first relates to how the EU and US are pushing for China to set an earlier date by which its emissions will have peaked; the current timeline sets this date as 2030, but the two Western powers would like to see this peak coming much sooner—by 2025.



The second issue that can be seen is that of financial support granted to new fossil fuel projects. The US has indicated its wish for China to halt its funding of new coal plants—in particular—both domestically and abroad, especially through its Belt and Road Initiative. Biden has especially phrased this as relating to 'carbon-intensive' projects so that natural gas, which the US is a major exporter of, is given more flexibility.

While the US itself is moving away from funding new coal projects, this is not very meaningful without getting China on board as well; in fact, it may play against US interests if it makes it so that China is now the major financier of such projects in developing countries, increasing its influence over such nations.

The carbon border adjustment mechanism (CBAM) that the EU is making plans to develop is a major issue for the Chinese side. The CBAM would target imports from countries that do not have as strict climate regulations, such as commensurate carbon prices, as the EU by placing a carbon cost on their exports to the EU. As Chinese President Xi Jinping has expressed, "Tackling climate change is the common cause of

all mankind and should not become an excuse for geopolitics, attacking other countries or trade barriers."

There are; however, additional issues standing in the way of cooperation on climate with China that are not directly related to climate. The EU and US see climate action as a rare arena of potential cooperation with China, especially in the midst of sensitive disagreements regarding human rights concerns in Xinjiang, trade practices, and protection of intellectual property.

For China, though, these issues are not so easy to separate. In the words of a statement by the Chinese foreign ministry, "cooperation cannot stand unaffected by the overall China-U.S. relations. It is impossible to ask for China's support in global affairs while interfering in its domestic affairs and undermining its interests."

Documentary Review: Seaspiracy

Başak Bozoğlu 

A new documentary, Seaspiracy, was released on Netflix last week, which caught viewers' and critics' attention. The documentary was made by the team that produced the award-winning Cowspiracy documentary in 2014 but took more massive attention in its first week. Ali Tabrizi, who directed the documentary, sets out to investigate the causes of stranded whales, tragically reveals the invisible face of commercial fishing from whales.

In the last year, dozens of campaigns and documentaries have been made on the disturbances in the world's ecosystem, climate changes, renewable, and fossil energy sources, and recycling. Many of them

successfully take people's attention to change their habits to contribute to saving the world's resources. As a social media user, one of the things I have noticed lately has been advertising campaigns aimed at reducing the use of plastic. Many foods and beverage companies have started using recycled paper, reusable materials, and recycled bottles instead of plastic. It is recommended that people stop using disposable products such as one-off cutlery, straws, glasses,

IN THE LAST FEW YEARS, PEOPLE AGAINST THE ZOO AND WATER PARKS FOR NOT SEPARATING ANIMALS FROM THEIR NATURAL HABITAT AND PREVENTING MISTREATMENT OF ANIMALS, BUT YOU WILL SEE WHILE YOU ARE WATCHING THE PART OF THE TRUTH CONTAINS MUCH BIGGER PROBLEMS THAN WATER PARKS.

bottles. Of course, using recyclable materials and reducing the use of plastic has a significant contribution to the environment, but the documentary reflects a much different reality.

The importance of ocean life mainly comes from the fact that it generated 85 percent of the world's oxygen and creating a vital species environment for animals, corals, and reefs.

The common discussions focus on talking about how many forest tree areas are left, how many species extinct but not generally, and our focus is the ocean life. David Attenborough: A Life on Our Planet's documentary has a significant part to highlight how ocean life one of the

most requirements for continuing both humans' and other species' lives. Seaspiracy looks at the topic from a narrow window to open a larger one to highlight problems and dangers in the ocean with commercial fishing and human activities.

In 2015, land hit whales in cost of Chile's Patagonia made history as the biggest landfall event of the last century, with



a total of 337 whales hitting the land. In those times, scientists assume that the whales were killed because of toxic chemicals in the Gutstein area. Oil and chemical toxins that leak into the ocean due to ship accidents have always been a danger to ocean life. However, after examinations, people realized that the most dangerous thing was not the death of the whales but the amount of plastic that came out of the whales. The documentary director asks how these plastics come from whales' stomach and how microplastics affect every living creature in the ocean.

Thus, more interestingly, Japan commercial whale hunting news create more deep and complicated questions that need to be asked. The difference in *Seaspiracy*, while comparing the other documentaries, is accused organizations such as Dolphin Safe and Marine Stewardship Council directly. Both organizations' representatives accused the filmmaker of misleading people with a false statement. When the questioning starts from dead whales, the questions increase with dolphins in the water parks and where they come from. In the last few years, people against the zoo and water parks for not separating animals from their natural habitat and preventing mistreatment of animals, but you will see while you are watching the part of the truth contains much bigger problems than water parks.

With the developing technologies, fishing techniques provide more hunting than ever, and it enhances the fishing market over the years. According to the Guardian, overfishing creates

42 billion dollars only coming with tuna fishes in the industry. Overfishing, illegal hunting, killing the same species specifically. Fishing is one of the most vital components in the food chain and people's food sources; therefore, the industry has enormous power for hunting, promoting, and selling. The documentary claims that the media has drawn global attention to plastics and fossil fuels to divert people's attention from the enormous environmental damage in the industry, thus causing the extinction of animals and misleading people with inappropriate certificates on food packaging. The question of whether sustainable seafood could even exist creates a controversial discussion between Tabrizi and European Parliament authorities. Since the fishing industry provides crucial economic profits, it also requires economic policies. The tone of the documentary is, in this sense, more critical and serious than unusual.

Although the documentary revealed the fishing industry's striking facts through one-to-one research and various interviews, it caused even controversy from fishing to whether to consume fish or not. In this sense, the filmmaker caught the attention of people with an online platform that is part of the media he criticizes and his documentary, which puts its own research into offensive language. The documentary, which has different features than the usual documentary structure, may be a different alternative for those who want to watch the human and state effects instead of the natural structure of ocean life.

How Energy Produces Inequality?

Onurcan Mısırlı



Our energy consumption determines many aspects of our daily lives. We use energy in our houses, cities, transportation, infrastructure, facilities, and the trade of energy directly correlates with the well-being of all these concepts. Hence, almost every country on earth is concerned with its energy security. They are trying to achieve an energy mix

to uphold their energy systems so that even if one source of energy goes missing from the equilibrium, the system will not halt and be provided with other sources. Autarky and a flexible trade regime are thus necessary for the continuity of development. However,

there is another crucial reason to pursue flexibility in one's energy mix: That is the concern of social inequality.

Almost every World Bank Development

Indicator presents a clear correlation with the energy consumption of a country. Indicators such as health, wealth, nutrition, water, infrastructure, education, even life expectancy are significantly related to the consumption of energy per capita. According to the quantitative work by Philip J. Lloyd, for energy use below

and distributing water. If the nation has low energy use (<500 kg/capita), more than a quarter of the population will not have access to clean water. As the most important result of all these figures, life expectancy rises with the rising energy usage. In short, the use of energy almost always shows a positive impact on the well-being of individuals and society in general.

EVEN THOUGH ENERGY CONSUMPTION CLEARLY LEADS TO DEVELOPMENT AND IS NOW AN UNBREAKABLE PART OF OUR LIVES, MANY COUNTRIES IN THE PAST HAVE ALSO SEEN VERY DETRIMENTAL ASPECTS OF IT. IT HAS THE POTENTIAL TO DAMAGE THE SOCIOECONOMIC BALANCE OF THE COUNTRY IF IT IS NOT PLANNED AND CONTROLLED WELL.

1000 kg oil equivalent, there is a strong likelihood that over 15% of the population will be undernourished. Moreover, about 5% of the total energy used worldwide is employed in treating

On the other hand, it is also clear that countries that own rich energy resources differ significantly from each other in human development. Thus it is not correct to establish a direct correlation between energy resources and the well-

being of the society, for many factors during the production, transfer, and usage of the energy affect the social outcomes. These factors, combined with the political environment in the



country in question, may even lead to disastrous results. This is the resource trap: A dilemma in which countries that hold vast amounts of hydrocarbons have stagnant economic growth or even economic recession. The resource trap is mainly expected to happen when a government focuses almost all of its production on a single industry, such as mining or oil production, and neglects investment in other major sectors, failing to establish a proper energy mix.

At times, government corruption and oligopolies that are held by companies close to public offices may even make the situation worse. Suppose a large share of national wealth is concentrated in just a few industries and oligopolies. In that case, the government might abuse its regulatory powers by awarding valuable contracts based on bribes. If too much labor and capital flow into just a tiny handful of sectors, it may weaken the rest of the economy and harm the country overall.

Such a trap would even be detrimental to social justice in the country. Michael Ross's 2008 work titled "Oil, Islam and Women" claims that too much economic emphasis on hydrocarbon industries in a country would eventually lead to fewer rights and freedom for women. Since women mainly earn their wages in the traded sector (agriculture and manufacturing), establish a connection with their peers in factories that work on trade and gain more influence within their families and there are fewer jobs for women in hydrocarbon industries and facilities, they will be deprived of all these gains if hydrocarbon industry takes over the economic processes. Ross, comparing Middle Eastern countries with very similar cultural and religious customs, reaches some intriguing results.

Women in countries that own richer oil resources tend to have fewer rights and freedoms than women in countries that do not put such a vast emphasis on hydrocarbon industries. In short,

"Oil production reduces the number of women in the labor force, which in turn reduces their political influence." Such gender inequality definitely paves the path for even bigger inequalities and problems in the future.

Therefore, even though energy consumption clearly leads to development and is now an unbreakable part of our lives, many countries in the past have also seen very detrimental aspects of it. It has the potential to damage the socioeconomic balance of the country if it is not planned and controlled well. This is why every country, especially those that recently set aims to produce oil and gas and have a voice in the supply side of the equilibrium like Turkey, should be aware of the potential damages and plan the whole system accordingly.

Fukushima Nuclear Disaster

Atahan Tümer 

It has been ten years since the Fukushima Nuclear Power Plant Disaster occurred. This disaster, which affected the region considerably, continues its effects today. The Fukushima Nuclear Power Plant, which was damaged by a tsunami caused by a major earthquake in Japan, is still at the center of controversy today. The Fukushima Nuclear Power Plant Disaster, which caused the question of nuclear energy by creating a similar effect even though it occurred years after Chernobyl, brings questions to all of us about the reliability of nuclear energy. Although it was built in a geography such as Japan where earthquake disaster would be met as a reality of life, the inadequacy of the measures taken shows us many things about the question we ask. This disaster, in which more than 300 thousand people were evacuated and thousands of people were exposed to high radiation levels, unfortunately, caused deaths. People who were deprived of their homes ten years after the disaster still have not returned to their homes. Only 1 out of every 20 people was able to return home. This reveals the scale of the disaster and makes us rethink the reliability of nuclear energy. So much so that several employees working in this power plant died or became cancer due to radiation after the accident.

There is another problem that has brought this disaster back to our agenda in recent years. This is the question of what to do with wastewater. A wastewater problem arose due to the cooling of the damaged reactors with water. There have been heated debates on this issue for years. Many people were concerned about the decision to be made. Environmental groups have been demonstrating on this issue for a long time and expressed fear that the decision to be made could harm the environment. Even environmentalists in South Korea expressed their desire for a solution that would not harm nature by taking action on this issue. It is quite possible to understand this concern raised when the damage caused to the environment by the Chernobyl disaster is still evident years later, and the damages of Fukushima have not been eliminated.

The Japanese Government made a decision recently to clarify this issue. The decision of the Government, which decided to discharge the wastewater into the ocean, upset many people. Although the evacuation of this water is an inevitable end, it has brought many reactions.

Environmentalists, especially in Japan and South Korea, reacted to the decision by making demonstrations about it.



It was stated that the water with radioactive materials would be discharged into the sea, causing many harms to nature and people living in the region. Also, it is thought that the fishing industry, which is of great importance in Japan, will suffer. All these reasons show that the reactions are justified. But could there be another less damaging solution, which is another matter of debate. When we consider all these together, the reliability of nuclear energy worries people again and again.

Even a country like Japan that has made the earthquake one of the realities of life and has taken advanced measures in this regard, experiencing such a problem due to the earthquake is perhaps the most important factor that causes people to express their fears. Although the tsunami effect has been considered in this disaster, the resulting tsunami wave is almost three times larger than the tsunami wave at the power plant, questioning the seriousness of these measures. Of course, a 9.0 magnitude earthquake is not predictable, and it is not an event that can be actionable beforehand. However, considering the sensitivity of nuclear energy and the damage it causes as a result of a possible disaster, it becomes clear that even an event that has not been observed for millions of years should be taken into account. These are all consequences we have to draw from Fukushima.

Fukushima, which was still at the center of the debate in its 10th year and whose damages have not been recovered, is still discussed today. These discussions continue not only on the Fukushima Disaster but on the reliability of nuclear energy. While new plants are being built in many countries worldwide, some plants are waiting like a bomb ready to explode.

The Metsamor Nuclear Power Plant in Armenia in the Eastern border of Turkey is described as the world's most dangerous nuclear power plant by the International Atomic Energy Agency and the European Union. The power plant, which was built using the same technology like nuclear power plants such as Chernobyl and Fukushima, worries the region's people. Another factor that increases the danger is that it is located on the fault lines and was severely damaged in past earthquakes and closed for a while. The only thing we can do is call for action on this issue. After seeing disasters such as Fukushima and Chernobyl, we can only work for safer operation of active power plants. Humanity has reached nuclear as the most advanced stage of technology in energy. To ensure that this technology benefits humankind and does not cause disaster, the only thing the authorities can do is to think about human health, not their interests.

The Swiss Energy Transition

Can Arihan 

Switzerland aims to transform its energy sector radically, and in August 2019, it set the highly ambitious goal of cutting the CO₂ emissions to zero by 2050. This developed country, which is located at the heart of Europe, was already standing out among the other industrialized nations regarding climate change mitigation. It has the lowest carbon intensity among all IEA member countries.¹ Now Switzerland is getting ready to improve its already impressive stance on climate change.

The Swiss Government has made noteworthy decisions in the last few years to further strengthen the country's stance on climate change and curb CO₂ emissions. The new Energy Act, which has entered into force on the 1st of January 2018, is one of the most significant legislation that drives the nation's energy transition. According to the Energy Act², the average energy consumption in 2035 shall be 43 percent lower than the level in 2000. If this figure is realized, it will mean that an increased population will consume less energy due to the efficient utilization of energy resources. Besides, it is forecasted that the average domestic production of renewable energy excluding hydropower will be at 11'400 GW hours in 2035. Hydropower, which has been traditionally one of the two major sources of electricity generation in Switzerland and nuclear energy, is planned to generate 37'400 GW hours of electricity in 2035.

Getting rid of nuclear energy is another focal point of the Swiss energy transition; according to IEA data³, nuclear energy provided around 30 per cent of Switzerland's electricity from 1990 until today. However, since the Fukushima nuclear disaster of 2011, there has been strong opposition against this energy source in Switzerland, and a few years ago, the Government took action against it. In 2017, Switzerland decided to decommission all nuclear energy reactors in the country gradually. Hence, no new nuclear energy reactors will be constructed in the country, and the existing ones will be shut down after completing their service periods. The first nuclear power plant, a 47-year-old nuclear power station in Mühleberg, had already switched off in December 2019⁴. The remaining four reactors (i.e. Gösgen, Leibstadt, Beznau I, Beznau II) will follow over the next years.

After considering the explanations mentioned above, it is seen that Switzerland wants to achieve radical CO₂ emission reduction goals, and it wants to achieve it without nuclear energy. Here solar energy will be an energy source that will gain importance. A study by the Paul Scherrer Institute, conducted within the Joint Activity "Scenarios and Modelling" of the eight Swiss Competence Centres for Energy Research (SCCER)⁵, shows that drastic development in the Swiss photovoltaic sector is needed to achieve the goals mentioned above. The study suggests until 2050, the



installed capacity of solar energy must more than double every decade, reaching 26 terawatt-hours of production in 2050. Therefore, solar energy will become the second-largest source in the energy mix after hydro energy. Such growth in solar energy is not impossible but requires massive investments and political determination.

Certainly, Switzerland is not the first country to set ambitious climate change mitigation goals. We have seen many similar actions from both other governments and international agreements to limit climate change. I believe the key to attaining success in such endeavors is persistence and determination. The example of how the United States shifted its environmental policies under the Trump administration still serves as a bitter reminder of how one president can damage years of hard work. Nevertheless, in Switzerland, all components of the Government seem committed to the goal of reaching zero CO2 emissions by 2050. Hopefully, the country will consistently pursue this goal without the interruption of an irrational administration.

One last additional point worthy of note would be the importance of diversification in the Swiss energy transition. As mentioned above, the Swiss Government wishes to decommission nuclear energy and focus more on hydropower and solar energy. The growth of solar energy could definitely

yield benefits for Switzerland, but uncertainties like the problems with solar batteries remain; thus, it will be much logical to diversify the sources and invest in other renewable energy resources, such as biomass and wind energy.

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CO2 Emissions During The World Pandemic

Mihael Gubas



Environmentalists were secretly relieved last year when greenhouse gas emissions plummeted due to closures caused by the pandemic, although no one had the illusion that such a one-off act could change anything on the macro-scale of a bleak reality. The situation has gone too far to be so easy to resolve. Indeed, the warnings of climate experts went in that direction to point out that the time to reverse climate consequences expires in 2020 at the latest, but, much much earlier, when the psychological limit of 2 degrees of average global warming was expected to break.

The closures caused by the pandemic represent the largest drop in greenhouse gas emissions since World War II, according to the most

recent data from the International Environment Agency (IEA). The overall decline was 6 percent, but the variations by region and time of year are huge. Global emissions fell by almost 2 billion tons in 2020, the largest absolute drop in history. Most

THIS YEAR IS CRUCIAL FOR INTERNATIONAL CLIMATE ACTION - AND IT BEGAN WITH HIGH HOPES - BUT THESE LATEST ISSUES ARE A STARK REMINDER OF THE IMMENSE CHALLENGE WE FACE IN THE RAPID TRANSFORMATION OF THE GLOBAL ENERGY SYSTEM.

of it - about a billion tonnes, more than Japan's annual emissions - is due to less oil use for road transport and aviation. As tourism and economic activity accelerate around the world, oil consumption and emissions are rising

again. The record increase in electric vehicle sales is not enough to offset the growth in emissions caused by the increase in road traffic worldwide, according to the IEA.

A year after the first quarantines, the International Environment Agency issued a new report that yielded the expected results, showing that the sharp drop in greenhouse gases in 2020 was only a one-off exception, which did not change anything. Thus, already in December last year, CO2 emissions related to energy production (electricity, but also heating plants) were

2 percent (or 60 million tons of CO2) higher than in 2019. This shows that changes in energy policy are not really seen in CO2 savings. This then means that the changes are too slow and not yet yielding results, all indicating a



notorious lack of political will, resulting from a lack of public pressure, and holding politicians accountable for poorly done jobs. Similarly, the IEA, whose director emphasizes that "the recovery of global carbon emissions late last year is a sharp warning that not enough is being done to accelerate the transition to clean energy around the world. If governments do not move quickly with the right energy policies, it could jeopardize the global historic opportunity to make 2019 the final peak of global emissions," said Dr. Fatih Birol, IEA Executive Director. The Agency added that "in March 2020, the IEA called on governments to put clean energy at the heart of their economic stimulus plans to ensure a sustainable recovery. But our numbers show that we are returning to our usual carbon-intensive business. This year is crucial for international climate action - and it began with high hopes - but these latest issues are a stark reminder of the

immense challenge we face in the rapid transformation of the global energy system.

Short-term closures of economies led to a sharp drop in greenhouse gases in April 2020, but new openings accelerated countries' need to recover as quickly as possible, leading to increased energy demand that was not accompanied by environmental energy policies, hence data on 60 million tonnes. CO₂ was released into the atmosphere in 2020 compared to December 2019. The overall result at the moment is that many economies are currently recording a higher increase in greenhouse gas emissions than before the corona crisis. For example, China, which was the largest global distributor of secondary medical equipment (masks and the like), increased its emissions by 75 million tons, or 0.8 percent. China was the first major economy to emerge from

the pandemic and lift restrictions, boosting its economic activity and emissions from April onwards. China was the only major economy to grow in 2020. The situation with the increase is similar in the USA, Brazil, India, and precise data are available on the IEA website.

U.S. experts point out that without the pandemic, last year's increase in greenhouse gases would have been the absolute largest ever recorded. Now, in 2021, since we have not acted in the previous 30 years, we have no choice but to abruptly stop releasing greenhouse gases into the atmosphere by 2050, and even if we succeed in this almost impossible endeavor, the situation will not improve immediately. If we reduce emissions to zero by the set deadline, the climate will slowly stabilize, but not in one generation.

Global emissions from the electricity



sector decreased by 450 million tons in 2020. This is partly the result of lower electricity demand, but also an increase in electricity production by solar panels and wind. In order for the world to achieve the climate goals of the Paris Agreement, in particular limiting global warming to well below 2 °C, a drop in emissions in the electricity sector of around 500 million tonnes needs to occur every year. An even larger annual drop in emissions from electricity generation would be needed to bring the world to 1.5 °C warming. In other words, political targets announce a two percent reduction in warming, but science now shows that this is no longer enough to stop the cascading decay of ecosystems.

Given all this bad data, experts are beginning to stress that climate change is not about individual choice, which seems necessary as more politicians have tried to place the responsibility

on citizens' private choices. Brought to the wall, scientists are slowly reaching a consensus, stressing that solutions to the climate crisis "go far beyond short-term individual responsibilities; it will ultimately require collective and continuous structural reform in all major sectors of the economy."

Moreover, last year's experience, backed by IEA data, shows, for example, that airplane flying (which fell 75 percent last year), which Europe specifically considers to be the responsibility of the individual, did not actually contribute as much to the overall CO₂ drop. New data from U.S. scientists shows that CO₂ would fall by just 2.5 percent if the aviation industry collapsed completely. Why? Due to systemic factors. In contrast, the most significant savings would be made in the electricity and heat generation sector, which, according to U.S. scientists, still contributes the

most to global warming, accounting for about 25 percent of greenhouse gas emissions. It is also a sector that, due to quarantine, has demanded higher energy consumption worldwide. Therefore, scientists around the world are currently concluding that it is necessary to reform this sector. And to make matters worse, it is a sector for which there are already numerous and diverse solutions whose combination can contribute to a significant improvement in the situation with the climate crisis but also lift people out of energy poverty. So, this is a problem for which political and technological solutions already exist. But they are first and foremost socio-economically revolutionary, and such solutions cost capital a great deal of power, so they are simply not implemented.



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