

Decarbonization, an outside view

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The term decarbonization is now widely known. It is enough to mention the decisions taken by oil companies:

- **Shell** — zero **CO2** emissions by **2050**;
- **BP** - reduction of emissions by **30-35%** by **2030**. Achieving net zero emissions across the entire production chain by 2050, as well as reducing by **50%** the intensity of emissions from all products sold by **2050**. Increase in renewable energy capacity from 2.5 GW in 2019 to 20 GW by 2025 and to 50 GW by 2050. Increase in biofuel production from 22 tbs to 100 tbs in 2030;
- Total reduction in emissions by **30%** by **2030** and achieving the target of zero net emissions by 2050;
- **Eni** — reducing absolute emissions by **80%** and the intensity of emissions by **55%** by **2050** Zero net carbon footprint for exploration and production by **2030**;
- **Equinor** is the achievement of zero emissions by **2050**, the Termination of APG flaring the torches and the reduction of methane emissions to virtually zero by 2030, the Growth capacity of renewable energy to 12-16 GW by 2035;
- **ExxonMobil** — reducing the intensity of methane emissions from oil and gas production by **25%** by **2025**;
- **Chevron** — reducing emissions in the oil industry by **5-10 %**, in natural gas by **2-5 %** by **2023**. Investments in thermonuclear fusion;
- **Baker Hughes** — reducing CO2 emissions by **50%** by **2030** and achieving net zero CO2 emissions by 2050 in accordance with the Paris Climate Agreement;
- **Gazprom** — reduction of greenhouse gas emissions from natural gas transportation by **3.8%** by **2024**;
- **Rosneft** — prevention of emissions of 20 million tons of CO2 by 2035, reduction of the intensity of emissions in exploration and production by **30%**, the volume of "green investments" for **2018 — 2022** 300 billion rubles. Implementation of an energy saving program to reduce emissions by 8 million tons of CO2 by **2022**;
- **Tatneft** — achieving carbon neutrality by 2050. **10%** reduction of CO2 emissions by **2025**, and **20%** by **2030**.

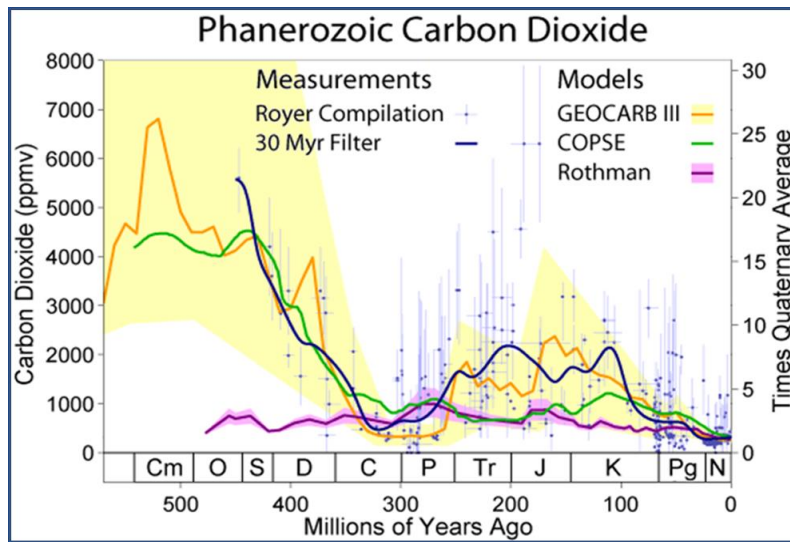
Note that achieving zero **CO2** emissions or achieving carbon neutrality (Scope 3) is possible only when **oil and gas production is stopped** or this asset is withdrawn from the company, since it is in this case that the absence of a carbon footprint from the company's activities is achieved. As we can see, **this global project should radically change our lives** in the foreseeable future. But first, we will omit the subtleties of the decisions made by companies and focus on the question — **what is wrong with carbon, which is part of organic molecules and is the basis of life, and why it is necessary to get rid of it?**



To do this, it is necessary to determine what is meant by the term decarbonization and what are the origins of this project. The first one is quite easy to understand. This term implies ***the transition to low-carbon energy sources — renewable (solar, wind, tidal), the use of hydrogen, thermonuclear fusion, etc.*** The second point is much more difficult. It is believed that the main reason for decarbonization is the negative impact on the planet's climate of carbon dioxide released during the combustion of fuel. In this regard, it is assumed that decarbonization ***will prevent or reduce global climate warming.***



According to various studies, there were periods on Earth with a much higher content of carbon dioxide in the atmosphere. Therefore, ***global warming is not so global***, but refers to the current climate changes. In particular, in the era of the dinosaurs, our Earth was a green planet, the remains of thermophilic flora and fauna are found on the territory of the Arctic and Antarctic. There is a lot of evidence that the great cold snap occurred a little more than 13 thousand years ago, after a planetary catastrophe. It should also be emphasized that in the operative part on the expediency of Russia's accession to the Kyoto Protocol, the RAS issued its verdict — ***"The Kyoto Protocol has no scientific justification"*** [1].



Dynamics of changes in carbon monoxide (taken from the work of N. M. Gavrilov)

When considering the principles of decarbonization, a number of questions immediately arise. The first is, it is completely unclear **why the main attachment is to carbon dioxide**, whose contribution to the change in the heat balance is only 9-26%, unlike other greenhouse gases, the main of which are **water vapor** (contribution 36-72%), methane (4-9%), ozone (3-7 %) [2].

Recently, there has been a tendency to switch to **hydrogen energy**, but, as V. S. Litvinenko rightly noted at the webinar "Hydrogen strategy and key trends in energy transition", this direction **carries a whole load of unresolved problems** caused primarily by the high temperature of hydrogen combustion. This leads to a decrease in the service life of engines and furnaces. In addition, it is necessary to create special pipelines, storage conditions, reduce the cost of hydrogen production, and so on. This is probably why the position of the Ministry of Energy, voiced by P. Yu. Sorokin comes down to the implementation of a reasonable approach to hydrogen energy, and at the same time, in his opinion, Russia should not ignore this direction.

But for some reason, **no one notices that the use of hydrogen energy will definitely lead to an increase in water vapor, which contributes more to the greenhouse effect than carbon dioxide**. Moreover, the output of water vapor increases many times in comparison with conventional fuel. For example, when burning one kilogram of traditional fuel, about 1.2-1.4 kg of water vapor is formed, when burning hydrogen — about 8 kg of water vapor. At the same time, if hydrogen is obtained by steam conversion of methane, then again carbon dioxide appears as a side effect. To carry out this process, as in the case of water electrolysis, it is necessary to expend energy, for which it is necessary to burn hydrocarbons. As a result, taking into account the efficiency of all these processes, the **consumption of hydrocarbons will not decrease in any way**. Representatives of the Ministry of Atomic Energy believe that the electricity produced by nuclear reactions is clean, and the problem of producing hydrogen is solved without harming nature.

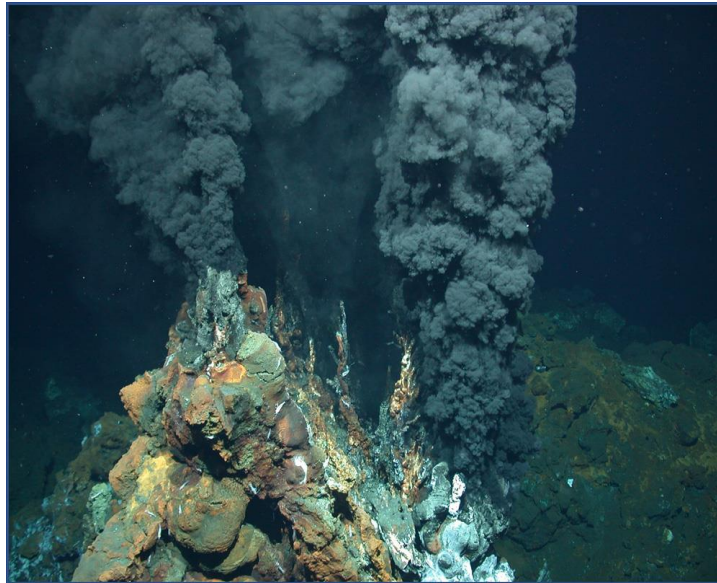
But at the same time, they probably quite accidentally overlook the fact that nuclear waste from nuclear power plants cannot be classified as harmless to the environment.

There are projects for pumping carbon dioxide into oil reservoirs for the purpose of its utilization and as a method of increasing oil recovery. In this case, there is also a one-sided approach. If you pump CO₂, then it is necessary to spend energy for which to burn hydrocarbons. In addition, as practice shows, the injected carbon dioxide *reappears over time* with oil in production wells, which indicates only a delay in the process.



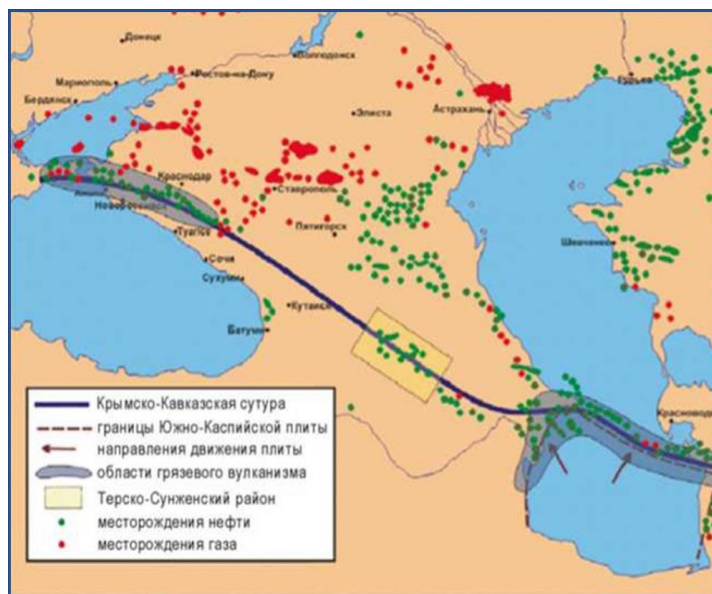
Special attention should be paid to another greenhouse gas — *methane*, whose concentration in the atmosphere increased from 715 ppb in the pre-industrial era to 1774 ppb in 2005, i.e. almost 2.5 times, in contrast to the increase in carbon dioxide from 280 ppm in the pre-industrial era to 379 ppm in 2005, i.e. by 36% [3]. However, much less attention is paid to reducing methane emissions, the main source of which is gas and oil production, in comparison with decarbonization. Moreover, *it is believed that the greenhouse effect of methane is 25-28 times higher than the same indicator for carbon dioxide.*

The question may arise — where did methane come from in the pre-industrial era? Significant natural methane emissions are known, which are caused by cracks through which methane and other hydrocarbons migrate from the depths of the earth. According to O. G. Sorokhtin and A. S. Ushakov [3], the methane output from the "black smokers" — cone-shaped peaks hundreds of meters high in the rift valleys of the World Ocean — is estimated at 10 million tons per year (10 billion m³ per year). Calculations carried out by F. G. Dadashev et al., showed that in the area of the Absheron Peninsula, billions of cubic meters of gas and several million tons of oil per year come out to the surface during the eruption of mud volcanoes. V. D. Skaryatin and M. G. Makarova [4] showed that with such an intensity of migration, only during the quaternary period, about 4×10¹² tons of oil would naturally leak out of the bowels of the planet, which is twice as much as its geological reserves known to date, and 7 times more than recoverable reserves. According to G. I. Voitov, about 0.44 billion m³ of hydrocarbon gases are released into the atmosphere annually from the surface of the West Siberian Lowland.



Methane emissions by black smokers

All this is evidence that the natural migration of hydrocarbons to the surface of the planet, including methane, was quite significant at various times, but has increased significantly in recent decades. However, we repeat — **methane emissions are given much more attention in comparison with the decarbonization process.**



Overview map of the oil and gas potential of the Pre-Caucasus with deposits and mud volcanoes (taken from the work of V. P. Gavrilov)

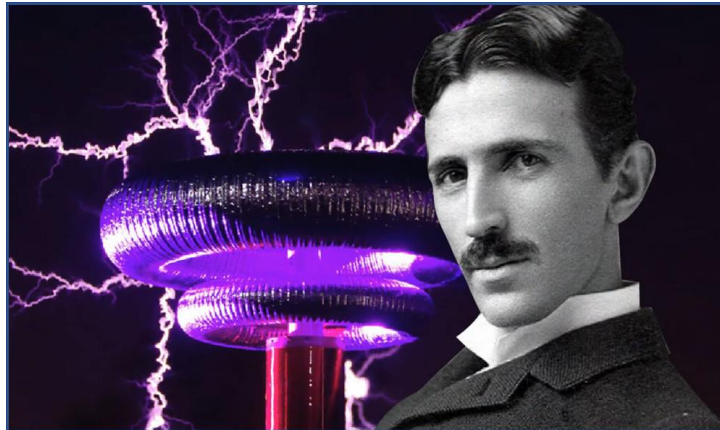
Secondly, it should be recalled that there are natural causes of carbon dioxide release, which include the processes of respiration, fermentation, rotting, fires, volcanic activity. Therefore, one of the main issues is ***the relationship between anthropogenic and natural carbon dioxide emissions***. The determination of this indicator is complicated by many factors. More than half of anthropogenic carbon dioxide is removed from the atmosphere by the biota of the land and the oceans, and the rate of this absorption does not remain constant, but ***increases***. Therefore, the carbon balance in the atmosphere, hydrosphere and lithosphere can be calculated approximately [5, 6].

According to the works [2, 5], the total anthropogenic CO₂ emission for 2011 ***did not exceed 8% of its natural annual cycle***. Note that this is ***less than one-tenth*** of the total CO₂ released, but we are seeing a massive introduction of decarbonization processes. According to another work included in the list of extremist literature, this indicator is much lower and is at the level of 1%. Already from this information it becomes obvious that this issue is clearly politicized.

The influence of financial and political forces on science

In order to understand decarbonization in more detail, it is necessary to separate the political component from the scientific one. History knows many examples of when not just science was managed by financial and political figures. And this applies not only to history, when the winners rewrote it at their discretion, but also to the natural sciences. It is enough to recall the ***persecution of genetics***, which delayed the development of this science for a considerable time. Moreover, the reasons for these persecutions certainly existed and are related to racial and national characteristics and differences that someone really did not want to disclose.

The financial circles were the impetus for the addiction of our civilization to the oil needle. Let us recall the unique inventions of **N. Tesla**, about which the newspapers of that time wrote. He managed to get electricity from almost nothing, of course, in the modern understanding of science, because no one has canceled the law of conservation of matter. **N. Tesla** repeatedly demonstrated his achievements and even published in the newspaper ***the design of a device for generating electricity***. What did we see in the end? His inventions were literally destroyed, and the technologies were classified by the US special services. There is not a single copy of the newspaper with a description of the technology. More than a hundred years have passed, but we do not see that something similar to a **Tesla** device has been launched in the United States, even under the slogan of **decarbonization**.

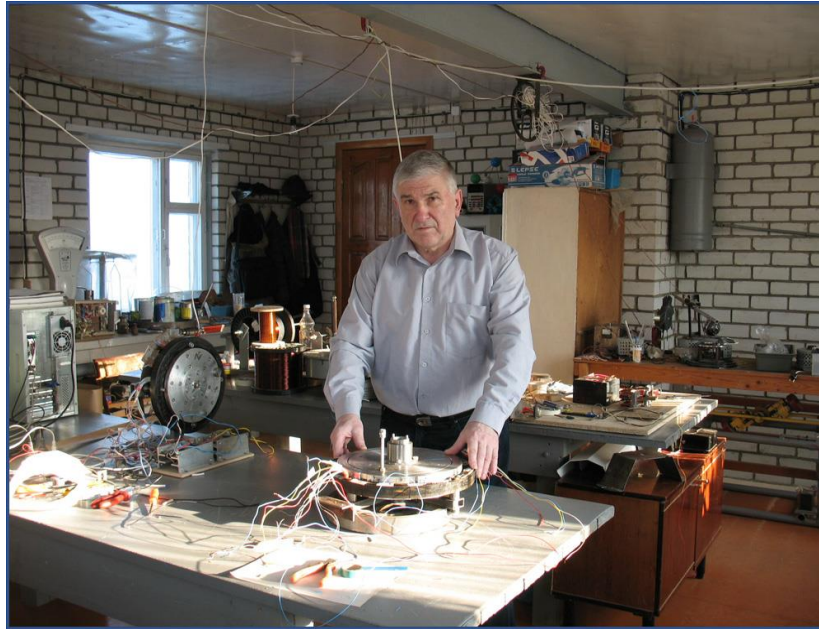


Among domestic scientists, **D. S. Strebkov**, *leader of Academician of the Russian Academy of Sciences*, should be highlighted for his unique projects. His team managed to independently go through the path of **N. Tesla's** inventions and implement **transformers with unidirectional energy transmission** (82 patents), created **solar cells with a maximum efficiency of 25% in the world** (hundreds of patents) and solved the problem of **wireless transmission of electricity across the oceans**. All developments are embodied in samples and tested in various industries, including aerospace. Under his leadership, the dream of physicists was realized — **the unification of four types of interactions**. However, we do not see the implementation of his developments, which could bury the entire existing energy sector, including the oil and gas industries. Instead, the works of **D. S. Strebkov** were not published in the reports of the Russian Academy of Sciences, the existing equipment was sent to the landfill and contracts with foreign suppliers were destroyed.



Another striking example is the work of **V. S. Leonov**, who, on the basis of the generated **theory of superunification**, managed to develop **a working model of a fuel-free propulsion system**.

However, despite all his efforts, the unique development turned out to be **UNUSED** in Russia, but it is **VERY MUCH** in **DEMAND** abroad.



Instead of introducing **TRULY CARBON-FREE ENERGY**, we are seeing a transition to a kind of surrogate — the use of wind, tidal energy, and hydrogen energy. The transition to these supposedly environmentally friendly energy sources will not improve the current environmental burden on the planet, but will increase the payment for it and, accordingly, **WILL INCREASE** the **DEGREE OF MANAGEMENT OF SOCIETY**. Actually, for the sake of this, an existing **decarbonization company** is being started. Under the external mask of a change in the economic structure and concern for the environment, a **REDISTRIBUTION** of **PROPERTY** is planned. Otherwise, i.e. with real concern for the environment, **the unique existing developments for the production of "atmospheric" electricity** and its transmission would have been implemented everywhere long ago.

There is a strong impression that **SCIENCE** is **BEING DELIBERATELY TURNED** in the wrong direction, preventing the introduction of **advanced ideas and technologies**, although outwardly quite different slogans are being put forward. A striking example of this trend in Russia is the **Commission on Combating Pseudoscience of the Russian Academy of Sciences**. Naturally, the question naturally arises — who needs it? **The right path of development of civilization is dangerous for those who are afraid of losing their financial and political power**. And this is not some kind of misunderstanding or mistake, as it may seem at first glance.

It should be noted that the questions raised about **the true path of the development of science** go **BEYOND THE ETHICS OF A SCIENTIST**. Our future depends on understanding the laws of nature, because various technologies and equipment are created on the basis of scientific ideas about nature, i.e. **the world in which we live**.

If our ideas about nature are wrong, then this will lead to the inevitable collapse of civilization. It is enough to recall the Chernobyl and Fukushima disasters, the consequences of which could have been much more significant for humanity. Modern society has already come to a **REAL ECOLOGICAL CATASTROPHE** on the planet. Therefore, from purely theoretical concepts, the question of the development or degradation of science passes into a question concerning every person.

As a result, inconsistencies in the **imposed decarbonization** lead primarily to certain conclusions about the benefits for financial and political circles. Therefore, we will try to understand this problem without political overtones.

The real reasons for the need to reduce oil consumption

Earlier, we proposed a hypothesis that allows us to solve fundamental unsolved problems in the geology and development of oil fields — the formation of oil in sedimentary and igneous rocks, the existence of various types of oil, the replenishment of reserves in long-term developed fields, the discrepancy between the age of oil and the age of the host rocks [7]. ***The hypothesis is based on a completely different concept of matter and a different representation of the organization of our planet.*** In particular, our planet is **not only a physically dense substance** that we can observe with the help of sensory organs and instruments, but also **spheres of other matters that are invisible and not sensed**. All these spheres, like a matryoshka doll surrounding the Earth, **are interconnected with each other**, as a result of which there is a **synthesis and decay** of physically dense matter **under certain conditions**. First of all, this should be attributed to the atmosphere, which is partially lost in the form of a gas plume during the movement of the planet and is replenished if there are conditions for this. It is this more complex structure of the Earth that proves **V. I. Vernadsky's** observations that the geochemical system of our planet was previously and is currently in a state of **STABLE DYNAMIC EQUILIBRIUM**.

However, the replenishment may differ slightly from the original when the conditions for the synthesis of physically dense matter change. Therefore, all current calculations of the cycle of elements and their compounds, for example, the carbon under consideration, are approximate. This factor can explain the difference in the component composition of the atmosphere during geological epochs and shorter periods of time.

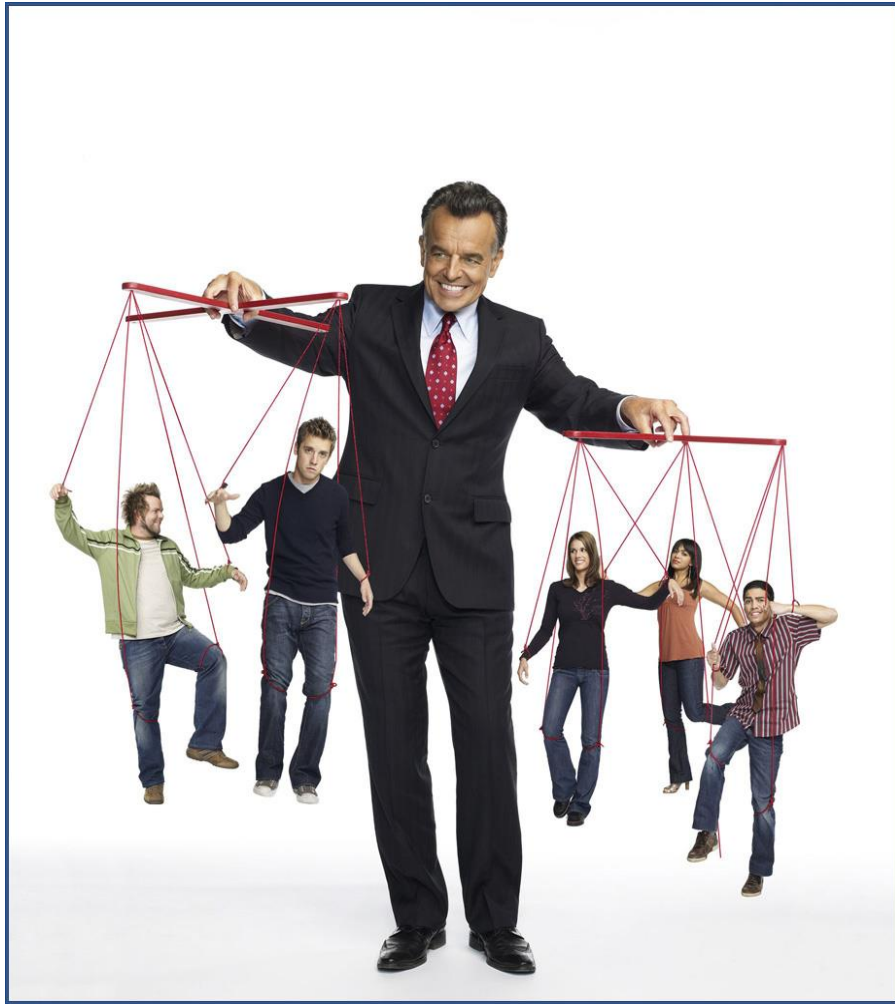
According to the presented hypothesis, oil is **waste from the former vital activity of organisms**, but not in terms of the existing burial of organic matter and subsequent known processes, but in the form of **spent primary matter** after the death of organisms, which are disposed of in certain areas of the subsurface of various types of rocks [8]. Of course, this disposal is conditional, because some of the hydrocarbons, as noted above, still fall on the surface of the planet. But the burial of hydrocarbons allows us to partially separate the **living** and **inanimate** nature in connection with the special qualities of oil hydrocarbons.

These special qualities require a separate study. Previously, we tried to find a link through studies of the isotopic composition of carbon C13 and C12. It is known that most plants have a special preference for a light carbon isotope, which is confirmed by the parameter $\delta^{13}\text{C}$ in the range -22% -35 % when the carbon content in atmospheric carbon dioxide $\delta^{13}\text{C} = -7\%$ [9]. The parameter $\delta^{13}\text{C}$ characterizes the deviation of the isotope ratio of the sample from the standard. Methane from igneous rocks is the heaviest ($-8 \div -18\text{‰}$) [10, 11]. In the first approximation, this could indicate the **harmfulness of heavy carbon**, but this selectivity of plants is due to the favorable conditions of photosynthesis for light carbon dioxide. Moreover, it was found that under severe environmental conditions and with the aging of the human body, there is a decrease in the content of the heavy isotope C13 from -21% to -24% [12], i.e. ***heavy isotopes are necessary for the functioning of the animal world.***

The study of the isotopic composition of carbon did not help to confirm the statement made by B. V. Makov [9] about ***the destructiveness of carbon in oil and gas.*** Studies on the influence of carbon dioxide produced during the combustion of hydrocarbons and during the combustion of organic matter without reference to the isotopic composition of carbon on wildlife could be more informative. In our opinion, the position about ***the destructive nature of carbon in oil and gas, as an element of former life,*** may be more convincing than reducing CO₂ to prevent the warming of our planet. Therefore, from these positions, the transition to low-carbon technologies, or even more precisely to ***technologies with minimal use of oil and gas carbon,*** is certainly necessary. But outwardly, this is presented as the need to reduce CO₂ to prevent the warming of our planet.

Main conclusions

Thus, according to scientific data, anthropogenic human activity in the production of carbon dioxide accounts for only about 1-8 % of all emissions. Therefore, ***carbon dioxide emissions caused by human activity should not have any fundamental impact on the greenhouse effect.*** A much larger, multiple increase in methane compared to the pre-industrial era did not cause decisive actions comparable to decarbonization. The decarbonization imposed on society is nearly unrelated to the actual processes of improving the environmental situation on the planet, but aims to ***increase the cost of energy and energy resources for the consumer and, accordingly, increase the degree of manipulation of society.***



At the same time, the **carbon** contained in hydrocarbons, in comparison with the **carbon** of biochemical gases, can have a **negative impact on wildlife**, and therefore it is absolutely necessary to limit and **stop the production of oil and gas**. The replacement of existing traditional and renewable energy sources should be **TRULY ENVIRONMENTALLY FRIENDLY DEVICES** for generating electricity, proposed and tested by various scientists in the last century.

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