

# **Everything will pass, and the century of new energy is coming**

Authors: Kim Sen Gook, Doctor of Chemical Sciences, Academician of the EANS,  
Academician of the IAFE,

Mambeterzina Gulnara, Ph.D., Academician of the EANS,

Kim Dilara, climatologist

## **Energy in the centuries of civilization**

Energy defines the centuries of civilization. The Stone, Bronze, Iron Ages passed on the energy of burning wood and charcoal. The age of steam and the age of electricity are based on the energy of burning coal, hydrocarbons and hydropower from artificial waterfalls. The age of the atom is based on the decay energy of Uranium. In the same century, the use of the energy of sunlight and winds became widespread.

But since the century steam, with the growing burning of coal, and then hydrocarbons, has led to a progressive increase in the concentration of carbon dioxide in the Earth's atmosphere. The growing greenhouse effect is accompanied by Global Warming, the melting of the glaciers of Antarctica, Greenland, the Arctic Ocean, snowy mountains, permafrost, and so on.

At such a rate of temperature increase, the Temperature-Time Point of No Return (TTPNR) is inevitable, from which the death of all life on Earth will begin.

According to the conclusion of authoritative scientists from all over the world, TTPNR is only a few decades away. In order for life on Earth to continue, it is vitally necessary to remove or postpone TTPNR.

Everything will pass: the pandemic, the economic recession, the redistribution of property, and possible wars. And a new century of civilization is coming - the century of environmentally friendly and efficient energy.

Problems of energy supply for the existence and progress of civilization:

1. Oil and natural gas deposits remain for 50-70 years.
2. Coal deposits - more than 600 years old.
3. Hydropower disrupts and destroys natural ecosystems.
4. Nuclear power is catastrophic (Chernobyl, Fukushima, ...).
5. There is no thermonuclear energy, and if they do, it will be even more catastrophic.

6. Renewable energy sources will not provide the required capacity.

Consequently, energy support for the life of mankind and the further progress of civilization can only be on coals.

But in coal energy it is necessary:

1. To reduce emissions of greenhouse and other environmentally harmful smoke emissions into the atmosphere (oxides of sulfur, nitrogen) from coal combustion.
2. To increase the efficiency of converting heat into electricity.

Coal-fired power industry in different countries of the world is 20 - 80%. But its further widespread development is possible only if requirements 1 and 2 are met.

These mutually exclusive requirements can only be satisfied by a special technology of coal combustion.

## I. EE & EE technology of coal combustion (to distant TTPNR )

EE & EE - Environmentally Effective and Energy Efficient. This technology will be based on the processes of nanostructuring of polar molecules of smoke emissions in a high-intensity electric field during coal combustion. The science behind EE & EE coal combustion technology is provided [here](#) .

Main scientific (experimental and theoretical) results:

1. Separation (separation) of all environmentally harmful gases from the smoke of coal combustion with water vapor by (30-80)%, depending on the strength of the electric field.
2. Dissociation of polar smoke molecules (these are molecules of CO<sub>2</sub>, H<sub>2</sub>O and all environmentally harmful gases) in nanoparticles from them, formed in a high-intensity electric field.

EE & EE technology allows to reduce greenhouse gas emissions by 60-80% with a concomitant increase in efficiency up to 58-63%. For comparison, the maximum efficiency achieved so far in Block 2 of the Isogo coal power plant (Yokohama, Japan) is 49%.

Benefits of EE & EE technology

- A. Reduction of greenhouse gas emissions by 60-80% globally can postpone TTPNR for centuries, and locally gives a competitive advantage in the global carbon quotas market.
- B. An increase in efficiency up to 58-63% pushes to replace all existing coal combustion technologies with EE & EE technology in boilers of any capacity, from domestic water heaters to Gigawatt power plants and large coal-burning plants.

## II. Towards the Era of Energy Abundance (to remove TTPNR)

Energy abundance is possible only with inexhaustible energy carriers. But, as mentioned above, oil and natural gas deposits will last for 50-70 years, and coal for 600 years. There is an inexhaustible energy carrier on Earth. **Hydrogen!** But it is combined with oxygen in water molecules. And water is in a continuous cycle in nature. From oceans, seas, lakes, rivers, swamps, ... to the atmosphere and back in the form of precipitation.

This lasts for billions of years and will not stop until the Sun turns into a Red Giant. But that will be in billions of years. Until the same distant times, Hydrogen in the Earth's circulating water is an inexhaustible energy carrier. It is only necessary to separate Hydrogen from Oxygen. And this happens en masse in nature, during thunderstorms. Hydrogen, as the lightest gas, rises into the ionosphere and further into outer space. But Hydrogen is constantly replenished by the flux of protons and electrons to the Earth from the Sun. Therefore, Hydrogen on Earth is an inexhaustible energy carrier.

It is possible to extract Hydrogen from water, as in nature during thunderstorms, in high-intensity electric fields. The scientific rationale for this possibility is given in [this article](#).

However, it is now relevant to move away from TTPNR (Section I). People can proceed to Section II (removal of TTPNR ) when the coal deposits are critically depleted. Otherwise, all the industrial sectors associated with: mining, transportation, preparation of coal for loading into the furnaces of coal boilers will be unnecessary; with the development, improvement, production, operation, repair of heating and electrical equipment; with the production of heat and electricity; with the transfer of heat and electricity, respectively, to near and distant consumers; with the repair and maintenance of heating networks and power grids; ... providing millions of jobs for humanity.

On eco-energy (Section I), you can contact Dr. Kim Sen Gook directly at:  
[kimmak2014@yandex.ru](mailto:kimmak2014@yandex.ru)