

Objective need of development of use of atmospheric electricity.

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Nowadays increase of power hunger on Earth is observed. It is expected that in 2050 the population of Earth will be up to 9.5 billion, the need for electric power will double, and sources of hydrocarbons will cease to satisfy it.

The modern power was created and is developing without understanding of the fact that our Earth is a living being, allocated with reason, a growing being (for the last 3 billion years the mass of Earth increased by 56%) sensitively reacting to what occurs on its surface and the space surrounding it now (as the living being our planet was considered by V.I. Vernadsky, A.L. Chizhevsky, V.N. Yagodinsky). Power sources, which are now in use, have a destructive influence upon Earth. The Earth became the slave to ruthless exploitation of people and shows "Spartacus's effect" – maintains the increasing resistance to people in the ways inherent in it: natural, technogenic, social, and epidemic disasters.

At combustion of gasoline in the atmosphere 15 liters of oxygen burn down. Hydroelectric power stations, widespread in the world, in fact squeeze waterways of Earth (in the Russian Federation for 2013 – 189 hydroelectric power stations). The work of stations cripples ecology of their pools territory. In the Russian Federation (for 2013) consumption of primary energy resources has made 699 million tons of oil, natural gas made 53.2% of it, oil – 21.9%, coal – 13.4%, hydraulic power – 5.9%, nuclear energy – 5.6%. Increase in prices for oil, increase of consumption of electricity, accidents on nuclear power plants and breaks of communication lines during delivery of electric power intensified development of alternative sources of electric power.

According to the forecast of Fraunhofer Institute (Germany), by 2050 50% of the consumed electric power in the world will be produced from solar energy. However for Russia, the EU and many other territories of the globe this direction, which is well tried and tested at the development of astronautics, is appropriate in the minimum degree. So, for example, the average number of clear, cloudless days in the Russian Federation doesn't exceed 15%, in particular, in the Voronezh Region during 2010 there were only 37 clear days, 165 cloudy days and 166 grey days.

Great hopes are laid on satisfaction of energy needs concerning development of construction of nuclear power plants. Nowadays

192 NPPs, having 438 power units in a working order and 72 power units under construction, operate on Earth.

The nuclear energetics, with all its effectiveness, is highly hazardous (accidents on Chernobyl NPP in 1986, Fukushima in 2011 and others, less known). Reliability of the NPP, planned by the developer, is insufficiently combined with their frequent arrangement and seismically unstable territories of Earth (at the beginning of the 20th century about 40 earthquakes with magnitude of 7 points and above were registered during a 10-year period on Earth). In the last 10 years of the 21st century there were approximately 4000 earthquakes.

Electric energy of the atmosphere is a perspective source of electric power.

It is known that 99% of the Universe, seen by us, is in a plasma state. Plasma is a working body of all lightnings.

The Earth's surface has a stationary electric field with tension E , equal to 130 volts per meter. The greatest contribution to electrization of the atmosphere is made by clouds and rainfall. In process of enlargement of particles of clouds, increase of their thickness and strengthening of rainfall, electrization is formed from them (in stratus and cumulostratus clouds the density of volume charges exceeds the density in a clear atmosphere approximately by 10 times). When E near the ground exceeds 500-1000 V/m, electric discharge from sharp objects takes place. When strengthening the field of the charge it becomes visible (St. Elmo's fire).

In midlatitudes of Russia approximately 500 lightnings appear within an hour during a strong thunderstorm. Pulse power of one lightning can reach 1 TW. In midlatitudes of the European part of Russia and Western Siberia the prevailing number of thunderstorms is connected with cyclones and their frontal systems. Thunderstorms develop generally on cold fronts where their repeatability is 70% and only 30% is connected with passage of warm fronts. According to Roshydromet, the average annual number of days with thunderstorms in Russia makes: in the north of EPR – 15, in the northwest of EPR – 19, in the Central district – 26, in Middle Volga – 27, in the North Caucasus – 30, in South Ural – 26, in the south of Western Siberia – 27, in Krasnoyarsk

Krai – 18, in Transbaikalia – 24, in the Far East – 21, in Yakutia – 9.

The invention of concentrator of electric charges from the atmosphere (invention No. 20000128 of 11/29/1990 and No. 2030132 of 04/21/1992) was the fundamental solution of the problem of use of atmospheric electricity. The device consists of condenser camera 1 which is limited to case 2 on configurations executed in the form of a rotation body with a conic top part. The case is manufactured of dielectric (concrete, limestone). At the top of the case there is a lower metal terrella 3 – a triboelement having a long metal “nose” 4, on which triboelements 5, connected to each other and having cameras and cavities in communication, are rigidly fixed in a sequential order (by means of metal “nose”). On the upper triboelement a cross antenna 6 is fixed. Needle 10 vertically falls from the lower triboelement. On the basis of camera 7 the lower disk-shaped metal electrode 8, having grounding 9, is located. (pic. 1)

The device works as follows. Tarrels-triboelements, located vertically and connected with the cross antenna, allow creating the maximum surface for implementation of triboelectrization by various atmospheric factors with minimum of volume. This results in the difference of potentials between the upper loaded needle electrode and the lower electrode. In the period of snowstorms, rains and thunderstorms this process (accumulation of electric discharges) considerably intensifies due to use of the developed surface of tarrels-triboelements.

Increase of tension between electrodes also depends on height of rise of the upper electrode (with the antenna and tarrels-triboelements) as the vertical component of electric field of the Earth makes up to 200 V/m from the Earth's surface, increasing during bumps (a rain, a snowstorm, a thunderstorm, a sandstorm). The needle allows concentrating maximum possible tension of the field for breakdown of a discharger.

The case of dielectric isn't limited to a role of the elevator of the antenna and tarrels-triboelements, it protects against external electrical interferences, increases safety of operation.

In development of this fundamental technical growing and further development of use of atmospheric electricity we have created new technical solutions, unknown earlier: invention of the Russian Federation No. 2332816, 236991, 2482640, 2571237, Eurasian patents: No. 029621, 028417 where the concentrator of electric discharges from the atmosphere is used.

The receipt of electric power from the atmosphere will be environment-friendly in terms of use on the land, the sea and in the atmosphere.

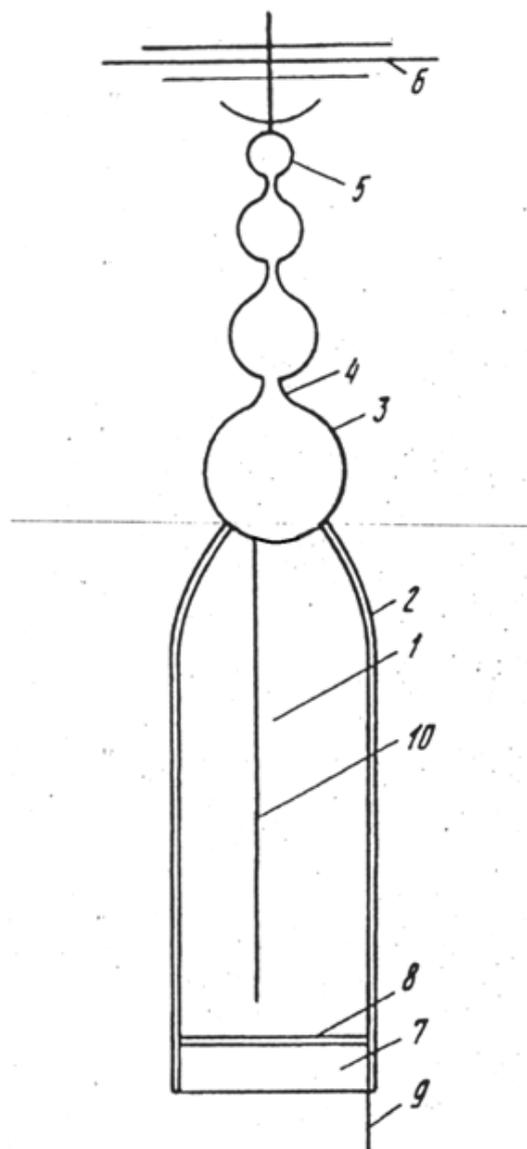
Installations are designed for full-time operation in autonomous conditions.

Creation of the functioning devices and distribution of them will allow satisfying power hunger substantially and probably becoming the main environment-friendly source of the consumed energy in the world. Development of technology will allow carrying out an upcoming population shift from large cities to provinces, to remote environment-friendly areas.

The proposed technical solutions are capable of working at all latitudes of Earth: on shore, at sea and in the atmosphere.

Conclusion

In the remained time limit (about 50 years) the development of technology of receipt of electric power from the atmosphere will allow a social and power transition from this civilization into a “new” one – an era of mind.



Picture 1