



# VORTEX POWER STATION

Moscow 2013

# Global energy problems

The solution of energy problems by burning fuel of nuclear, hydrogen and bio energy is expensive and brings tremendous environmental damage and the warming of the planet.



# Solution of energy problems

Nowadays there is a great reliance on traditional renewable energy sources: wind power, currents, sea waves, sun, etc. Despite there is a large number of proposed designs, these energy sources can not be widely used because of the high cost and the price of electricity, the complexity of the design, dependence on the presence of wind or the sun and a negative impact on the environment.

These renewable energy sources will provide no more than 2-15% of energy needs in the world.

Humanity is wasting huge financial resources, and if it continues further, the global energy crisis will grow to catastrophic proportions. Time will be lost.




# Ideal source of electrical energy

The solution of energy problems could be a source of electrical energy, which would have the following properties:

- take energy from the peaceful environment all the day and do not depend on the availability of wind or sun;
- be located next to the user (no need in thousands of miles of power lines, gas and oil pipelines and heat mains);
- have a very low cost (many times lowers than today's conventional and renewable energy costs) and very low cost of electricity;
- use this energy for heating and replacement of the gas in the kitchen (no need in large expensive system of heating and gas pipelines); it can be profitable if the price of energy from these sources will be very cheap;
- easy to assemble and use;
- environmentally friendly.

# Calm atmosphere – the ideal energy for the source of electrical energy



Environmental and quiescent atmosphere has huge reserves of renewable thermal energy and pressure energy, which is a thousand times greater than what have all power plants of the earth.

This energy is everywhere, close to the consumer.

This energy is available all day and does not depend on the availability of wind or sun.

It is environmentally friendly.

Quiescent atmosphere - its thermal energy and pressure energy - is an ideal source of energy.

This energy is low potential, i.e. consumer has a temperature or pressure higher or equal than is the surrounding atmosphere.

# The problems of obtaining of energy from quiet environment



Mankind has mastered the high potential energy (energy from fuel combustion and conventional renewable energy sources). Getting this energy does not cause fundamental problems as its potential is higher than a consumer. But as already stated above, these sources of energy will not solve the energy problems of the planet.

This problem can be solved by the energy of quiet atmosphere, but it is a low potential energy (the temperature and pressure is below of that the consumer has).

Therefore, a simple obtaining of energy from the quiescent atmosphere is not possible.

Principles of extraction of low potential energy are much complex than the principles of high potential energy. They are very poorly understood. There must be developed principles of obtaining energy from the quiescent atmosphere. Official science does not even dare to set such a task, and different inventors of "perpetual motion" - not the kind of power that can solve this problem.

Therefore, work on the extraction of energy from the ambient quiescent atmosphere is only in its infancy.

Works on extraction of pressure  
energy of the atmosphere



# Extraction of pressure energy of the atmosphere



Konstantin Tsiolkovsky proposed to extract atmospheric pressure energy using the pressure difference at different altitudes of the atmosphere.

The energy of the atmospheric pressure, with a sharp decrease in pressure in a certain area is exempt, and does work (tear roofs due to the pressure energy of quiescent air under the roof, Bernoulli's effect).

With the rapid decrease in pressure (by burning or detonation), there is a decrease of pressure in this area. The energy of the quiescent atmosphere goes to the depleted zone. This effect is used in vacuum bombs. Thus the quiescent atmosphere can transfer huge energy.



The stream of water or air under pressure of quiescent environment becomes narrow. This is a well-known Bernoulli's effect. But while scientists and inventors do not notice that for this narrowing of the stream goes the energy of the ambient quiescent environment. So, quiescent environment gives the stream part of its energy.

Kvasnikov A.V., Kudrin O.I., Chelomei V.N. theoretically and experimentally established that under certain geometric, kinematic and dynamic conditions of stream expiration, its thrust increases by the added mass of the environment.



Academician Chelomei V.N.

The discovery № 314 was reported: "The phenomenon of abnormally high increase of thrust in the gas ejection process" (authors: Kvasnikov A.V., Kudrin O.I., Chelomei V.N., 1986).

The question of extraction of energy has remained opened.

There are being carried out researches in this direction by Kondrashov B.M.

Professor Alexander Predvoditelev theoretically determined the physical conditions of the extraction of energy from the quiescent atmosphere with the vortex motion.



On the photo –  
Professor Predvoditelev A.S.

U. Volodko during experimental studies with streams coming out of thin tubes discovered that their energy is greater than the stream received from the compressor.

The researches on the extraction of energy from the pressure of the environment are being carried out: V. Oshirov, Geller, Ovchinnikov, and many others.

# Today analogs of vortex energy sources

American inventor Mark Tanner has created a vortex turbine, extracting pressure energy from the quiescent atmosphere (Bernoulli's effect).

After starting the turbine, the drive was disconnected from the network and the turbine maintained working, providing the energy and load.

Demonstration of vortex energy source in 2010 at the exhibition in California



<http://www.ef9energysystems.com/page4.html>

Mark Tanner considers that the vortex generators of this type can change the entire energy of the Planet.

# Conclusions on extraction energy pressure from peaceful atmosphere

There are already theoretical evidences and the first working models demonstrating the reality of extracting pressure energy from the quiescent atmosphere.

Despite the growing energy crisis, there is given surprisingly not enough attention to the development of research directions for the extraction of energy from low potential pressure energy from the environment. **The reasons for this are as follows:**

- creation of converters, extracting atmospheric and water pressure energy, demands scientific and engineering knowledge that is much higher than that required for the development of traditional wind-hydro and other renewable energy sources;

- not developed the theory and general principles of extraction of low potential energy;

- the possibility of a much larger gain energy and creation of an autonomous energy sources, as well as the generation of electrical energy remains outside the understanding of a wide range of scientists and entrepreneurs;

- researches in the field of the extraction of low potential energy are considered as "pseudoscientific";

- unfortunately in this area, there are many inventors who are trying to create different types of "perpetual motion machines" that only discredit this direction of research.

The work on extraction  
of heat energy  
from the peaceful atmosphere



# Nikola Tesla and Viktor Schauberger



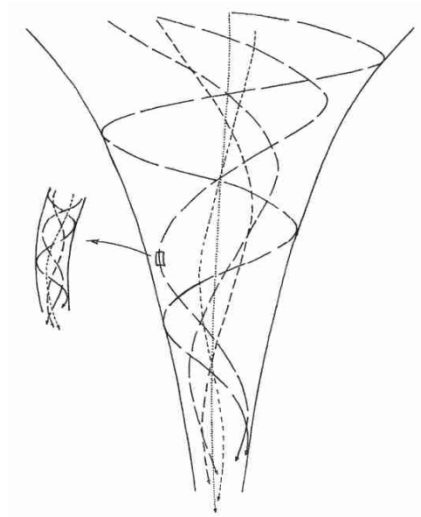
Nikola Tesla was trying to extract the energy of the environment by using the rotational motion of a fluid between rotating disks, with a special configuration. The information about the test results is unclear and limited.



Viktor and Walter Schauberger did various devices which tried to extract the energy from the environment (implosion).

At the basis of their devices was rotational motion of the air on trajectories.

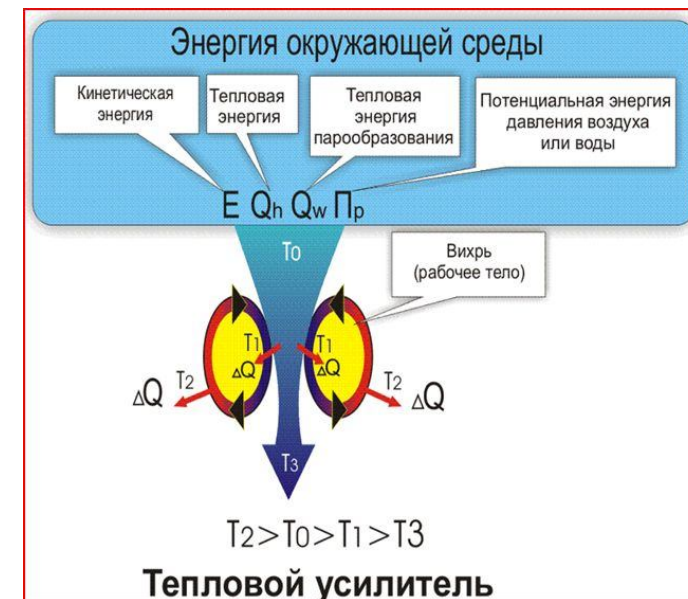
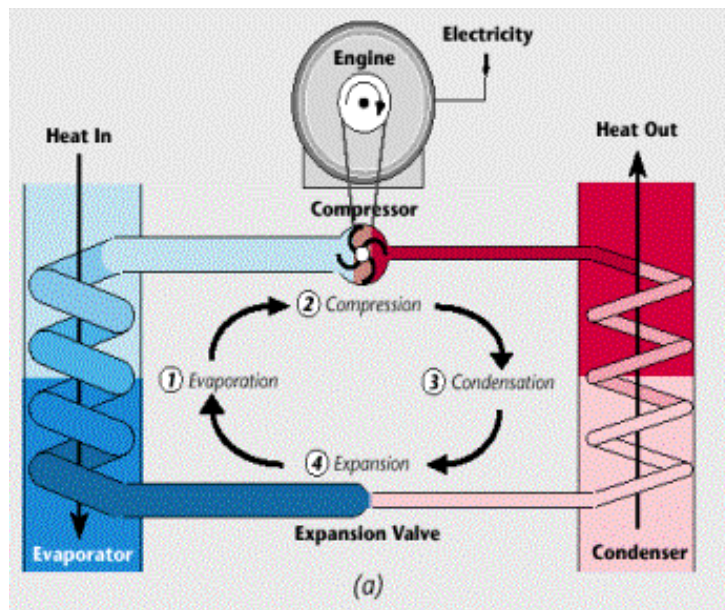
Viktor Schauberger found that with a specific type of spiral motion of the stream the transformation of part of the inner thermal energy of the stream in the additional kinetic energy of the stream is possible.



# Heat pump

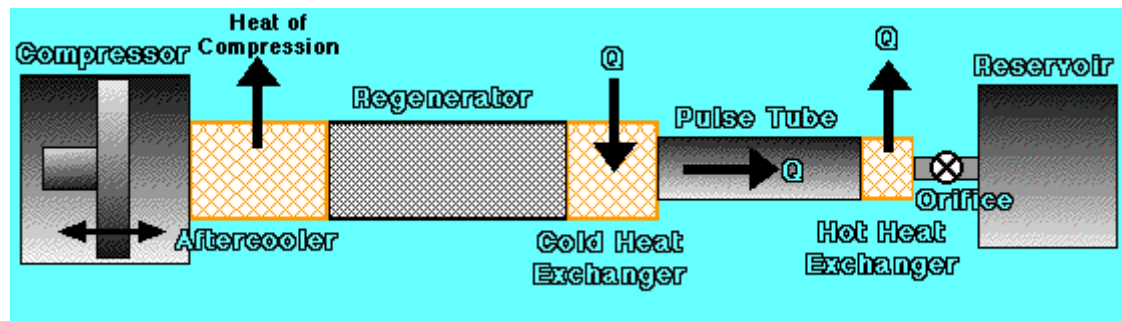
There are already developed and implemented 20 million pieces of freon-compressor heat pumps taking heat from the environment, including the quiescent atmosphere. In heat pumps physical process is specially created, by which the thermal energy is taken from a low potential atmosphere and delivered to the consumer, which has a temperature much higher than the consumer has.

Consumer's benefit is that he is paying for electricity for the heat pump compressor that is 4 times lower as he receives free energy from the environment.



# Thermo acoustic heat pumps

It is found that in acoustic waves of high-intensity there is formed an areas of low and high temperature and there is a possibility for energy transfer between these areas. This process is analogous to the heat pump process. Devices that work on such processes are called thermoacoustic heat pumps.



*NASA Ames Research Center/What is an Orifice Pulse Tube Cooler.htm*

In a sealed volume of special shape a very intense standing acoustic wave is created. The air or helium can be used as a medium. In the acoustic wave there is a cold zone generated (below the temperature of low potential environment) and the hot zone (the zone temperature is above the temperature of the consumer). Acoustic wave carries heat from cold zone to hot zone. As a result, thermoacoustic heat pump extracts low-potential thermal energy of the environment.

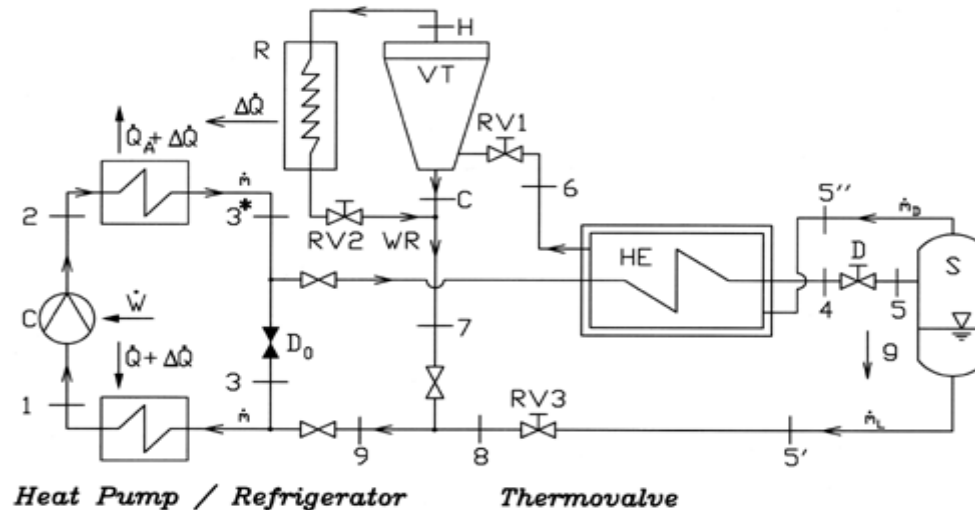
Thermoacoustic heat pump does not need a compressor, special fluids and much more.

There are created operating models of thermoacoustic heat pumps of 300 watts power. But the developers have big problems with the creation of thermoacoustic heat pumps of medium and high power.



# Vortex heat pump

It is known that the vortex tube of Ranque-Hilsch splits the incoming air to the cold and hot one.



Prof. Dr. J. U. Keller and Prof. Boye K. Ahlborn decided to use this effect to extract low potential thermal energy of the atmosphere.

Their idea is as follows: atmospheric air is passed through a low-temperature zone of the vortex tube (temperature of the cold zone of the vortex tube is lower than the temperature of ambient air) and the air gives the thermal energy to the tube. Then the atmospheric air is thrown out from the tube, while it has a temperature lower than had previously. The extracted energy is transferred into the hot zone of the tube. With that, the temperature of the hot zone is even higher than it would have without the extraction of the energy of the environment.

Models of the heat pump on the basis of the vortex tube were created. The test results showed that the energy output of the heat pump of this type are is smaller than energy required to the compressor. That is, the converter with a conversion ratio less than 1 was obtained.

This result could be predicted in advance. In the vortex tube, only 10% of the energy supplied to the compressor goes on a creation of vortex motion inside the tube (and therefore to the separation of the air temperature inside the vortex). Remaining energy is carried away with the air emitted with high velocity into the atmosphere (otherwise the vortex tube will not work).

In a favorable situation there can be extracted energy for 2-4 times larger than the vortex in the tube has. **As a result, we have:**

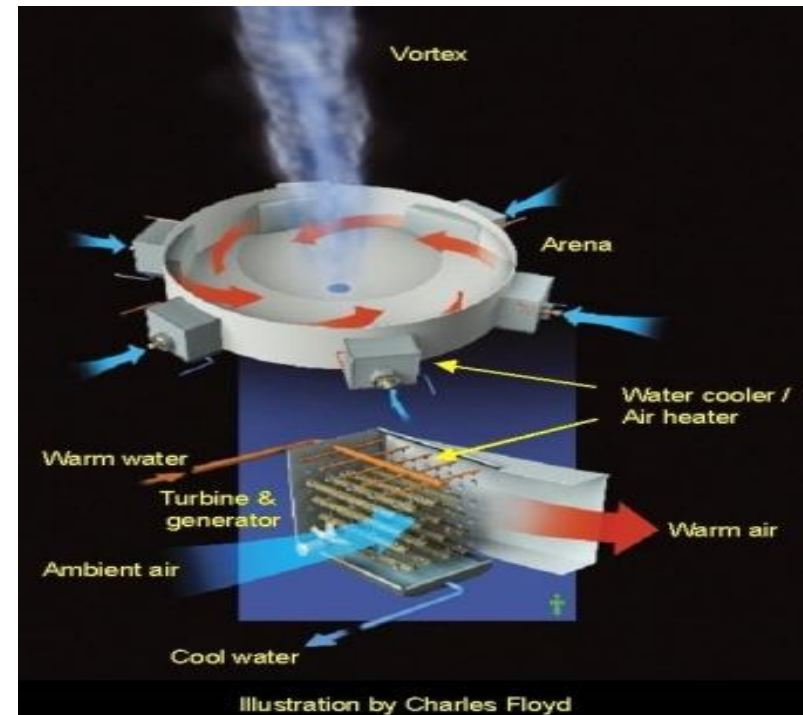
- extraction of energy from the environment is possible (this is conjecture) for 2-4 times larger than the energy of the vortex;
- the energy in the vortex of the tube is 6-10 times smaller than the energy supplied to the compressor;
- as a result we have that the heat pump on the vortex tube of Ranque-Hilsch does not increase energy at the output with the "free energy" of the environment.

Despite the negative results, the work carried out by Prof. Dr. J. U. Keller and Prof. Boye K. Ahlborn is very important. The work pointed to the principal possibility of extracting the low potential energy of the atmosphere by using a vortex.

**For the successful implementation of this method of atmosphere energy extraction it is necessary to solve three tasks (or part of them):**

- increase the efficiency of the device for generating high-speed vortex, which will separate the temperature of the external air;
- to increase the gain of the converter (vortex) due to the extraction of heat energy of the atmosphere by the condensation of moisture;
- to increase the gain of the converter (vortex) due to the extraction of pressure energy of the atmosphere or the water column.

# Extraction of thermal energy by means of the vortex



Louis Michaud, inventor of the  
AVE Atmospheric Vortex Engine

By imitating nature, we can create a vortex using low temperature heat sources.

“If Mother Nature produces spontaneous vortices from 30. seawater, then we ought to be able to use 40. waste water to create an artificial vortex and extract energy.”

web site: [vortexengine.ca](http://vortexengine.ca)

# Extraction of energy from the environment by means of the vortex motion

The work on the extraction of energy from the environment by means of a vortex motion is being carried out: Ph.D. Kushin V.V., prof. G. Kiknadze, Ph.D. Savchenko A.M., Ph.D. Sharkov V.F., Ph.D. Serebryakov R.A., David Dennard, Klem, Jean-Louis Naudin, HaraldKautz-Vella and many others.




Prof. Bubnov V.A. conducted a series of successful experiments to transform thermal energy of the vortex into kinetic energy.

# Findings on the extraction of thermal energy from quiescent atmosphere.

Extraction of low potential thermal energy from the environment is already a fact.

**But the development and widespread use of heat pumps is constrained by the following reasons:**

- creation of converters extracting the energy of the atmosphere and the water demands the scientific and engineering knowledge much higher than that required for the development of traditional wind-hydro and other renewable energy sources;
- existing heat pumps provide the consumer only thermal energy;
- existing types of heat pumps are rather complex and expensive;
- the theory and general principles of extraction of low potential energy are not developed;
- unfortunately, in this area, there are many inventors who are trying to create different types of "perpetual motion machines" that only discredit this direction of research.



Creation of a stand-alone source of thermal energy through the heat pump is in principle impossible. Because if obtained energy is used for creation of a physical mode of extraction of thermal energy, even for an ideal cycle heat engine (Carnot cycle), energy for this process will not be enough.

The works on the extraction of thermal energy in the condensation of moisture from the atmosphere are not known.

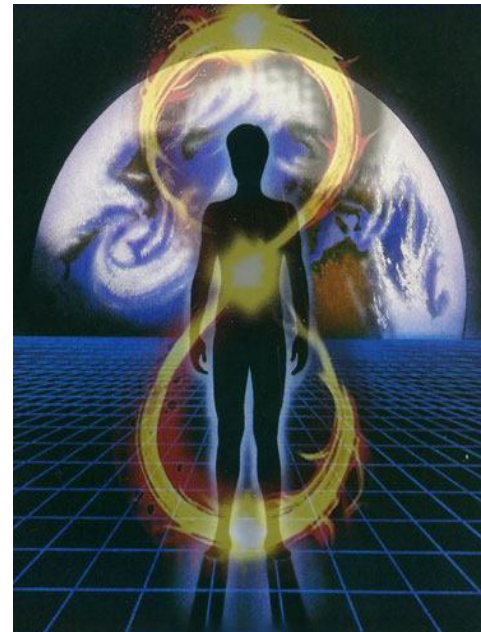
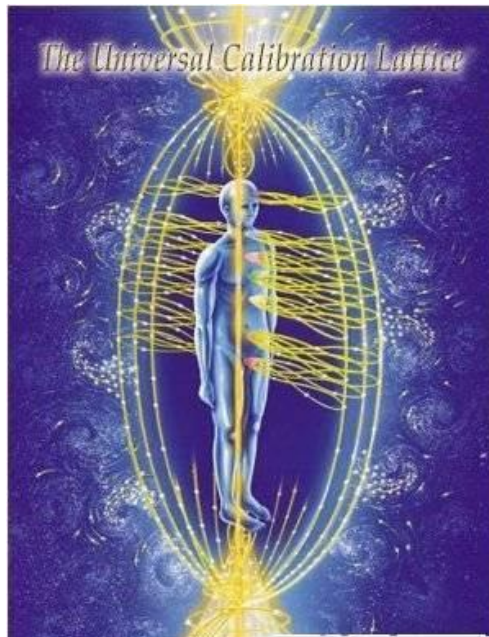
The organization of the physical process for the extraction of thermal energy by means of a vortex instead of freon-compressor system is promising, because greatly simplifies design and eliminates various freons matter. But the success of the vortex in the heat pump will depend on finding efficient way for generation of a vortex.

# Vortices in the esoterica

Have survived very distorted information on the use of a vortex energy in antiquity.

Is quite possible that there are unknown to us kinds of energy and mechanisms of its obtaining by dint of the vortex.

Now, unfortunately, there are many mystical literature and "fantasy" today's "oracles", which are very harm to the cause.



# General conclusions

1. Effect of extraction and concentration of low potential energy are very common in nature.
2. At the same time, this effect remain little-known and little-studied.
3. This effect can appear spontaneously in many technical items (hydro power station , turbo-jet and rocket engines, etc.) and lead to major accidents.
4. Today, there are only a few directions of use of low potential energy of the surrounding peaceful environment:
  - A heat pump;
  - Vacuum bomb.
5. On the basis of use of this effect can be created very cheap sources of energy of a new type that could solve all the world's problems on energy.
6. On the basis of use of this effect can be created technological processes and the devices, necessary energy for which will arrive from environment and will replace in whole or in part energy arriving from a traditional electric network.
7. Is surprising why in the world under conditions of developing global energy crisis, environmental degradation, do not carry out works on extraction low potential environmental!?
8. The reasons for the lack of work on the low potential energy sources:
  - Lack of intellectual, professional and political level of the leadership of the state, state agencies responsible for the energy sector, investors, and others;
  - Lack of theory of extraction and concentration of low-potential pressure energy from the environment, ignoring the by official science of this field of science researches;
  - reluctance of owners of oil and gas complex, hydro power station, thermal and nuclear power plants, to fund to the development of a new energy source.

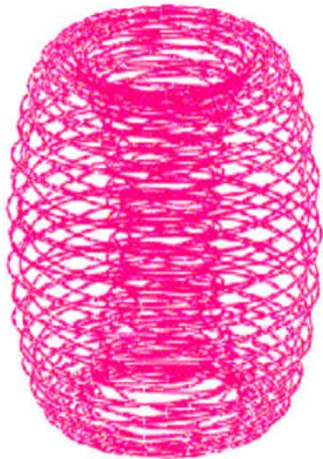


# Our purposes in the future:



1. Create a basis of the theory of extraction low potential energy from the calm environment.
2. Create a highly-economical vortex for extraction and concentration of energy.
3. Create a working model of vortex-oscillation power plant for determining optimum modes and demonstration
4. Create a series of vortex-oscillation autonomous power station from the kilowatts to hundreds of megawatts and gigawatts.

# Our theoretical results



1. We create the drive, in which with the help of special shape oscillations are created very intensive vortices with very low energy consumption. This is achieved by the fact that the generation of the vortex occurs with help of oscillations (it differs from the little-economical ways to generate a vortex using different rotations, compressor, such as a tube Ranque, etc.).

At the same time, the vibrations can be used for the annihilation of aero-or hydrodynamic resistance at the motion of vortex.

Our method of creating vortex is much easier and economical than known methods.

2. The way of converting mechanical energy of the vortex into the electrical energy was developed.

3. The way of extraction low potential thermal energy of the calm atmosphere by means of the vortex was obtained.

4. The way of extraction pressure energy of calm atmosphere by means of the vortex is developed.

5. The way of moisture condensation from the atmosphere by means of the vortex is developed.

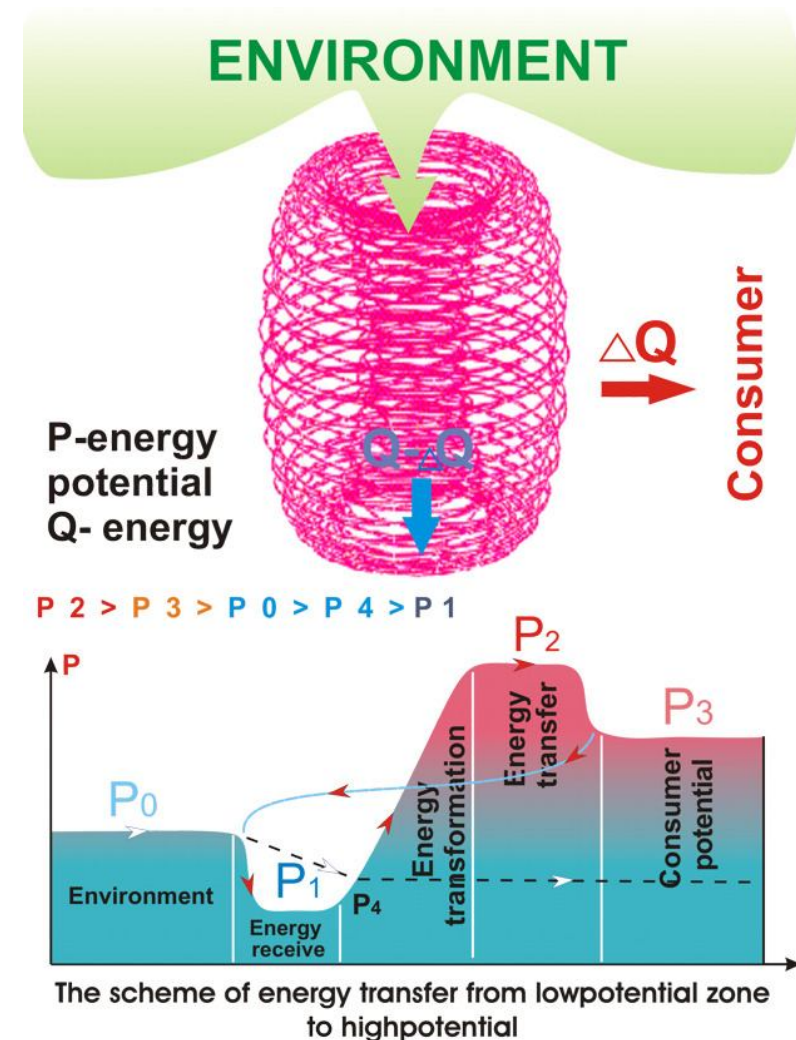
6. The way of liquefying natural gas using a vortex is developed.

7. Large information base on the low potential energy, vortices and related issues are collected.

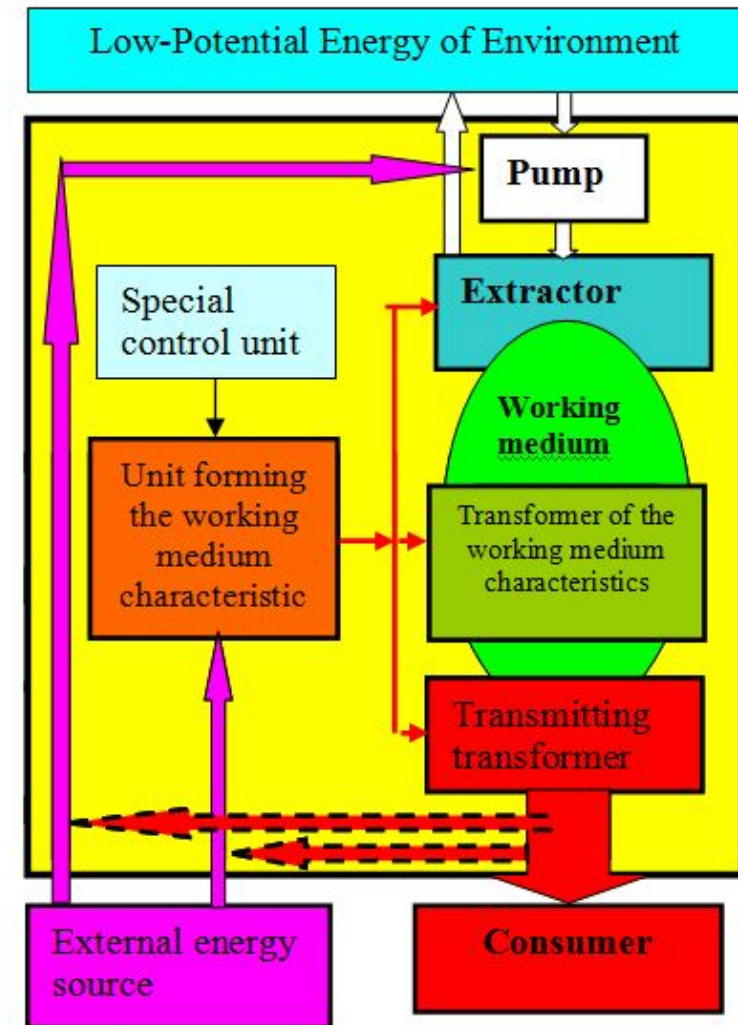
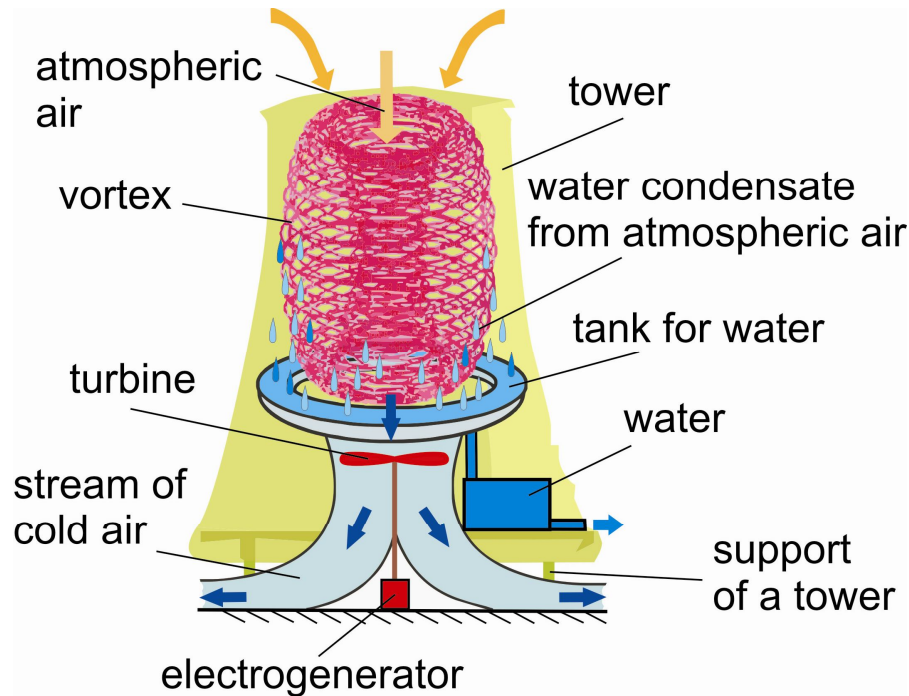
# Our Know How

For the successful development of devices for the extraction of low potential energy of quiescent environment we have developed a general principle of extraction:

- for the extraction of low potential energy it is necessary to create a potential pit, which potential is below the potential of the environment (then the environment will give some of its energy to this pit);
- the potential energy extracted must be raised to high potential (above the potential of the consumer), for example to raise the temperature of the gas with the rise of pressure (law of Boyle-Clapeyron);
- transfer of high potential energy to the consumer does not cause fundamental problems.



# Structure of the vortex oscillatory power station



# Extraction the pressure energy by means of the vortex

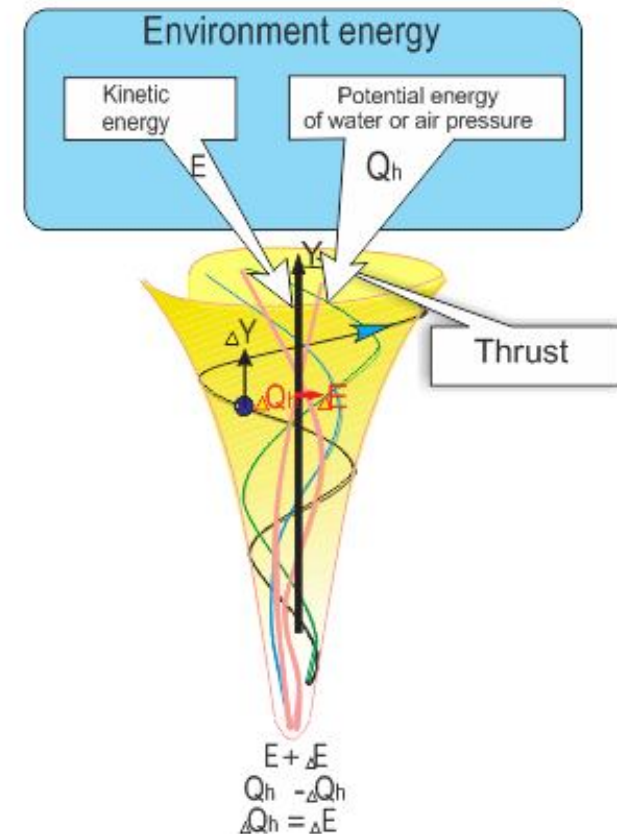
Due to the high-speed movement of air in the vortex the zones of low pressure are formed (Bernoulli's effect).

With the passage of air around these zones, the atmospheric air will give part of its pressure energy to the pressure of vortex.

Extracted in this way pressure energy inside the vortex will be converted into additional kinetic energy of the vortex.

Then this energy is transferred to the electric generator and from the generator to the consumer.

The energy required for generation of the vortex is much smaller than the energy extracted by the vortex from the atmosphere. This energy comes from the energy extracted from the atmosphere. Since this is a mechanical energy, not thermal, the efficiency of this converter is not determined by the Carnot cycle, efficiency will be much higher. Therefore, this source of energy will be a standalone (part of energy extracted from the atmosphere will be directed to generate a vortex, as it happens in a tornado).



Kinetic energy amplifier(spiral vortical).  
Additional kinetic energy income by air or water pressure potential energy take-off from environment.

# The extraction of thermal energy by means of the vortex

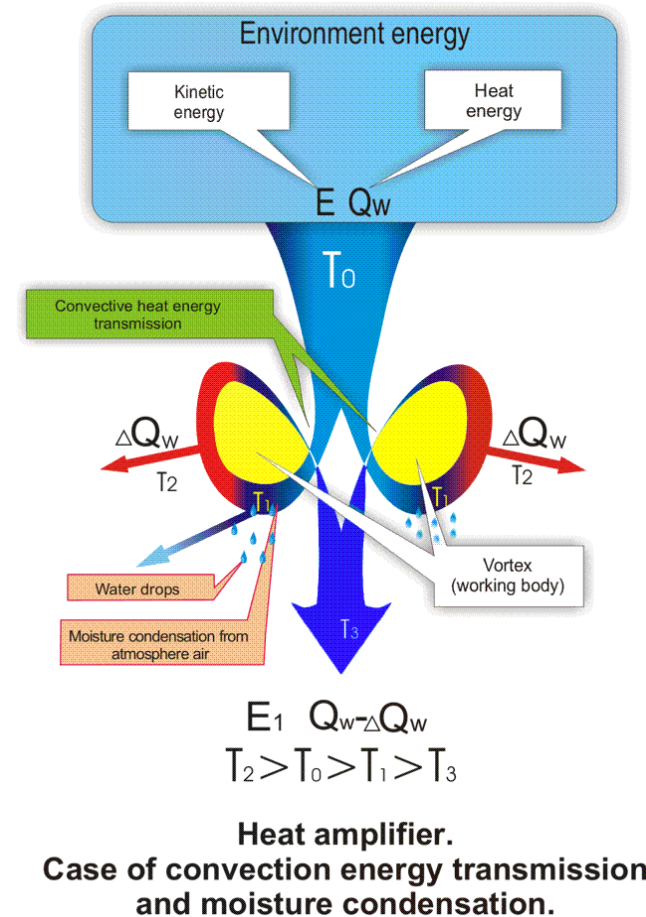
Inside the vortex there is created the low-temperature zone (analogous to the effect in Ranque vortex tube) below the temperature of the environment.

If the air or water from the environment passes through this zone of the vortex, the vortex, in accordance with the second law of thermodynamics, will extract the thermal energy of the environment. The temperature of the extracted energy will be low.

Then the air particles move to the outer coils of the vortex. Due to the centrifugal forces the pressure of the particles increases and temperature also increases (in compliance with the law, Mendeleev-Clapeyron). Thus, the extracted energy, without changing its value, becomes high.

On the outer orbits of the vortex the temperature is above the temperature of the consumer and, in accordance with the second law of thermodynamics, passes on to the consumer.

In difference from the known heat pumps, vortex oscillatory heat pump can extract not only the thermal energy of a low potential environment through its cooling, but also the thermal energy from the condensation of moisture from the atmosphere as well.



# Our experimental results

1. Vortex motion (for the extraction of energy from the atmosphere the high speed vortex is needed on the basis of the same principle) are experimentally received.

2. The first working regimes of a water vortex in the air environment at which from a vortex negative energy was removed are experimentally received, i.e. the vortex extracted energy from the low-potential calm environment.

3. Modes at which the frequency of rotation of a vortex was more than a frequency of rotation, which set by the drive, are experimentally received.

4. Regimes found when water vortex (1.5 liter):

- At rotation speed went into the dressing (vortex was seen as a mirage);
- - to produce sound, as from the a turbojet aircraft;
- operator and all present have experienced tremendous sense of fear;
- put pressure on the psyche of people with a distorted representation about the surrounding space;
- experiment lasted only for a few seconds and device have immediately turned off by the operator.

# Our layout results



1. Some installation for producing a vortex by mechanical oscillations are created.

2. Working model of removal of the kinetic energy of rotation of the vortex and its conversion into electrical energy is created . In testing vortex was generated by means of the drive, and removal of the energy from vortex occurred as though spinning vortex rotated from the extracted energy.



# Prospects

Theoretical estimates of the energy extraction from the environment by means of a vortex showed that the gain of energy:

- at extraction of thermal energy, taking into account the condensation of atmospheric moisture, can be 3-40 times;
- and at extraction of pressure energy of the environment, up to 140 times.

On the basis of our vortex energy source there can be built electric and heating plants with capacities from hundreds of watts to hundreds of megawatts.

See: <http://www.vortexosc.com/modules.php?name=Content&pa=showpage&pid=70>

These energy sources will cost much less than the known sources of energy, will be located directly at the consumer and will be environmentally safe.

Vortex oscillatory power plants on the basis of extracting pressure energy from the atmosphere will be autonomous.

The proposed renewable energy sources do not depend on the availability of wind or sun, are much cheaper than the energy sources on the fuel and cheaper than traditional renewable energy sources, are environmentally friendly.

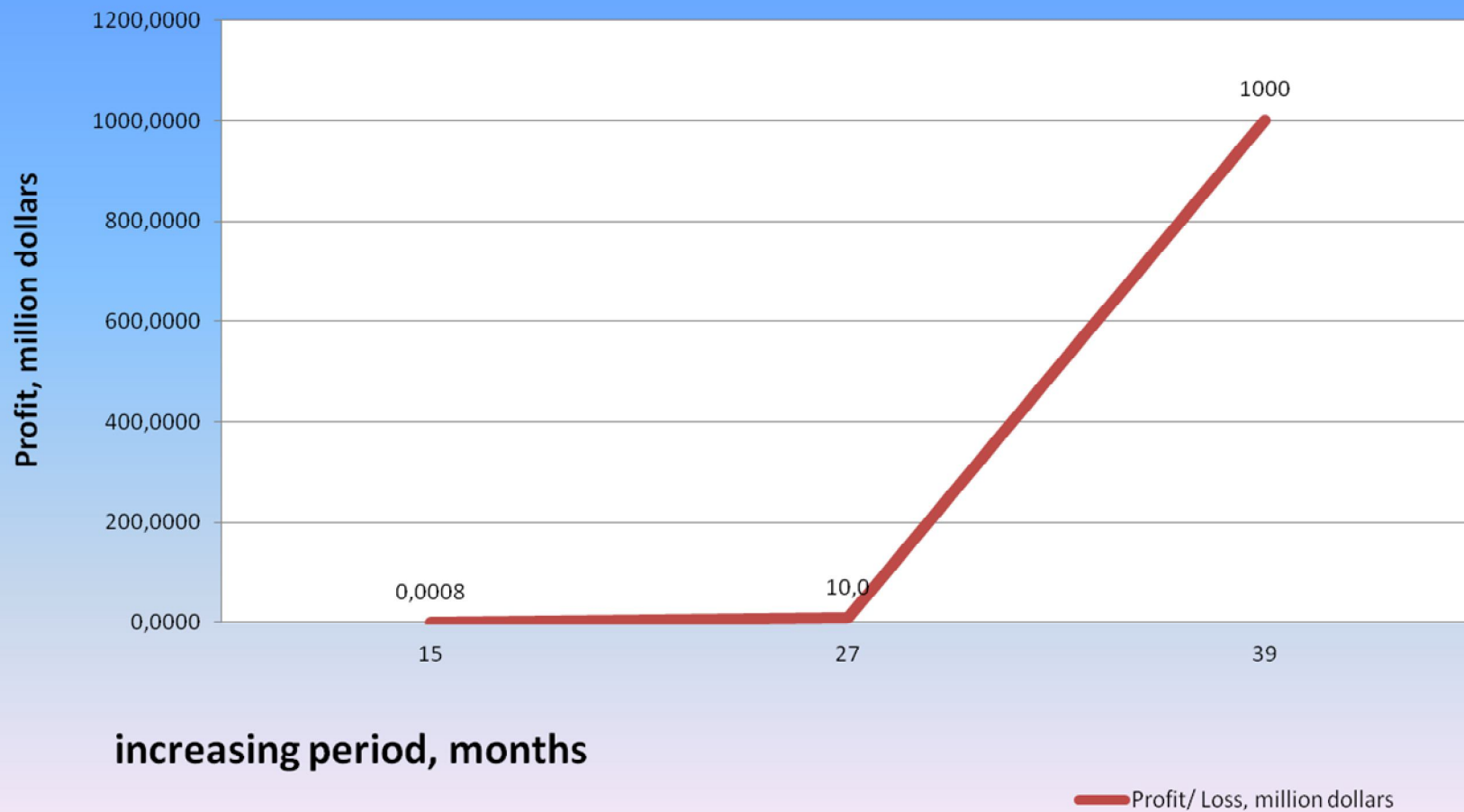
Therefore, the proposed energy sources can provide energy to all the needs of the planet and replace all existing power plants, including atomic and solve the global energy crisis.

# Business plan of development and serial production of 5 kW Vortex Power Plant

Name of the stage	Duration of the stage, months	Unit cost, million dollars	Quantity, pcs	Expenses, million dollars	Selling price per unit, million dollars	Revenues from sales, million dollars	Profit/ Loss, million dollars	Net profit/ loss, million dollars
R&D of 5 kW vortex power plant	12	0	0	2,56	0	0	-2,56	-2,56
International marketing	0	0	0	0,1	0	0	-0,1	-0,08
Payment of Know-How	0	0	0	3	0	0	-3	-2,4
Payment of patent	0	0	0	1,015	0	0	-1,015	-0,81
Production of the 1st batch of 5 kW vortex power plant	3	0,0013	5	0,0067	0,0015	0,0075	0,0008	0,001
Serial production of 5 kW vortex power plant, 1st year	12	0,0005	10000	5,0	0,0015	15	10,0	8
Serial production of 5 kW vortex power plant, 2nd year	12	0,0005	1000000	500	0,0015	1500	1000	800
<b>Total:</b>	<b>39</b>		<b>1 010 005</b>	<b>512</b>		<b>1 515</b>	<b>1 003</b>	<b>802</b>
Profitability (ratio of net profit to all expenses), %								<b>157</b>
The ratio of cost of R & D to the serial selling price of 5 kW vortex power plant								1707

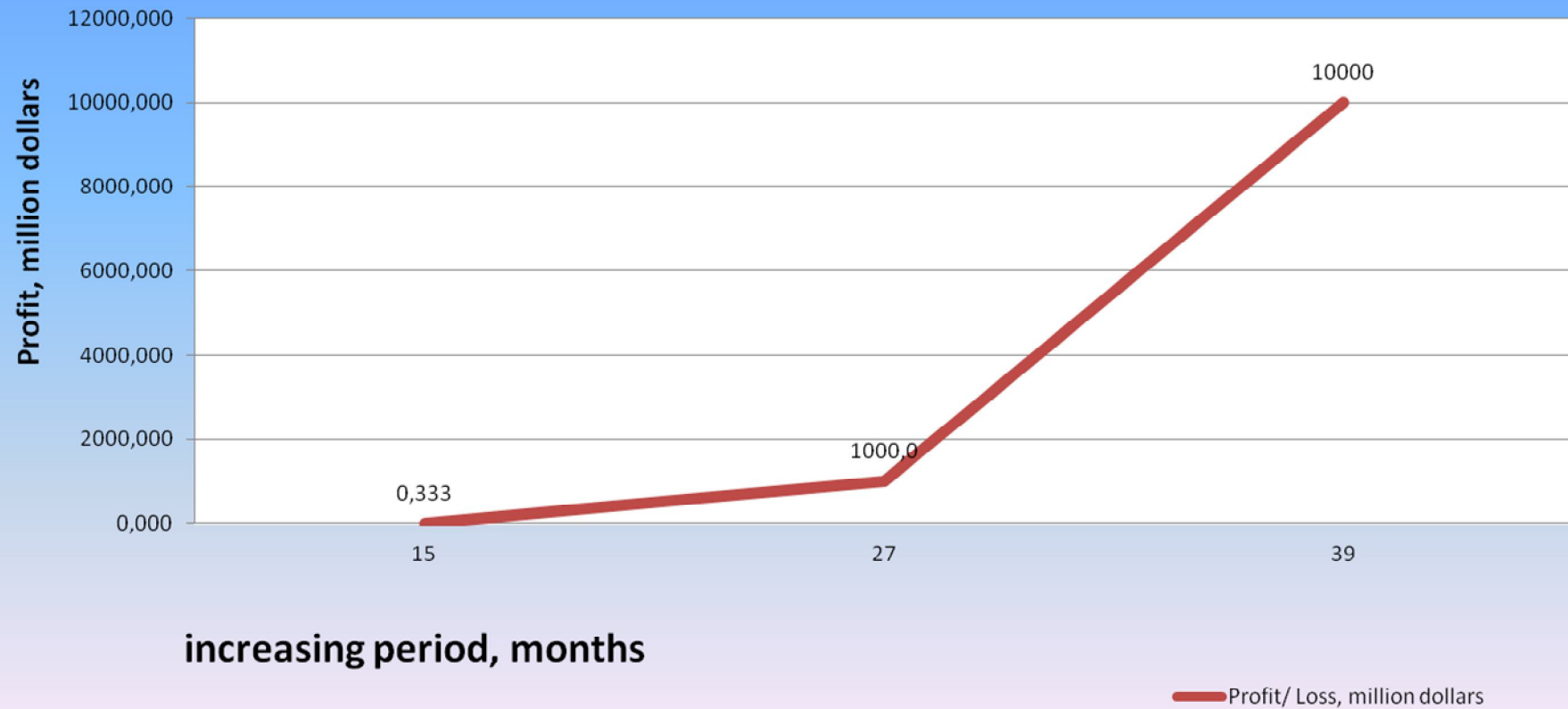


## The structure of project profitability of 5 kW vortex power plant



The graph shows that investments in 5 kW vortex power plant start paying off from 15 months from the beginning of investment in R&D. Profit after 3 years will be around 1 000 million dollars.

## The structure of project profitability of 100 kW vortex power plant



The graph shows that investments in 100 kW vortex power plant start paying off from 15 months from the beginning of investment in R&D. Profit by the end of the third year will be around 10 000 million dollars.

# Our offers



Considering the novelty of the proposed type of the power plant, initially it is advisable to carry out research and development to establish a working model of vortex-oscillatory power plant.

## Purpose of the work:

1. Creating the physical process on extracting energy from a quiescent atmosphere with the help of a vortex.
2. Determination of optimal operating modes of the vortex power plant.
3. Test runs.
4. Development of the methodology for the design of the vortex power plant of any capacity.

After that, at your request we can develop and produce the first installations of renewable energy sources:

# 1. Vortex oscillatory power plant for the private houses

Power plant for the houses will have the following characteristics:

- electrical power output of 5 kW (at takeoff of only 1% of pressure energy of passing air through the vortex), the standard power output of 220 V or 380 V, 50 Hz;
- the volume speed of passing air -  $3 \text{ m}^3 / \text{s}$ ;
- velocity of passing air inside the vortex -  $15 \text{ m} / \text{s}$ ;
- pressure fall between the air and streams flowing in the vortex –  $0,14 \text{ atm}$ ;
- the size of the reactor, in which the vortex operates: diameter –  $0,76 \text{ m}$ , height –  $0,5 \text{ m}$ ;
- power plant requires energy only for running, then it works all the time autonomously, delivers energy to the consumer and provides itself energy to support the work of the vortex, etc.;
- power plant can be put on the roof, etc.;
- power plant will provide the house with all the required energy for heat, water, cooking (instead of gas or fuel), and power supply of domestic and industrial devices.

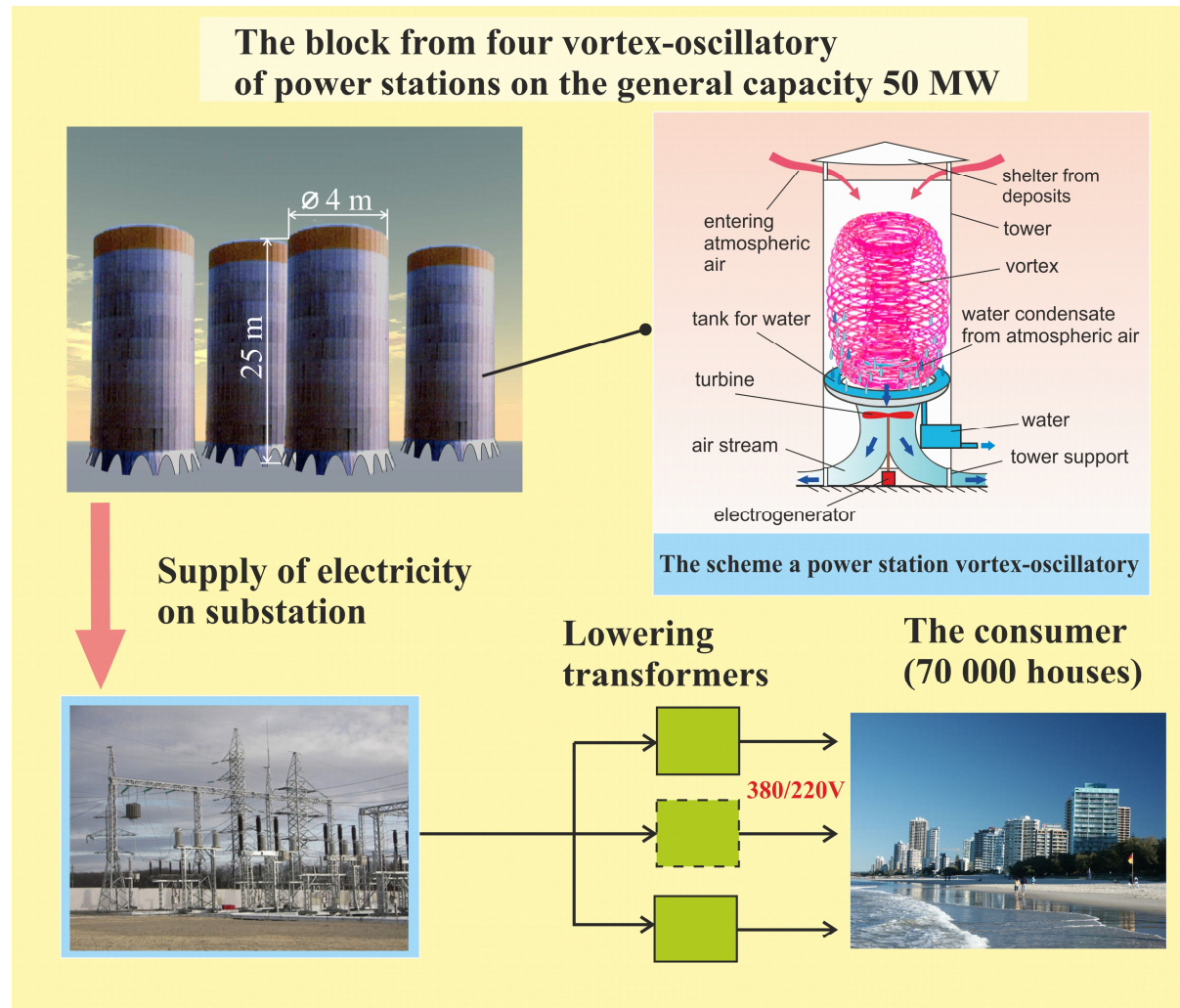
## 2. Vortex oscillatory autonomous power plant of 100 kW

Power plant will have the following characteristics:

- electrical power output of 100 kW (at takeoff of only 1% of pressure energy of passing air through the vortex), the standard power output of 220 V or 380 V, 50 Hz;
- the volume speed of passing air -  $73 \text{ m}^3 / \text{s}$ ;
- velocity of passing air inside the vortex -  $15 \text{ m} / \text{s}$ ;
- pressure fall between the air and streams flowing in the vortex –  $0,14 \text{ atm}$ ;
- the size of the reactor, in which the vortex operates: diameter –  $3,7 \text{ m}$ , height –  $2,5 \text{ m}$ ;
- power plant requires energy only for running, then it works all the time autonomously, delivers energy to the consumer and provides itself energy to support the work of the vortex, etc.;
- power plant can be placed close to the consumer.
- power plant will provide the house with all the required energy for heat, water, cooking (instead of gas or fuel), and power supply of domestic and industrial devices.



# 3. Vortex oscillatory autonomous power plant of 50 MW.



#### 4. Vortex oscillatory heat pump

<http://www.vortexosc.com/modules.php?name=Content&pa=showpage&pid=82>

#### 5. Vortex oscillatory installation on moisture condensation.

<http://www.vortexosc.com/modules.php?name=Content&pa=showpage&pid=103>

# Contacts



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