



## From Efficient Purification to Sustainable Energy

**Luigi Antonio Pezone\***

Environmental and sustainable energy inventor, Italy

**\*Corresponding author:** Luigi Antonio Pezone, Environmental and sustainable energy inventor, Italy; Email: [Luigiantonio.pezone@gmail.com](mailto:Luigiantonio.pezone@gmail.com)

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This naive attempt failed because there are incredible contradictions in modern society. International law does not allow the patenting of objects or industrial processes that go against the common interests, but the large public energy systems and water treatment plants, damage the environment and health because they do not update the status of art as would be possible. Environmental authorities worldwide pretend nothing, or do not understand. Continue to design the public facilities in the same way; while industrialists should produce commercial machines that produce only local benefits. To large contractors agree participate in tenders for major projects without spending resources for research and patents for new solutions. As a simple citizen of the world, I worry about future generations, not only for climate change are increasing the damage due to floods in some areas and drought in others, advancing at a rate of 12,000 km<sup>2</sup> all'anno but also for population growth that is expected over the next thirty years, when the world population will greatly exceed nine billion. I, who am over sixty years, will not be there, but, barring unforeseen circumstances, there will be my daughters and grandchildren. Without being presumptuous, I think that in my small way I can do something. Not paid by any company and no government, based solely on my experience as a designer industrial, civil, environmental (which I have never been able to plan as I wanted), and simple reasoning that only retirement I could freely, I choose to make the environmental inventor.

This is an activity that you can do only if you are free to think for themselves, without any type of conditioning, with a wealth of experience behind him that can range between many solutions and many ramifications, that the full protection of 'environment entails. I focused

especially on public facilities, purification and energy, not for sadism, but because they are the Achilles heel, not only environmental protection, but also of the world economy. If we do not improve before the public facilities, we cannot improve the private ones from an environmental perspective. This concerns not only the environment but all human activities, since the expansion of the processes of transformation of all collateral activities to those producing consumer goods, services, agricultural and domestic activities, necessary to close the carbon, phosphorus, nitrogen, sulfur cycles, is not possible with the current plant, despite the technological development, if we do not change the sewers, chimneys, water treatments, thermal power, water lifting, which are of the public responsibility. All this implies a profound transformation of society that only those who have designed systems diversified for a lifetime, can glimpse, without wanting to offend, professors scientists, politicians, philosophers, economists, engineers who have dealt very well to individual disciplines. In other words, the inventor of the environment may only do a retiree motivated, yet efficient, that has had such experiences, that have carried out with passion, that waiver of the profit to accomplish what he considers a mission. Too many things have to match, to respect global environmental logic; hardly anyone else will repeat this arduous enterprise. The sacrifices to do are many, the rewards zero, the silences many, the economic return negative, as a designer of systems difficult global market if they cannot realize business associations plant or not you are private corporations that affiancing designers public.

Therefore, the times are very long and I do not pretend to see the fruits of my work. But this work of streamlining of environmental and energy of world's plants, someone had

set, then it will also improve. Current policies of rain funding towards the new energies are other errors that are added to the previous, creating other lobbies that oppose the global projects that no offers, partly because of the inability to get into all the details that are used to embroider a protective net of the environment, but partly the silences are due even to the specific desire to hide failures, which, personally, I do not condemn. To err is human. Instead, Must be condemned the silence that prevent even talk about new solutions that do not arise from the centers of power and by multinationals. Not by chance that I chose the name "environmental inventor". It wants to be a constructive provocation addressed to professionals of public and private, who do not stop to think. Today in the world we have developed good technology, we lack the technical know how to put together globally because every company is specialized in one sector and in one technology. Many often even plants installers are specialized in installation of the same systems. This means that under no circumstances and in no country in the world come true systems that protect the environment globally. In fact, no technology alone can close at the same time organic and inorganic cycles. Therefore, the current facilities producing thermal or purifying incomplete cycles produce environmental damage. These plants would not qualify for a patent, unless the companies that offer them do not prove that the state of the world does not permit the construction of installations able to close completely together organic and inorganic cycles. In fact, to the state of does not exist in the world none complete system from the environmental point of view, not because of technology, but because of who should put together. Ignoring and dropping my four international patents that would close the cycles of which I speak, who received the triple international recognition of novelty and inventive applicability, industrial, to the state of the art is not allowed to proceed and therefore, cannot even issue more strict regulations for the chemical and physical parameters to be observed for the water and the air that is used and is returned to the environment. In particular, to combat global warming, it is important to produce air with minimum content of CO<sub>2</sub> with thermal systems and with cleaner's water alkaline. Instead, in 2015, the thermal plants produce tons of CO<sub>2</sub> and purifiers produce acidic waters (international norms accept the output of water treatment plants is pH 5.5).

All this happens because the designers public and legislators pretend not to understand that the thermal cycles cannot live apart from the cycles purifying water and air and one cannot produce as much CO<sub>2</sub> as how much water it may counteract with a cold process in greenhouses limestone that still does not exist. After the forced resignation of the undersigned to the birthright of such systems, of public utility, they should not be paid,

and even exclusive benefit of a single company, but to the inventors, who do not intend to become entrepreneurs, they should simply grant rights of author, if and when, someone will use his invention, with no time limit, as with writers, musicians, songwriters, and so on. You can bet, however, that despite the worsening environmental problems there will be no rush to implement global systems for the simple reason that international standards cannot be issued if there is not public corporations worldwide that desire to copy, precisely in order to improve the legislation and specifications of public contract, which, gradually, should be transferred to the private plants and civil constructions. Designers private installations is not obliged to overcome the current situation and the governmental regulations, and the patents of the undersigned, have anticipated that both the state of the art, both the existing legislation on plant purifying and energy, but not being able to find private national and international partners for the above reasons, have returned to the sender, who is not seeking more bidders partners, but competent and transparent. La The above cited case, that to the undersigned has cost years of work and his savings, shows that designers and private inventors are powerless in the face of great problems of global warming. Designer's public should be up to the task, not only in terms of technical and scientific, but especially should be aware of the importance of their role also from the moral point of view. They should not blindly obey orders wrong.

They are not soldiers, and not even employees of private companies, but engineers and scientists have a duty to recognize the limits of their knowledge, and to look for synergies in the common interest. Their work should be clear and transparent, not dark and nebulous as the current one. They must give guidelines for manufacturers of machines for the management of the environment so that they are less commercial and more protective environment. They can do it too easy banning solutions that do not connect to thermal cycling and natural biological, that are possible in all places without damaging the environment. Designers of public facilities cannot be limited only to put together machines and thermal cleansing offered by the market, as do the private sector, because it is only a matter of machines but above all, of work cycles that are to be integrated into the environment, which differ from place to place. Until proven otherwise, in an industrial process, first you define the cycles, then you sort machines manufacturers that perform individual operations and processes, then you realize the processing departments, finally settling transport establishments, distribution networks and energy evacuation of discharges, waste, etc. You cannot blame the manufacturers if they sell millions of air

conditioners that exchanging air with air contributes to heat even more the planet. This is the easiest commercial solution to have comfort inside the home.

Who should investigate and impose to manufacturers the structural and sustainable solutions must be public designers or at least recognize those solutions, if someone does the job that they should have done. To whom obey designers public, who do not see, they do not hear, do not correct the inconsistencies plant environment that occur daily in every corner of the world, while in other areas the state of the art advances in supersonic speed? The ministers and heads of government do not realize that they make the figure of incompetents from summit of Kyoto, without never entering into the merits of the solutions? As a technician, having never understood the reasons for such inefficiency in the global aspects of local solutions, I decided to try in retirement, to put on paper the solutions that designers public and lawmakers worldwide do not want or cannot study, although they are distributed in millions in one hundred ninety sovereign states. I believe, after ten years of work and silences collected, have shown that to want is power, even without public or private funding, and I think also to have shown that for reasons obscure the real protection of the environment do not want not even the various associations environmental, non-profit, which collect private and public funds, for general protests, without going into the of the solutions that all countries can copy, not being protected by international patents. Even the scientific press does not accurate information never talking about how we could design the global plants. Global warming is not a task that should solve scientists but an ordinary daily update of the state of the art of technology applied to the environment.

Unfortunately, the industrial mentality theorized by Taylor at the beginning of the last century never entered neither in environmental protection nor not even in energy production. To achieve overall purification cycles is necessary starting from work cycles as in any industrial process. The purifications must start from the same processes that produce pollution, separating at the source that is reusable, what settles, what produces sludge. Polluted air must be used to oxidize the water. Therefore, air and water can and must purify each other in urban areas, industries, where it produces heat energy and fossil organic. These complete systems today do not exist anywhere in the world because no public institution has made world-bearer of global purification that can only be done realizing cycle's common to water and air. The Italian company ENI, one of the few companies that who responded, when he was still a publicly owned corporation, he said he was not interested in my inventions because its facilities comply with the

regulations. Other Public Agencies, smarter, not even respond. In reality, a thermal power plant for thousands of kW although it respected the regulations, only the CO<sub>2</sub> it emits is a legalized crime against humanity. These systems exist in all countries of the world. Probably, for this reason, they continue to remain silent on the global purification. If these systems were designed by designers aware of the importance of their work, they would be placed where there was enough water, not only to cool the turbines and condensers but also to neutralize the CO<sub>2</sub>, producing carbonates in the same cooling water. Which, however, through the system, as if the designers were ordered to disregard environmental issues.

In addition, the heat contained in the cooling waters, would be used to produce biological energy, warming the digesters producing biogas to be distributed to the nearest town. Which city, purifying water and air together, would return to the system in the form of mud some of the energy received and treated water and alkaline produced in the same city in mini greenhouses limestone upheaval even the odor of the fumes and smokestacks part of the gases produced by urban traffic. Obviously, also the great thermal plant should purify the water and air together with the same processes, but given the large amounts of gas to be treated, it is necessary to get where it produces energy even industrial systems which move calcareous material, raise the water to produce rains artificial purifying fumes captured by special chimneys. When I began to study these solutions were already spent a decade since the Kyoto summit, without making clear progress in environmental protection. I thought that only modest successes in the fight against global warming had gained time for the global solutions that I proposed. As in the world, for unknown reasons, not even the United Nations were developing global projects, I thought that my particular experience gained in the industry and the environment, I was enabled to see solutions that others could not see. In fact, my systems are the industrialization of environmental protection. I knew that to be believed I had to develop many projects and then put them together. I did too, but even that is served. Yet, many people understand me, just look at the skills riconosciutemi social network LinkedIn and recently in Xing. Who does not understand me, or did not want to understand, it is the environmental authorities and entrepreneurs of the sector, that should have basic knowledge of plant engineering, chemistry, biology, to address global environmental problems. These skills can hardly be concentrated in one person, but who wants to rule the environment must have at least the ability to understand the vastness of the problems and put together the amount of necessary technical with different experiences and working on common projects. Unfortunately, the

fragmentation of public and private competences cannot cover the scale of global solutions. These cannot be improvised, they have many years of work, because you have to fit the interconnect to allow energy recovery, chemical and biological, that may be resources and instead, today, are dispersed in the environment and constitute the current pollution. To make a global system is necessary to establish the global cycles and achieve the entire territory, creating the appropriate links, but also plants must be designed differently than the current ones, otherwise the connections cannot be made. For example the oxidation tanks should be covered to recover CO2 emissions, NOx, Nox. To produce biological energy is not enough to encourage the processing of agricultural holdings in the energy, because they cannot realize the heat recovery, cannot close all the loops and even achieve an industrial process automated comes to produce even bagged compost. Unfortunately, the current systems cannot, in any way, recover the wasted resources, since the criteria for the design of the plants are completely different. Today we plant the wrong, the wrong size, placed at the wrong place, as if these decisions had been made on purpose to destroy, not to protect the environment. It is necessary to change everything. Continue to waste resources to improve a system that has no environmental logic is another irreparable damage to the environment, the economy and a waste of time that we cannot afford. If those responsible for global environmental not want to do it, they explain the reasons.

If in the world there was a true democracy nobody should be ashamed to confront the system SPAWHE (synergy plants, artificial upwelling, hydroelectric energy) devised a simple retired. The silence of the public is only arrogance, because their depuration plants continue to produce only apparent, regardless of the environment and health of citizens. As the energies or they are pollutants or are not economically sustainable. if I insist it is in everyone's interest, especially after my patents, Synergy Plants, finding international partners, they have fallen in the world and everyone can copy them freely; the Artificial Welling was even more unfortunate, killed in bands from the loss of a registered letter from the Italian post office and by the patent office, which claimed an action that costs six hundred euro, when, finally, a patent pending electronic arrived in cost fifty euro. But ideas, fortunately, the bureaucracy cannot kill. The real risk they run my projects is to be copied only partially, thereby distorting the global aspects to hide the colossal mistakes in the management of the environment. People need to know that it is not true that the industrial progress inevitably leads to pollution of the environment. Pollution is due only to the fact that environmental protection must be industrialized with the manufacturing processes of consumer goods, urban, agriculture and services. But if

these things say a philosopher, a writer an economist, do the applause, invite him to international conferences; maybe even give him the Nobel Prize. So, there are only words, between saying and doing is the distamza of the sea. Those who speculate on the environment may continue to do so safely. If, instead, surprisingly, a technician, unauthorized, puts on paper the comprehensive solutions protection of the environment with all the details to implement them, those who speculate on the environment does not mention it. If is powerful prevents other is talking about. At this silence also participates in the scientific press that is not content of publications it would also test and prototypes from a simple retired. Four original patent applications of the global purification system date from 19/11/2012 but no one knows, although the words "global purification, limestone greenhouses, ponds biological overlapping" are inextricably linked to the name of the undersigned in the national web.

And I'm trying to make them known even in international web through a small website. Too much effort for those dedicated to environmental inventions. It should be the experience of old and young people's health, not to carry them out, but only to make them known. My basic training took place in the automotive industry that is by far the most advanced manufacturing industry in the world in technology and work organization. Certainly, the manufacturing experience influenced me and driven in the study of global solutions, but it also leads to other questions that have no answers from our politicians that they want to compete with the manufacturing industry of the emerging countries, where labor is cheaper and there is less environmental protection. Ignoring unique projects in the world, such as the global purification systems and does not show interest in energy solutions not yet developed, because proposals by a simple retired. My website is not very visible and still has very few visitors but is the only one in the world that speaks of global purification, which entailing an extension of the industrial processing cycles, purifying energy and structural works that do not exist today, it leads automatically to the creation of many jobs.

Consequently, even more equity in the distribution of global wealth. If not enough one hundred and fifty years of experience in industrial management, environment and energy of which myself, has lived almost a third, from one sector to another, what it takes to make it clear to insiders that need correcting mistakes, not hide them, if in addition to the environmental well-being is also wants welfare? Probably, if I was able to do these environmental proposals, it had to the experience of work transversal that led me to cross the watertight compartments between the various branches of industry and various

branches of the environment and energy. How can we expect that the public designers who have never seen close an industrial plant, can understand the kind of organization that serves to increase the productivity, the quality of energy systems and water treatment plants, if not know the organization of industrial work? How can we expect that the public designers who have never seen close an industrial plant, can understand the kind of organization that serves to increase the productivity, the quality of energy systems and water treatment plants, if not know the organization of industrial work? If public designers had used the same professional synergies who have used private designers in the production of consumer goods, environmental protection would be at a much higher level, regardless of the type of energy produced.

I who have lived the experience industrial and environmental, can assure you that from an organizational perspective, it is easier to protect the environment of an entire region that produce a thousand cars a day in one establishment. We cannot keep talking for decades of the reduction of CO<sub>2</sub> without going into details of global solutions, and give the people always partial solutions, such as CCS (carbon capture and storage), that not only is a partial solution, but it also has contraindications expensive and dangerous. All this, just to avoid to continue the combustion cycle over the chimneys, passing through an electrostatic filtration, the contact with the water and calcareous material to produce oxidized water and alkaline and filtered air, without CO<sub>2</sub>. It need to create new energy systems and water treatment plants with integrated urban low-enthalpy geothermal energy, and also so that heating, cooling derive benefit. If in Italy has not been possible to find interlocutors on these solutions, for myself, the only alternative was to seek abroad the interlocutors as the young job seekers.

I invited and invite all, the experts to visit, not to challenge or provoke but to invite them to reflect on and deal with these solutions. I discovered that in the environmental aspect, the world is a small country. As I wrote on the website, the European Commission has launched a public tender for the year 2018 for the urban air filtration, but has ignored that in the years 2012 -2014 I have filed and tried to raise awareness of patents much more complete of simple filtration. There was not used anything three open letters addressed to the Committee and the European Parliament, which continues to offer monothematic solutions, which cannot close all the loops organic and inorganic involved. Today, between one technology and the others there are impassable boundaries: either uses a solution or another, being content with what the market offers. No designers public to design the plants, assemble them only. Who takes care

of environment and energy, continues to produce disciplinary public tenders that cut out global solutions, which are the only cure for the environment. It is not possible purify the environment and produce energy without a capillary organization of the territory concerned, urban, industrial, agricultural (Taylorism applied to the environment). At the official unveiling of the system spawhe, the undersigned when speaks of the first sector SP: "synergy plants", exposes the theory of the concentric and parallel circles system of where the purifications take place gradually from a mini to a larger global system. All that eludes a circle moves to the next circle. All circles have to treat water and air together, without interruption, until reaching the final plant that also produces biological energy. The global purification was not understood anywhere in the world, because he puts his finger on very large wounds that cannot be healed unless it scrapped the large treatment plants, large power plants and does not dissolve the old dilemma of a single or double line sewerage, waste water black and white, which are both wrong, because even the sewers must participate actively in the treatment process water and air.

But in 2015, eighteen years after the Kyoto protocol, public and private companies continue to develop solutions that produce only disconnect and apparent depuration. In reality, transferring the pollution from the local to the global, where it becomes impossible to intervene. The thermal plants emit CO<sub>2</sub> into the atmosphere and the purification, when purify, acidify the water. Obviously, when no purify the situation is even worse because pollution is transformed in other poisons (hydrogen sulfide, sulfuric acid, methane etc). But environmental authorities worldwide, continue to speak only of the reduction of CO<sub>2</sub>, singing victory for the slightest success, without understanding that it is not enough to reduce emissions but we must also make sure that the CO<sub>2</sub> produced do not go in the atmosphere but to combat 'acidification of water and soil, creating greenhouses limestone with artificial rain, wherever is produced CO<sub>2</sub>. Without closing the carbon cycle in plants, including the reduction of CO<sub>2</sub> emissions, acidification of the planet continues unabated, because acidification is a global process that follows a logarithmic curve, compounded by the fact that the CO<sub>2</sub> emitted into the atmosphere cannot produce carbonates needed to counter it. In other words, we have the power to improve the natural processes and instead do the opposite. This is also indicated by environmental solutions described in subsequent system SPAWHE. In fact, the environment can be protected directly by lifting the carbonates dissolved in the oceans of the high pressure. Obviously, with the carbonates are dissolved also many nutrients and then you can kill three birds with one stone: to combat ocean

acidification, create supply of fish populating the areas around the ski lift and create new business activities that, today, do not exist. Apart from this, it is possible to produce hydroelectric power using the energy position of surface water compared to the waters of the seabed in the lakes and seas by means of intubation and the combination of the functioning of a pump and a turbine placed near the seabed. The transformation of potential energy into kinetic energy by the pump and the passage through the turbine, not only produces energy at very low cost, but also brings oxygen into the polluted seabed. The simple energy circuit created ends at the turbine outlet, which is comparable to the outlet of a tube in an open vessel.

It is not true that the water cannot get out of the turbine because exit is opposed against a hydrostatic pressure, equal and opposite, due to height of the basin, as many think, because the water that comes out of the turbine is equipped with a kinetic energy, to which is opposed only the frictional resistance between the molecules. Since water is incompressible, the hydraulic pressure is not opposed if the movement takes place at the inside of the volume of water compressed superficially. It would be opposed only if it is trying to lift the whole section of the basin against the pressure acting on the surface, as occurs in hydraulic lifting on the full section that try to overcome a geodetic difference, but in our case this height difference does not exist and the loss of load is calculated with the formula  $v^2 / 2g$ . For example, with a speed of 2 m / s have a pressure loss of 0.2 m of water column, either by downloading the water to a depth of 10 meters, is at 1000 meters. To stop the water outlet from the turbine could oppose only a flow of opposite water, equipped with the same kinetic energy, but this energy can only produce intubating the water and using a submersible pump which acts in the opposite direction. At the exit of the turbine instead we have a section infinite which cannot acquire a kinetic rate opposite to that present in very small outlet mouth. This prejudice unjustified scientifically, also present in experts in hydraulic circuits, engineers, professors, scientists, has prevented until now to harness the energy of water static position by coupling pumps and turbines, creating immense damage to 'world economy and also the environment, enabling the creation of unnecessary large works only to produce energy. I have not been able to produce prototypes, but to understand the concept is sufficient to imagine a vertical tube in the sea along a hundred meters, under which are assembled in series a pump and a turbine. With the pump stopped, nothing happens because the water is static inside and outside of the tube, but if we run the pump to circulate the water in the pipe and slide off from the turbine, we create a flow in the pipe, separated from the surrounding waters, which uses the energy of position throughout the column of water 100 meters ( $m \cdot g \cdot h$ ) that is transformed into

kinetic energy ( $1/2 \cdot m \cdot v^2$ ). Supposing that exit of the turbine a speed of about 2 m / sec, we have a pressure drop at the outlet of about 0.2 m ( $v^2 / 2g$ ), also considering other loss of load, in the descent tube, we can estimate that the turbine takes advantage of a hydraulic load of 97 m and it have a yield 0.75, produce an electrical output 71.3 kW ( $100 \cdot 97 \cdot 0.75 / 102$ ). If we had not the hydraulic resistance of the turbine, pump rotation, unless it were variable revolutions, it would not be able to maintain the fixed flow rate of 2m / s, and all the energy position of the water would be transformed into kinetic energy, increasing the output speed of up to 20-30 m / s, dispersing all the energy into heat for the friction in the tubes and to the outlet.

The pump working outside curve would be damaged. Even hydropower submerged, whose filing patent dates back to 10.06.2014 has collected only silence and after the bad experience of the patents on the global purification myself not have dared to steal other resources to meager family budget to internationalize also this patent to which the European patent office has recognized the features of novelty and inventive, but not those of industrial application, because, in their view, it looks like the perpetual motion and perpetual motion cannot exist. It 'so difficult to understand that I did nothing but try and find ways to harness the energy of position of the water surface than those that are in the depths? If I had not found it practical evidence and scientific would not have filed the patent. On the other hand, those who discharge polluted waters with underwater pipelines at any depth with no worries of hydrostatic pressure. In that case it does not exist. I think it is now time to overcome prejudice and take advantage of the real hydropower that can be done everywhere, even in the mobile version. On the other hand, those who discharge polluted waters with underwater pipelines at any depth with no worries of hydrostatic pressure. In that case it does not exist. I think it is now time to overcome prejudice and take advantage of the real hydropower that can be done everywhere, even in the mobile version.

Considering that thermal power plants do not exceed the yield of 40%, it is easy to understand the reasons for the superiority of hydropower revised by myself. Probably also the reason why no one wants to be born. In fact, the question that pose to me, most often is: can anyone has noticed such a simple thing? I say that even the other things we propose are simple, yet easier to understand, however, my patents made them void only because the solutions are not very commercial. But how can we expect to protect the environment only with commercial solutions disconnect that cannot follow cycles purifying global? No one answers this question. But in this case it would be the opposite, hydropower, submerged, with

recycling, combined with hydraulic lifting, would cost so little that would disrupt the world economy. I say positively for everyone, even for those who do not wish to understand it, but opponents do not delve into the details to prove that I am wrong. It is sufficient their silence to win because the majority is always right. I'm lucky that nobody forces me to disprove these theories as it was in the days of Galileo Galilei.

If the global scientific community has doubts about the operation of the plant that I propose only based on my experience and reasoning, having no other means, must not remain silent, as did on the global treatment, the welling and artificial energy submerged, must prove scientifically, or practically with the prototypes. Everyone makes mistakes, including myself. If I'm wrong, I could be wrong about everything. It would be an opportunity to question even the purification systems. But if I'm not mistaken, who pays the humanity of those damages for the delay on the application of these solutions very simple that we could make at least half a century, without anybody ever try? The facilities of public utility environmental and energy are designed, not based on economic principles that aim at immediate profit but on principles of long-term. Like all inventions, they must first work virtually in the head of the inventor and on the basis of this operation, to select the machines on the market, or designing new machines. You can also modify existing machines. In the latter case, include pumps with double feed on the suction side which are among the simplest inventions of the world, but also among the most powerful, since it will overcome the force of gravity in the lifting of the water at atmospheric pressure and the pressure static circuits pressurized. This simple invention allows to lift the waters by spending a few cents of the energy in the hydraulic circuits traditional. The work I was most engaged in my life as a designer and installer of equipment, it is the water lifting. If I propose dual fuel pumps it is also an admission of guilt, Having not noticed this solution at least twenty years before. Better late than never. Reflecting in retirement, I believe that all plants of water lifting the world have to be redesigned because they are by far the biggest absorbers of energy on the planet, after transport, having the pretension to defy the force of gravity.

We can, however, even, turn them into energy producers, developing plants always full of water with recycling in an open vessel, where the water to be lifted is inserted in the recycling loop by a suction side of the pump with dual power supply. The pump, with the second suction mouth is always fed with recycled water from the tank top. The ducted down which, by exploiting the energy of position of the water produces energy by means of a pump coupled to a turbine as in hydroelectric submerged.

Therefore also the water to be lifted contributes to the production of energy, as would be added to the flow of the pump which feeds the turbine. When there is no water to raise the production efficiency increases productivity because both are suction intakes are powered by recycled water from the upper reservoir. As stated above, the hydraulic circuit of a plant submerged, in an open vessel, filled with water, it is concluded at the turbine outlet with a pressure loss at the outlet  $v^2 / 2g$  and applies all other considerations reported above. The water level in the upper basin is always constant, since the two bowls are fed simultaneously with water recycling which stands slightly below the level of overflow. When water is drawn from the upper basin, it closes a descent of recycled water from the top and feeds the pump dual fuel (always under the head) from the basin containing the water to be lifted. At the exit of the turbine, located downstream of the pump, which transforms into energy all the load of the water column, consisting of the sum of the entries in the two mouths and bring the pressure of the upper basin deducted of the load losses in the descent tube. Because the turbine discharges in a wide section of pipe directly connected to the upper reservoir, also in this case occur the same conditions of recycling of water in the open tank without lifting, since at least one of the two bowls of the suction pump and the output of turbine have only one level of the tank (suction and discharge), like in hydroelectric submerged. Therefore, it is not necessary to consume energy for lifting but only for the hydraulic resistance of the turbine, the friction with the walls of the tubes and the outlet of the turbine mentioned above. In fact, water that comes out of the overflow from the upper reservoir is surface water; water is not raised from the bottom.

The climb from the bottom of the water takes place with a speed much smaller than the descent and not by varying the water level in the basin, must only calculate the load losses on the walls of pipes and tanks. But all these load losses are chargeable to the energy of position ( $mgh$ ), where "m" is the sum of the flows of the two mouths entering the pump and the turbine and "h" is the distance between the level of the upper reservoir and the axis of the pump, which converts the energy of the static position in dynamics inside the tube of descent of the water. Also in this case the static pressure external to the turbine cannot stop the kinetic energy of the water that comes out from the turbine. Unfortunately, the state of art no advances with virtual project. It needs practical realizations in the territory and factories to advance processes, technologies and legislation. Progress Virtual has already happened because these ten patents, decimated by the indifference of the environmental authorities and entrepreneurs, who have largely lost their commercial value for the same reasons, contain the

experiences of other twenty patents, too, ever made but worked virtually in the mind of the inventor; otherwise they would never be born. Only prototypes realization and making them operate more improvements you can achieve day by day with the actual operation. The important thing is to start with projects that do not have vices of origin insurmountable. Very few vices insurmountable if there is the will to overcome them. As we saw we could overcome the defect source of thermal energy that produces CO<sub>2</sub> through fossil greenhouses limestone, which would change the CO<sub>2</sub> even in resource. But this environmental authorities and entrepreneurs have not wanted to do even experimentally. Thermal power plants have not planned nor spaces and not even the water sufficient to neutralize the CO<sub>2</sub>, but water can be recycled and CO<sub>2</sub> transportation by pneumatic. Want is power. Also counter to the principle of conservation of energy is a vice of origin impassable. But if this principle is invoked inappropriately, preventing testing easy and cheap to produce energy, such as hydropower submerged and with recycling of water, it is not clear. Even the force of gravity seemed an insurmountable limit that has led to create special pumps double volute, multicellular, to increase the flow rates and pressures. It has also been necessary to invent and build engines for thousands of kW-powered 6000 volts to pair these pumps. However, it would be much easier and cheaper to modify the ski lift and carry out simple mono pumps impellers with low prevalence but with double the sucking mouth, as proposed by me. Also in this case it is necessary to proceed to the experiments, which cost nothing.

It is an insurmountable defect production of CO<sub>2</sub> by combustion engines mounted on vehicles even when we get a series engines euro 10 (today we are at euro 6). In fact, these engines cannot bring along a greenhouse limestone and the amount of water needed. Although other solutions do not seem possible after one hundred and twenty years of improvements of these engines. By at least half a century would be possible the realization of the current generators hydroelectric furniture that are based on the system of autoclaves and pumps with double power supply from the suction side precisely controlling the speed and the flow of the pumps (with inverter) and the position of the valves flow control. We all know that the cushions of air from retorts replace the pumps for a few minutes in order to avoid an excessive number of starts of the motors that heat up. Therefore the expansion of the air cushion provides to the water circuit the volume of water accumulated through resting the motors. But when the pressure is lowered and the pump motor starts again, in addition to pump the water also must provide the energy to restore the air pressure in the autoclave. Then the system does not bring tangible economic benefits, but it could take them if we use the same system

to produce energy in place of the water flow. In fact, by releasing the water from the pressurized tank and making it return immediately through another connection to the vessel, the air cushion exerts pressure on the water, but does not expand and the pressure is not lowered, so does not consume energy. In this case the water that comes out from the autoclave provides its pressure energy in a hydraulic turbine that produces electricity, but in the meantime, the same amount of water falls within through another circuit in the autoclave, so the cushion of air does not consumed and does not consumed even water, because the water which discharges the turbine is inserted again into the water recycle pressurized. It is fair to ask what the catch energy is. The tricks are several energy:

- a. The volume of water that enters and exits the circuit must be much lower than that accumulated in the autoclave. It should be the bare minimum to drive the turbine, a small tank of hydraulic disconnection place after the turbine and pump dual supply .
- b. The pump with dual supply inlet, on the one hand is fed at low pressure in the water discharged from the turbine and the other is fed with recycled water with the high pressure of the autoclave, but being provided on the low side pressure of a check valve and being also provided with separator baffles to flow with a shaped profile of the impeller on both sides and, when the pump is rotating in the water at low pressure to high pressure can only add up in the body of the impeller together and return the tank pressurized with the same starting pressure but a range exceeding that returns the water to the autoclave also that generated energy in the turbine.
- c. The third trick energetic is the dynamic application of the principle of Pascal, who has shown that in a closed tank pressure expands in all directions. Dynamic application is equally valid but requires passage sections adapted to transmit the entire pressure as the total pressure is equal to the unit pressure to the section of passage, therefore with a pump sized for the sum of the two flows and a passage section outlet wide enough, which returns to the autoclave can recover the losses of load in the pipe that leads down approximately about 50% of the flow. But this rate can be adjusted with inverter and stepper motors that regulate the speed of the pump and the valve position.
- d. The fourth trick energetic is based on the fact that, since water is incompressible, and being the volume of recycled water (including the one that passes through the turbine) widely lower than the volume of accumulated water, the pump with dual supply separate until the impeller, that works with a low prevalence and low power consumption. This case falls within the closed circulation, where the hydraulic load



on the intake and the discharge of the pump (despite the double-feed) is balanced, therefore, you must overcome only the losses due to friction. You do not have to overcome the external resistances, such as the pressure of the cushion of compressed air, which acts on the water surface.

Whereas with the compressed air we can reach pressures up to 35 bar before the air becomes liquid and other gas pressure can also double, I think that this system can be replaced in a few decades most of internal combustion engines. That has the title of this article I lists the projects patents still alive; most of us are valid only in Italy. All other countries can copy them freely. The last three patents can still be internationalized by the date of 04.09.2016, if partners are interested in doing so. Contrary to patents, little commercial, on environmental protection, which accounted for 90% of my work, these patents energy, have a very high commercial value, because for the first time in the world, it is proposed energy production without any kind fuel, space-saving, low cost of research and prefabrication, no charge for the disposal of special materials, such as solar energy, or environmental impacts, such as wind power. If there is something good in the new energy patents that I suggest it need to know before 09.04.2016, if there is a real desire to grow by private entrepreneurs. Even environmental authorities and entrepreneurs who have been silent on the protection of the environment, if they want manage at least sustainable energy, will come forward.

But, if you want to recover the lost time, as for the protection of the environment, also in this case, the industrialization of the entire system requires large international investments, such as those that have led to the development of heat engines in one hundred and twenty years, the which have come to a standstill that the technology cannot overcome, having the defect source of combustion. Naturally, I speak only to the few who have had the perseverance to get to the end of this long letter. Environmental protection and sustainable energy are made with simple and small details that cannot be connected to synthesize. I have been proclaiming the details because I know that there are many people among ordinary people who can understand them, if the experts pretend do not understand. If we ignore these details we delegate to others to use purification solutions disconnect changing only the form of pollution or dangerous and uneconomical, as the CCS. We delegate produces also dangerous energies that we do not understand, such as nuclear power, which moreover is not even cheap. I agree that according principles of conservation of energy mechanical perpetual motion energetic cannot exist, but the hydraulic, for myself, it is possible, because it would take advantage of the force of gravity, the energy position of surface water, the principle of communicating vessels and the dynamic application of the principle of Pascal, that are not in conflict with the principles of conservation of energy. The mobile version replaces only the atmospheric pressure with the artificial, much more powerful.