

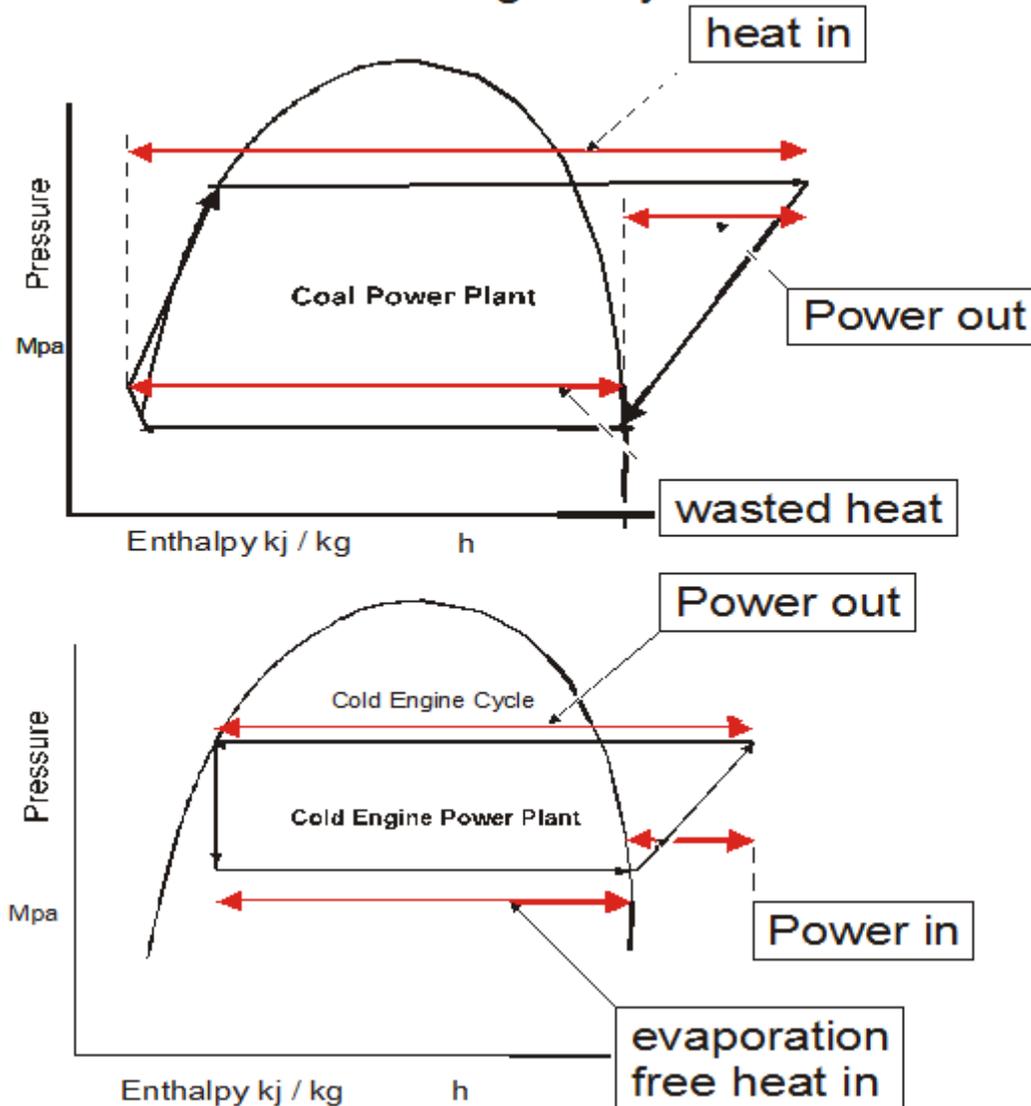
Extract --A White Paper On The Solution to Pollution From Heat Engines

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Basics: – The Difference between Hot and Cold

In thermodynamics there are two cycles the heat engine cycle and the cold engine cycle. Once you choose the cycles everything else falls into place as far as the numbers go. Heat engine cycle are found in boilers, car and jets etc. Cold engine cycles are found in refrigeration, air conditioning, chillers and cryogenics, etc. All heat engines are open systems and emit heat and pollutants into the air. All cold engines are closed systems and emit nothing but cold into the air, no pollutants. All heat engines have approximately a 5 to 1 heat to power ratio. All cold engines have a 1 to 1 heat to heat or power ratio. A cold engine moves heat from point A to point B. A heat engine produce 1 unit of power while releasing 5 units of heat into the air. The solution to pollution is very simple replace all heat engines with cold engines. No pollution and no heating of the environment. Why is this not so obvious? Because everyone in the world understands a car (heat engine) but only the few engineers who design cold engines understand them, less than 1,000 people world wide. For the educated and lay people to even grasp this simple but effective solution we have to go back to basics of hot and cold.

Steam vs Cold Engine Cycle



The above chart is the thermodynamics chart for a heat cycle and a cold cycle. The key difference between the two charts is that a heat engine goes clockwise around a thermodynamic chart and a cold engine goes counter clockwise around a thermodynamic chart. The second key difference is that the heat engine needs a heating element, combustion, and that portion of the system is an open system that emits heat and pollutants into the atmosphere. A cold engine has no heating unit and is contained in a totally closed system, emitting no pollutants into the atmosphere.

Pollution and Health

According to the Canadian Associations of Physicians for the Environment (letter Aug 9 , 2012) “Emissions from coal plants are linked to deadly asthma attacks, cancer, brain damage, acid rain and more. ... Coal is the most climate-destructive fuel on earth. When burned it releases arsenic (a carcinogen), mercury and lead (a brain poison).”“Asthma alone costs the Canadian Health System \$7 billion yearly.”

In “Science and Technology” (Dec 20, 2014) one study estimate “that two important constituents of air pollution kill more than 100,000 people a year in America.”

The cold engine is a closed refrigerator system that emitters no pollution or anything else into the air. Everything is re-circulated, similar to your air conditioning system in your house. The simplest way to view the cold engines impact on pollution is an air conditioning system with a turbine added. A closed system produces absolutely no pollution. **No CO2, no pollutants and no heat into the environment.**

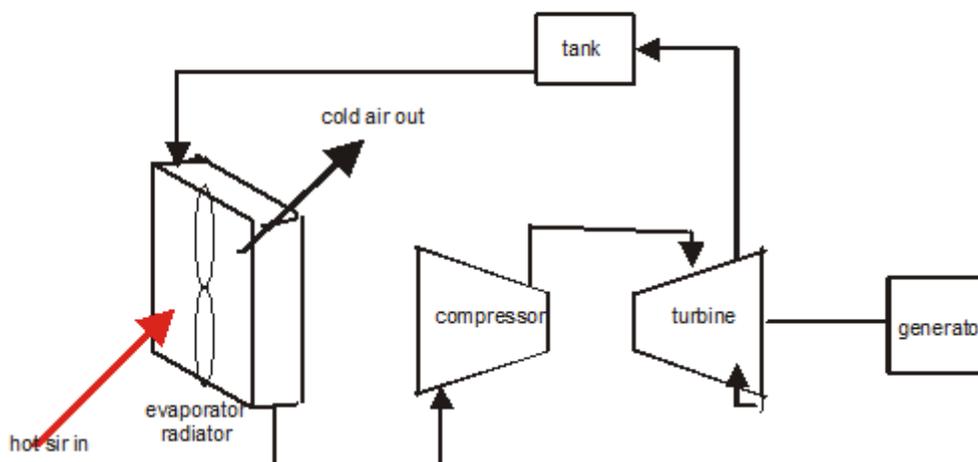
A standard 7.1 Mega watt cold engine power plant will save 52,500 metric tonnes of CO2 each and every year, for the life of the plant, as compared to coal and half of this amount as compared to gas. Over 40 years the saving will be over a 2 Million tonnes of CO2. Think about what 700 Mega watts of cold engine electricity will do over 40 years, a saving of over 200 Million tonnes of CO2. Although a cold engine can run 24 / 7 365 days a year this calculation assumes operating only 18 hours a day.

A New Clean and Inexpensive Energy Source

What is this source? It is air, the low grade heat contained in the air. Weather and wind bring it to every location on Earth. No well, no mine, no pipeline, no high voltage grid is needed to distribute it. Local winds replace it hourly. A new supply is always on the way. How do we take the heat out of the air? We use a heat pump, a refrigeration system and than a turbine to convert the heat into power. This I have

invented and call a Cold Engine.

Cold Engine



A Cold Engine is a refrigeration system, (heat pump) with a turbine added.

How does a Cold Engine work?

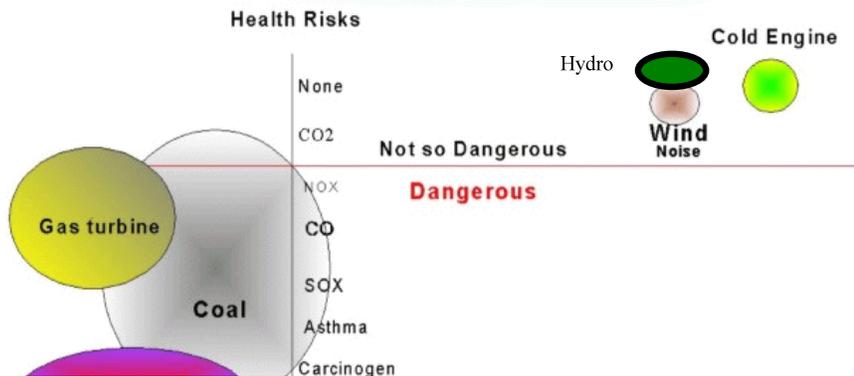
The cold engine has an evaporator similar to a car radiator which sucks in air and blows out colder air. This is where the cold engine gets its heat from the temperature difference of the air, multiplied by volume of air across the evaporator. Later a turbine converts the heat into power.

The Cold Engine Advantage

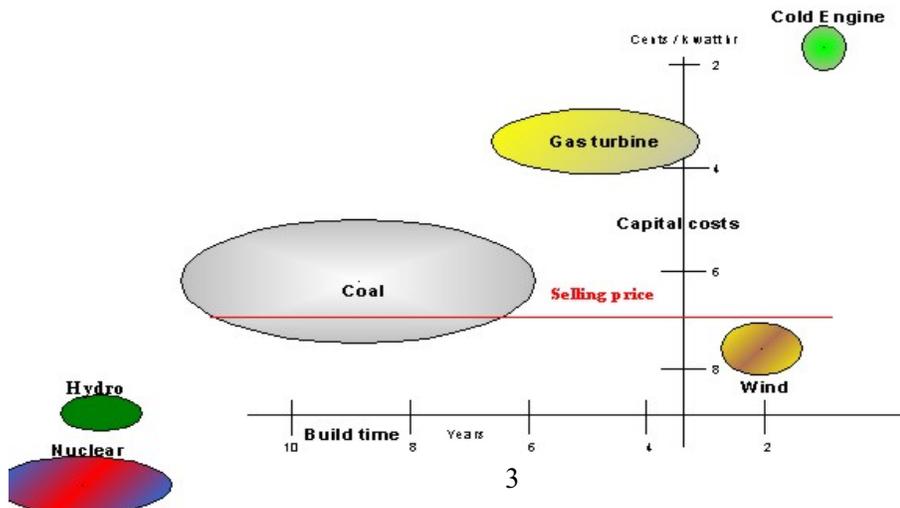
The Cold Engine has three important characteristics. First the heat multiplier is zero The Cold Engine is the only net neutral means of producing power with zero heat impact on the environment.

Second the Cold Engine is a closed system unlike heat engines which are open systems. Open systems release hot gasses and pollutants into the atmosphere. A closed system releases nothing but cold into the air, no pollutants. Also a refrigeration system using the right refrigerant will produce no harmful pollutants even when it leaks. The Cold Engine has a zero pollution impact on the environment. Unlike every other means of producing power.

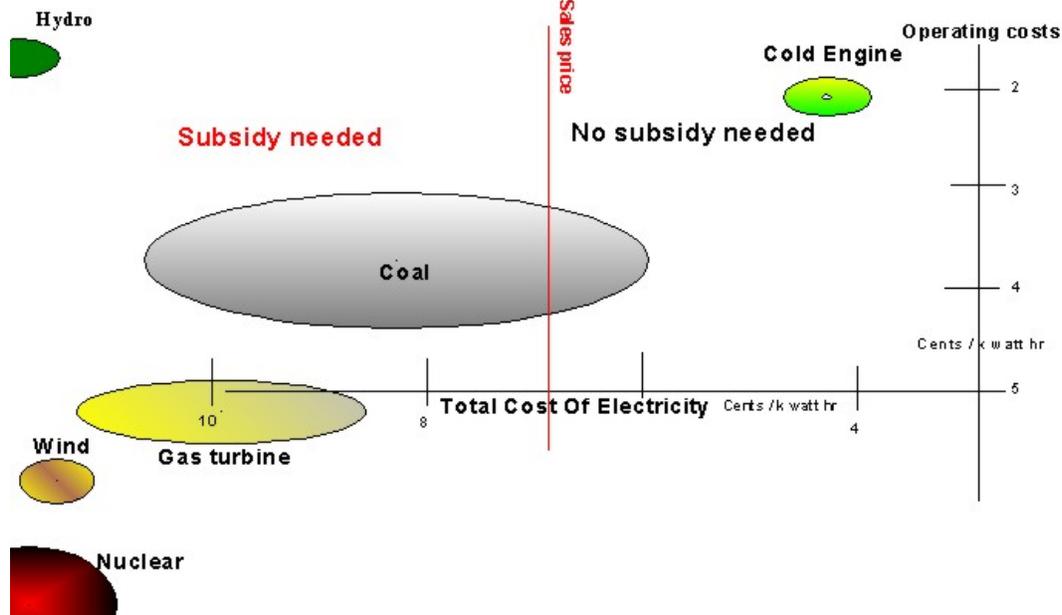
Pollution & Heat



Build Time & Capital Costs



Total vs Yearly Costs



Cold Engine

The cold engine has the lowest erection cost of all power plants. The erection time for a cold engine power plant is less than one year. The cold engine can be started up and shut down at the push of a button, and is remotely operated via the internet. The cold engine requires no staff on site. The cold engine consumes no fuel, and with redundancies can run 24/7, 365 days a year, year after year. Location is not important, a cold engine can be located in the city on a power node, eliminating a need for a HV grid. This makes the cold engine the most reliable and economical power plant available today. The cold engine has one additional advantage, it is portable and can be moved, similar to a small service rig. Try moving a coal fired power plant or even a gas plant?

The cold engine produces NO pollution and NO CO₂. The cold engine is also the only environmental neutral means of generating power without heating the environment. No carbon credits are required. No government subsidies are required. Cost of Electricity (COE) for a cold engine varies between 4.3 cents to 4.6 cents a kilo watt hour. Location is not important. A cold engine can be located in the city eliminating the need for a HV grid.

Savings to Large Consumers of Electricity

You may think that you got a real bargain when you negotiated your electricity contract. You think you are only paying 4 cents a kilo watt hour, that is what your contract says. Think again look for two other add on costs, local distribution, and grid fees. Take your total electricity bill and divide by the total kilo watt hours. What a surprise you are actually paying 18 cents a kilo watt hour. Some bargain?

Here's the real deal, have a cold engine power plant installed in your facility and pay only 8 cents a kilo watt hour in total. This will cut your electricity bill by a factor of 2. Savings can even go higher if you are willing to fund the power plant yourself.

The Pollution Problem From Power plants

Now we are in a position to analyze the pollution problem. The real pollution problem is that heat engines emit hot gasses and pollutants into the air. These gasses are N₂ 85%, CO₂ 10%, and water vapor 5%. The hot gasses heat the atmosphere and the pollutants causes health problems even death. The gasses (CO₂ included) are not the problem like the environmentalist say, they are simply the delivery boys delivering the heat and pollutants into the atmosphere. Pumping CO₂ into the ground is a total waste of resources. Let nature recycle the CO₂.

Climate Change

Environmentalists claim that it is the heat engine that are causing climate change. Heat engines do release mammoth amounts of heat into the environment but nowhere near the amount of heat / energy which the Earth is currently channeling into larger storms, earthquakes, volcanoes and the extension of the ring of fire through the arctic, and other earth movement like the shifting of the magnetic pole. These are all worry some problems for mankind but have nothing to do with heat engines. Heat engines produce heat, the energy needed to produce real climate changes is electromagnetic and comes from the Earth. By observing the ever increasing number and size of every kind of storm it is obvious these Earth changes are accelerating and have nowhere yet reached their crescendo.

Climate Change Mechanism

The primary issue in understanding climate change is to realize that the molten core of the earth is spinning and contains molten iron. As such it is a dynamo collecting mammoth amounts of energy from the electromagnetic radiation from the sun and other stars. The earth can store this energy, but it will radiate out and be absorbed by all plants, animals and living organisms (for their use). The Earth will convert some of this energy into heat in the core, also into earthquakes, volcanoes, as well as activating the ring of fire, and creating larger and larger storms. This excess energy will not lie dormant, the earth will channel it into its usual activities but only on a larger scale like mammoth storms and large earthquakes. The earth is building up to a time of catastrophic earth changes. These changes can be redirected and moderated saving millions of lives with a little effort and mental focus by mankind.

The understanding and solution to this problem need to be discussed and understood with the general public. First the process the earth uses to get these energies needs to be understood. The only person with this knowledge is the author of this paper. Second, since energy cannot be destroyed or created, it needs to be redirected. Again the author of this paper is one of a few thousand people who know how to redirect electromagnetic energy. This process is actually available to be learned by anyone from the internet, but no search engine will find the correct information. In California a mental focus technique has been employed by thousand's of people for over 30 years to moderate the impact of earthquakes in that state. This technique has proven quite successfully, to date.

The Solution To Man Made Pollution

The solution is simple, reverse the cycle and use a closed system. The cold engine cycle removes heat from the air at the plant site. The cold engine cycle is a closed system which eliminates any pollutants from being emitted into the atmosphere.

Turbo Gen Power's Cold Engine Power Plant

David Graham the Author of this paper and the inventor of the cold engine is building a cold engine power plant through his company Turbo Gen Power. This is a three stage project and the company is seeking funding. Turbo Gen Power is able to accept capital through a non profit corporation. Details available by calling David at 780 450 2574 www.turbogenpower.com . The first stages of this project is as follows.

One A: Proof of Concept.

Cost; \$3,717,800.

Duration; 4 months.

Outcome; proof of concept.

Outcome; 2.0 mega watt generator connected to the grid.

Revenue Stream; \$1 million each year

What will a cold engine power plant look like? A cold engine power plant is not limited to a fuel supply or a water source. A standard cold engine power plant will net 7.1 Mega watts output to grid. A cold engine power plant can be built into a mechanical floor of a high rise office or apartment building. A cold engine power plant added to an existing large office complex would look something like this, The evaporators would be outside, ten feet off the ground on steel posts and be four feet wide by sixteen feet long and sixteen to twenty feet high. The compressor, turbine, generator, transformer and related equipment would be on a cement slab about the size of a two car garage. This slab can be inside the building or on the lawn outside the building. If outside the slab would be housed in a wood or steel building.

Question can this technology be applies to smaller engines such as car and trucks? The theoretical answer is “Yes” but not with today’s technologies. The cold engine as designed by these engineers employs of the shelf technologies and is very bulky and heavy. Even a small cold engine will weigh a few tons and be much larger than a car. Ammonia technology will have to be reinvented in size and weight before it will be practical for use in the automotive industries.

What is a Expert?

An expert is a person with general subject matter knowledge and specific knowledge in the speciality. Experience in the speciality and success in working in the speciality is absolutely necessary. Without experience or success in the speciality the person will never be an expert.

Few environmentalists have any engineering or real scientific training. Professors at Universities have no professional experience in any field outside of teaching. By this simple definition no environmentalist or professor is an expert, in any subject. This raises two questions. Why is no engineering and thermodynamics taught to environments? What good is an expert with no subject matter knowledge, no real experience and no real success?

Miss Diagnosis of the Pollution Problem

The environmentalists, lacking thermodynamics, do not believe that heat and the pollutants are the problem. They believe that the gasses are the problem and wont to pump CO2 into the ground after it has lost its heat and pollutants. That is like shutting the barn door after the horses have left.

None of this is rocket science. It is basic common sense. So where or how did the environmentalist screw up so badly? I checked every conclusion the environmentalists reached all of them were wrong. Then I looked into their education, and could find no science or engineering training.

Specific False Conclusion Reached by Environmentalists.

- When the ice in the arctic and antarctic melt the oceans will rise. (Archimedes Principle says no rise?)
- The only heat source to the Earth is sun light. (The largest heat source is the molten core. Sunlight is only a small fraction of the electromagnetic radiation from the sun to the Earth)
- There is no drain (sink) in the Oceans. (Wrong evaporation is a drain (sink))

- Radio active forcing is a scientific law because we the environmentalist voted it in. This is defiantly NOT science. (Why not vote out gravity as a law of nature and step off cliffs?)
- Man made CO2 is the major cause of environmental warming i.e the green house effect. No science, hypothesis or study has ever been undertaken to show this to be true. (No research just their opinion with no supporting evidence??)
- Pumping CO2 into the ground will help solve this problem. (More likely it is a total waste of money?).
- Carbon taxes will cause companies to produce less CO2. (Wrong companies simply pass the cost on to the public).
- Man's heat engines are the major cause of environmental warming. (One of many sources, we need to identify the other large sources, example earths molten core, electromagnetic radiation from the sun, etc)

The Problem Behind The Problem – The “Straw Problem”

Eventually I began to wonder about environmentalists education. What were they trained in? Upon digging deeper I found all the important engineering needed to adequately do their job was never taught to them in their university curriculum. What environmentalists appear to have been taught instead is statistics, politics (polling and propaganda), religion (cults and true believers). Environmentalists even admit to this in their definition of radio active forcing, **“Most (a poll) scientists believe (a cult of true believers) in radio active forcing as a law of science.” (Is this how science creates a laws by a vote not a proof?)** This definitely is NOT science. To be an environmentalist you have to be a true believer and join their cult.

About this time I began to wonder how the universities of the world had screwed up so badly? I began to look for other areas of inadequate university education. I found it elsewhere; in particle physics, in astronomy, in the social science, even in medicine. Now I wonder about the value of universities and their role in society? Who oversees the Universities? What checks and balances do we have on their squandering of public monies? This led me to quantify or define what constitutes an expert? Then I realized few university professor have the qualifications of an expert in any subject area. Professors do not even study their craft - teaching? What is their craft if not teaching? What does a professor do other than teach? And where was he trained to teach? The answer is the professor has no training as a teacher.

Most professors have never worked in industries or even in the environmental field. Few professors have any relevant experience or success in their chosen field of expertise. This is a major problem for society if we cannot trust our universities to adequately do their job. When addressing the environmental problems the universities, with no engineering experience or analytical abilities, created a “straw problem”, CO2. and then invented a phony law to support the “straw problem”, radioactive forcing.

Unfortunately attacking the “straw problem” is a waste of money and will do nothing for the real problem. The most amazing feat was to get ALL the universities of the world to buy into the “straw problem” and phoney science. This is the most amazing feat performed by academia in the past 100 years. Historically there has only been one greater deception propagated on mankind. That was when the Pope set himself up as being the only person allowed to talk to God and become the SOLE arbitrator of ALL subjects including science.

Who bought into the “Straw Problem”?

Large business bought in because they saw money in it. Politicians bought in to cloak themselves in platitudes of motherhood, and attack their opponents. Bureaucrats bought in to increase the size and power of their bureaucracies. Environmental professors bought in to maintain their job, and in doing so

they had to create false facts and false studies. Then they made their students into true believers, shouting the virtues of their phoney science, while shouting down all opposition. Universities bought in, a second time, to raise revenues by teaching a NEW false science. There is only one motivating force driving this deceptive process – GREED.

Conclusion

There are four problems that need to be addressed. **First the “straw problem”** what are we to do with the phony science and phoney experts created and supported by the universities? What do we do to oversee the universities do their job correctly? **This is the greatest problem facing mankind today.** Without solving this problem our universities will become nothing more than a colossal money pit, squandering more and more resources, creating confusion and fostering dissent while supporting their position with elitism, coverups, false facts, false studies, and phoney science. This is a very depressing future, should we allow our universities to continue to take us down his road. The tail should not wag the dog. Something radical needs to be done to correct this situation.

The second is man made pollution. Are governments of the world ready to move on a realistic proposal to solve the pollution problem that arise from power plants and save their economies \$ billions in health, electricity fees, subsidies, and hundreds of thousands of lives? Or are the people and government willing to continue to let the power plants continue to cause illness to millions and death to 100,000's of people each year while the environmentalists attack the “straw problem”?

The third problem in government corruption. In the United States, a Plutocracy not a Democracy, 400 of the wealthiest citizens in America have collected a Billion Dollar war chest to fight against carbon taxes and any attempt to replace heat engines. Their first move was to corrupt every Senator and have each sign a contract to vote “NO” on any carbon tax bill. It is clear that this group of Plutocrats are quite willing to employ “assignments” as a legitimate tool in their fight to maintain the status quo. For this reason I have no intention of ever taking the cold engine into the United States.

The cost of a real solution to pollution from heat engines is a small fraction of the wasted yearly expenditure of attacking the “straw problem” and subsidizing the electrical, coal, oil and gas industries. As of this date Jan 2015, the only company on the leading edge of a realistic solution to pollution from heat engines is Turbo Gen Power. The simplest solution is to properly fund Turbo Gen Power’s research. The cost of the solutions is \$1.00 per person in each and every country. A very small price indeed.

Forth is earth changes. Does mankind wish to continue to experience ever more powerful storms, and earthquakes, and watch millions of people die? Or are they willing to learn. to grow, to expand their consciousness? If so there are hundreds of people in North America who can teach them how to moderate the impact of earth changes in their communities. Who are these people and why have they not spoken up? Answer -- they know from history that Government will make them disappear.

The Author – David J Graham a P. Eng. (Ontario) now retired, has an Electrical Engineering Degree from U of A (Edmonton), a Power Engineering Technologist from SAIT (Calgary), A Computer Programing Degree from St. Lawrence College (Kingston), and a Masters Degree in Applied Mathematics (electromagnetic). A career as a management consultant in the Federal Government in Ottawa in Program Evaluation and Review. A career as a successful inventor and small business man. David invented the cold engine and his company Turbo Gen Power is seeking funding to proceed with the solution. David lives in Edmonton and can be reached at 780 450 2574 -- email graham777@shaw.ca – the web site is www.turbogenpower.com . David’s passion and other inventions are in the field of Energy Medicine which he has pioneered. David’s web site on energy medicine is easiest located by doing a Google search

“Edmonton energy medicine”.

The Ask

How can you help? You can donate to the David Graham Research Inc a nonprofit company. Or if you have computer programming skills I am in need of a crowd funding program. Companies like Kick Start do not have the guts to tackle real problems and their rules are not a match for my needs. If you have experience in crowd funding promotions you can help me put together a crowd funding promotion. If you are very wealthy and wish to help solve the man made pollution problem you can donate a large sum. If you do so I would not recommend discussing it with your billionaire friends.