

## Global Crisis

Fire storms devastate California while Scientist offer dire predictions and Trump fiddles. Category five typhoons and hurricanes ravage through Asia and America. Extreme heat waves, floods and unusual weather conditions strike randomly. **The climate is warming and mankind is contributing  $7.6 \times 10^{20}$  Joules each and every year.** All this while World leaders stick their head in the sand and pursue phoney solutions.

## Are we Solving The Wrong Problem?

Environmentalists Dr. Debra Davidson article on Climate Change she stated that, " Global warming is caused by greenhouse gasses (GHGs)". Her article can be found on the City of Edmonton web site. This is the consensus reached by the UN and the Scientific community.

**This premise is flawed.**

## Mankind's GREATEST FEAR, is pursuing the WRONG solution.

If world leaders pursue the WRONG problem and WRONG solution, mankind will suffer the consequences of FALSE HOPE, followed by natural disasters like; fire, floods, and famine. The only question then is how many humans will survive. This has been a reoccurring theme though out history. For example the bubonic plague wiped out 30% of Europe's population. This time we may be looking at a significant percentage of the worlds population being adversely affected.

Dr Davidson has absolutely no knowledge and no training in applied thermodynamics which is the study of heat flow. Neither does the world scientific community. This is an unfortunate situation where prominent scientist are commenting (lying) on a subject in which they have absolutely no knowledge, no education, no training and no experience. Applied thermodynamics is taught to engineers only. Why scientist do NOT take this course is beyond me. Maybe it is because they are "elitist" and "arrogant", and look down their noses at Engineers.

Professional Engineers with a background in applied thermodynamics and person licensed under the Boiler Act **are the only people allowed by law to design, build and operate large heat engines or large refrigeration system (cold engine). Scientists and environmentalist are excluded from these activities - with good reason.**

Yet it is the ignorant scientists and environmentalist who advise world governments on the heat change in the environment and possible solution to climate change. In a paper entitled "*Lies, Smoke and Mirrors of the GREAT SWINDLE*" I have identified the fifteen lies scientists and environmentalist have sold the world on this subject. This article can be found on the web at [www.turbogenpower.com](http://www.turbogenpower.com) As long as scientists and environmentalist continue these lies the world will never solve this problem. The intense politicking of scientists and environmentalist have caused the world to waste billions of dollars on meaningless and useless "*voodoo solutions*". Nothing more than tax payer money pits. No wonder a backlash from the public is developing towards the *voodoo scientist* who are spending tax payers money on *scientific* money pits. No wonder the debate never ends. The public is not as ignorant or as stupid as the scientific community assumes they are.

Scientists have sold themselves on their *voodoo science* and have become a *cult of True Believers*. Unfortunately once a subject because a *belief system* the *true believers* no longer listens to reason and is no longer capable of putting their premise to scientific scrutiny. No wonder Trump calls their dire pronouncements *false news* and dismisses them out of hand. These *Lies* by implication taints and discredit the good data that meteorologist collect on the subject. Unfortunately meteorologist have not bothered to study applied thermodynamics either.

## The Real Heat Problem

To address the real heat problem, one must start with measuring the heat mankind is spewing into the environment in a year. This simple concept and calculation appears to be beyond the ability of modern scientists.

Let a thermodynamic engineer provide you with this information.

In the following table the “Quantity” data came from the US DOE web page in 2017. “Heat” for oil and gas is the Quantity multiplied by the specific heat per unit as found in a good Applied Thermodynamic text. Electricity Heat is the “quantity” multiplied by the “Heat Multiplier”. The Heat Multiplier used is the weighted average for the different heating sources. The “Heat Multiplier” is defined as the ratio of heat released into the environment for one unit of electricity produced. A detailed report on power sources and the heat multiplier can be found on the web at: <http://www.turbogenerator.com/pollution.html>

**2016 World --- Man Made Heat —**

Energy Source	- Quantity -- US DOE web page	Heat Released
Oil	81 million bbl per day	$1.8 \times 10^{20}$ Joules per year
Gas	3,552 Billion cm	$1.24 \times 10^{17}$ Joules per year
Electricity	24 trillion kilowatt-hours	$5.8 \times 10^{20}$ Joules per year

**Total heat is  $7.6 \times 10^{20}$ .** How big a number is  $7.6 \times 10^{20}$ . Will it is 7.6 multiplies by 10 with 20 zero after it. Here is the full number. 760,000,000,000,000,000,000,000 Joules per year. As you can see man is heating the environment at an astonishing rate. Conventional solutions like hydro, wind or solar will not even drop a zero off the heat released. Herein lies the dilemma all heat engines heat the environment.

**The Answer Is the Cold Engine**

Since all conventional electricity sources including hydro, solar, and wind heat the environment, what can we do to solve this problem? Lets start with basics. A thermodynamic process travels clockwise (heat engine) or counterclockwise (refrigeration) around the thermodynamic chart. All heat engines travel clockwise so why not reverse the cycle and create a cold engine? By reversing the cycle we have a cold engine, for example a refrigerator. Any good applied thermodynamic text like “Applies Thermodynamics for Engineers “ by Eastop & McConkey - Chapter 16 - Refrigeration, and web page [www.turbogenerator.com](http://www.turbogenerator.com) will explain refrigeration in detail. The best reference for a cold engine theory is the White Paper on the web page [www.turbogenerator.com](http://www.turbogenerator.com) . The direct web address for this paper is; <http://www.turbogenerator.com/A%20White%20Paper%202.pdf> .

**What is a Cold Engine?**

A cold engine is a refrigeration system with a turbine added to drive a generator. The advantage of the cold engine are numerous; runs 24 - 7 - 365 days a year. low cost electricity, no pollution, no heat to the environment, no CO2 produced. The major advantage of a cold engine is that its heat multiplier is ZERO. How is this possible if all heat engine release heat? A cold engine like a refrigerator extracts heat from one location (ice box) and deposits it in another location (the kitchen).

A cold engine extracts heat from the air at the plant site to generate electricity and releases the same amount of heat back into the air when the electricity is consumed in the city. SIMPLE but it takes knowledgeable Engineers to understand and build one.

Unfortunately the modern scientific mind is incapable of understanding this simple concept . The question is why? In a refrigerator engineers make heat flow uphill. This according to scientists is theoretically impossible. Why would scientists say such an obvious lie and expect people to believe them? Scientists reached this conclusion because of their superficial understanding of applied thermodynamics which states that “heat flows from the hot source to the cold source”. Yet engineers make heat flow up hill in refrigerators every day, by using their more thorough knowledge and understanding of thermodynamics. Any study of climate change requires a thorough knowledge and understanding of thermodynamics. Scientists totally LACK this knowledge and have NO experience

of applied thermodynamics to comment relevantly on climate change.

For their total ignorance of thermodynamics and many other reasons Scientists should not be involved in discussing climate change. Their gross ignorance forces them and their followers to become *True Believers*. *True believer's believe in Voodoo Science*. *True Believers* solve nothing!

### **The Green House Effect**

Now let a Professional Engineer who also holds a Boiler Ticket explain to you in lay man terms how the green house effect works and give you the solution to man made heating of the environment. The solution is quite simple - **replace all heat engines with cold engines**. To understand how this works you need an entry level course in applied thermodynamics which can be taken at any accredited engineering school in the world. For those of you with a engineering background I would recommend two references. First the text "*Applies Thermodynamics for Engineers*" by Eastop & McConkey - Chapter 16 - Refrigeration, and web page [www.turbogenerator.com](http://www.turbogenerator.com) which explains the cold engine.

For the lay man I am writing this article to give you a somewhat clearer understanding of the REAL problem and solution. Let me assure you there is a REAL problem, Man is heating the environment to excess. **Man is heating the atmosphere at over  $7.6 \times 10^{20}$  Joules per Year. This is horrendous.**

The green house effect is named after a man made green house. A green house is a glass building with plants inside and a heating source. The glass shields the inside from the extreme weather of the outside while allowing sun light in. The heating source provides additional heat when sunlight is insufficient. Simple. Now the green house effect of Mother Earth starts with the electromagnetic shield combined with the ozone layer to shield and protect the earth from the harsh solar winds similar to the glass in a green house. Within Mother Earth there are both heating sources (10) and sinks (6). A list of these sources and sinks can be found on web page <http://www.turbogenerator.com/polution11.html>

Now the gasses inside the green house are the same as in the environment; ethane, methane, nitrogen, oxygen, carbon dioxide and water vapor with other trace gasses. The purpose of a green house is to make plants grow. This is done when the plants use sunlight (a power source) and photosynthesis to convert carbon dioxide into fiber (carbon) and oxygen.

Plants and trees need carbon dioxide to flourish This is another concept not understood or mentioned by scientists.. **This is also where the first major man made environmental problem raises its ugly head. Heat engines heat the environment.** Plants and trees need carbon dioxide at ground level and at ambient (low) temperatures. Cars and other vehicles do not produce carbon dioxide that plants can consume. Power plant exhaust high temperature gasses; carbon dioxide 10% nitrogen 85% and water vapor 5% at the end of a tall chimney which is too hot for plants to consume. These hot gasses rise into the atmosphere and cool (by transferring their heat to cooler gasses thereby heating the environment) while mixing with water vapor and then when cooled precipitate down as acid rain. **Another Major man made problem - acid rain.**

Plants and trees convert carbon dioxide into fiber and oxygen for man and animals to consume. Man and animals convert oxygen and protein into carbon dioxide and fertilizers for plants to consume. Destroy the carbon dioxide you also destroys mankind. It is a symbiotic cycle.

**The green house gasses are not and have never been the problem.** It is the heat that the gasses carry high into the atmosphere that is heating the environment. Getting rid of the gasses solve nothing, it is voodoo science. This is where the scientist changes into voodoo science. Heat flow cannot be stopped it simply flows from the hot source to to a cooler element. This simple concept appear to be incomprehensible to the scientist. He should have taken a basic course in engineering thermodynamics. Unfortunately the scientists have macho political clout

to shout down his nay sayers and continue to lie to the world. As trump would say “The Lying Scientist” and their “False News”.

### **How does carbon relate to heating the environment**

Carbon is related to heating the environment because carbon dioxide is a byproduct (exhaust) from heat engines. Although carbon dioxide is often, but not always related to an energy source. Carbon dioxide is not the problem, it is the heat that is the problem. There are three sources of electricity that do not produce carbon dioxide but heat the environment. These three sources are hydro, solar and wind. Consider hydro, solar and wind, there is very little heat released at the plant site but when the electricity is consumed the electricity is converted into heat. Each has a heat multiplier of ONE. This is the first law of thermodynamics *Energy cannot be created or destroyed*. Energy can only flow elsewhere or be converted into another form of energy.

### **The Elephant in the Room**

Governments have to fund all power plants. No enterprise can do it on its own. It is the governments responsibility to provide reasonably priced electricity to its citizens. **When it comes to governments funding power plants there is an elephant in the room.** The elephant is not corruption, pork barrel, or incompetence, although these all play a major factor. It is the hidden cost of replication and expansion. This is the Elephant in the room. Also known as the Government Dilemma (Electric).

Eventually all aging power plants have to be replaced and growing demand requires additional plants. This is the Elephant in the Room, an ever growing but hidden financial obligation. There is ONE and only ONE way to eliminate the Elephant and that is to invest in power plants that can replicate themselves. Only the cold engine power plant can do this. If governments invest in the cold engine the Elephant will slowly but surely shrink, eventually disappearing. If governments invest in conventional power plants the Elephant will grow and consume ever larger and larger parts of the budget. This dilemma Ontario is currently facing.

**Governments have a choice to spend Billions in kicking the ever growing ball down the road for future generations. Or to shrink the ball and eventually resolve this problem.** A year ago I sent an extensive package to P M Trudeau on this subject and solution. Unfortunately he and his advisors are not interested in REAL solutions. The government responded by rewriting the grant criteria for clean energy and in the rewrite eliminated the cold engine and all viable business ventures. Turning the clean energy program into another government fiasco, more accurately a money pit. Trudeau and his advisors may be socially astute but industry inept as we have seen with the west coast pipe line fiasco. Trudeau’s government has produced nothing more than billion dollar money pits which delays real progress on industrial development.

It would appear that Trudeau and his advisors are incapable of grasping or understanding the concept of the Elephant in the room.

### **The Solution**

Lowering the production of carbon dioxide hides the real problem in Canada since 50% of Canada’s electricity comes from hydro. Why **because hydro electricity heats the environment**. Hydro’s availability varies greatly from site to site, for example site C on the Peace river is only available 50% of the time according to B C Hydro. The Solution is not hydro, solar or wind or any pork barrel tax but the cold engine which has a heat multiplier of ZERO and can run 24 / 7 - 365 days a year. A cold engine is available 100% of the time, unlike Hydro.

Hydro also comes with huge construction costs and expensive grid fees. Construction costs of hydro are not included in current Hydro electricity pricing in most provinces because the capital costs are never repayed to the provinces. Grid fees are so high in B C, Ontario, and Quebec that they are rolled into the general electricity prices in place of construction costs. Grid fees are estimated to be over 80% of the electricity bill. The cold engine on the other hand has no grid fees because it is built in the city.

## Companies, Cities and Municipalities

Cold engine electricity is so economical that the return on investment to any company or city that chooses to reduce its carbon foot print will be 8 % or higher. If that company were to choose to reinvest its profits back into cold engines its investment would quickly turn into a snowball rolling down a mountain side.

The gross profits constitute a good percentage of the revenues, If a Canadian Government, were to provide funds for its development and assign it share of the profits to cities and municipalities, these cities and municipalities would receive a revenue stream estimated at \$13.5 billion yearly, once the conversion to cold engine electricity is complete.

Companies and Cities can begin this process themselves with as little as a 6 million dollar investment. Currently Cities provide 90% of all services received by citizens but only receive 10% of all taxes collected. The cities are in far greater need of funds then the Federal government.

**The solution will not come from governments like Ontario, Alberta, BC or even Ottawa. These governments have no idea what they are doing and listen only to voodoo scientists and lame brain popular ideas which are nothing more then Billion dollar money pits.**

The solution will come from small demonstrable cold engine power plants. Over time these cold engine power plants will become more numerous and replace all existing sources of power. The question is “Why?”

- Cold Engine Power plants in the city will **save grid fees of about 25%** of the electricity bill.
- Cold Engine Power plants in the city will produce **huge dollar returns for the city**, lowering taxes.
- Cold Engine Power plants will **eliminate carbon production from electricity**.
- Cold Engine Power plants will **reduce to ZERO the heat** from electricity production.
- Cold Engine Power plants will **eliminate outages** from grid failures and power shortages.
- Cold Engine Power plants in the city will **lower electricity prices** to business and households.

## Costs

What will it cost a company or a city to begin this process? Answer about \$6 million for a small 4 Mega watt cold engine power plant. A full sized cold engine power plant will cost 9 million and produce 8 to 9 Mega watts of power. Once the city sees the return from a cold engine electricity it will proceed as fast as possible to power the whole city with cold engine electricity.

## Environmental Benefits      What will cold engine electricity do?

Company or City Proposal	What will cold engine electricity do?			
	plant size	4 Mega watts		8 Mega watts
Costs		6 million	9 million	
carbon reduction		35,040	70,080	tonnes / year
heat reduction		$1.26 \times 10^{14}$	$2.52 \times 10^{14}$	Joules / year
return at 8%		\$480,000	\$720,000	

## Conclusion

Cities and companies who desire to save the planet can begin by building cold engine power plants. This will reduce the cost of electricity and eliminate grid fees (25% savings). If the returns from the investment are used to build more cold engines, slowly but surly the city will convert over to the only truly clean energy source - cold engines. Companies can also save distribution fees if the power plant is built on or near their premiss, for a total saving of about 50% in their electricity bill.

David Graham P. Eng. And his company Turbogenpower can be reached in Edmonton at 780 450 2574.